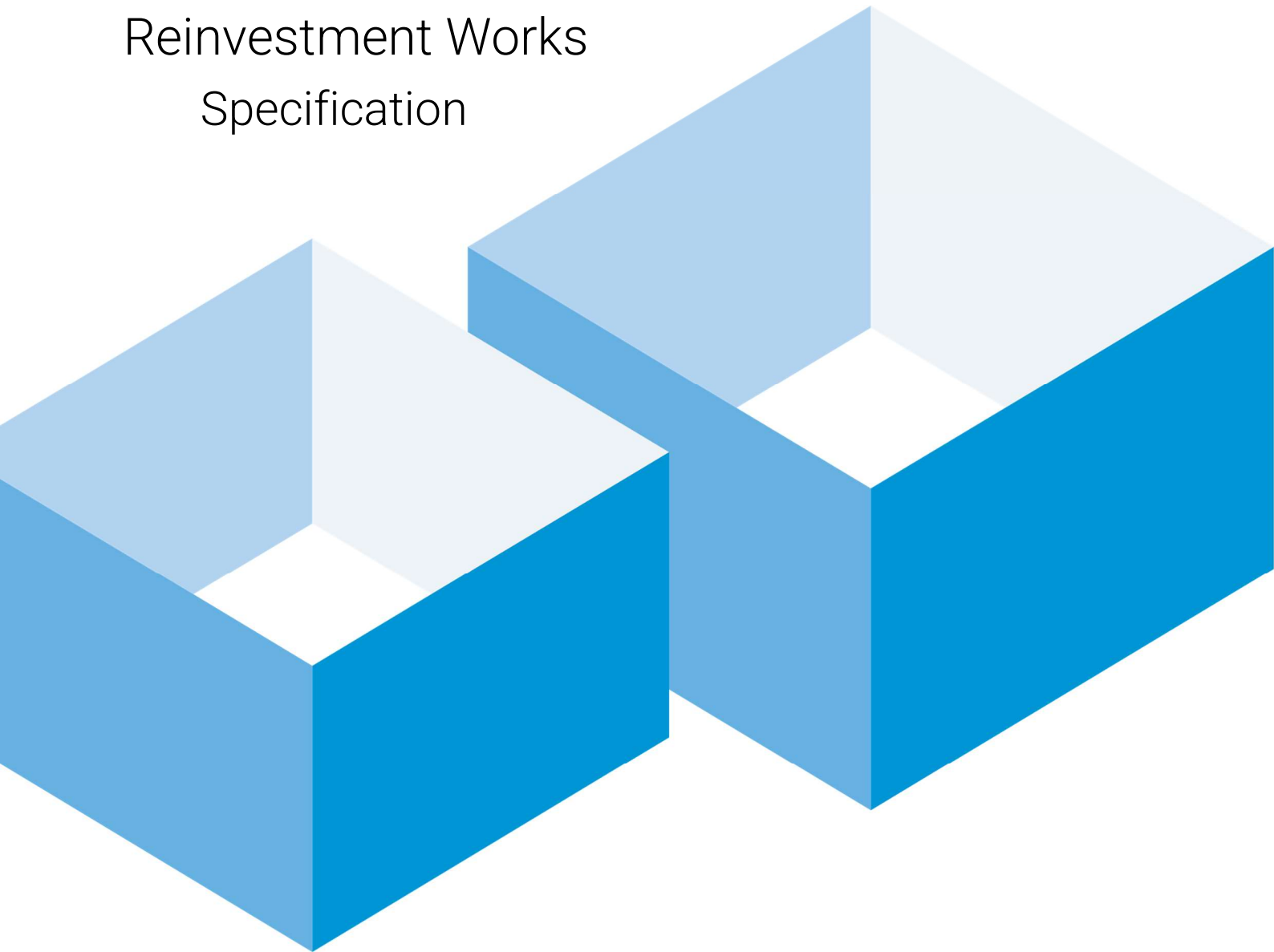




M3NHF Schedule of Rates

VERSION 8

Planned Maintenance and Property
Reinvestment Works
Specification



Your challenges
expertly solved
in partnership

Published by M3 Housing Ltd, Three Kings, 23 Commonsides East,
Mitcham, Surrey, CR4 2QA
www.m3h.co.uk

ISBN: 978-1-908409-03-4 | M3NHF Schedule: Planned Maintenance and
Property Reinvestment Works

Version 8 revised and updated in 2023 by Rand Associates Consultancy Services Ltd.

Incorporating the NHF Form of Contract 2023
ISBN: 978-1-908409-49-2

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M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Introduction

Folkestone & Hythe District is situated on the East Kent coast approximately 75 miles from London, covering an area of approximately 363 sq. kilometres. The main population of the District is split across four major urban areas. Folkestone is the largest town in the District, Hythe the second largest and then New Romney and Lydd. The remainder of the population is spread across a number of rural settlements and villages. The rural landscape is diverse – the District's Hillier northern parishes falling predominately within the Kent Downs Area of Outstanding Natural Beauty and the southern parishes forming the Romney Marsh which is bordered by a Saxon Way coast line.

The District is administered by the Council and within its boundaries is a total of about 1880 houses/bungalows, 1500 flats/maisonettes/bedsits, and about an additional 215 leaseholders properties.

Scope of Works

The scope of the Works under this Contract comprises the following:

Major Works may include:

- Renewal of fascias, cladding and rainwater goods;
- Repointing, re-rendering and other structural works;
- Renewal of communal entrance doors;
- Works to achieve "Decent Homes Standard";
- Works to achieve "Secure by Design"
- Upgrading of external communal areas;
- Renewal of fencing;
- Renewal and/or upgrading of roads, paving and other hard surfacing;
- Cyclical Redecoration and pre-decoration repairs;
- Cleaning of external elements: cladding, rainwater goods, soffits, fascias, windows, doors.
- General tidying up of external areas;
- Other planned Maintenance Works;
- Providing reports or Structural Surveys and remedies.

Orders may be placed in respect to Works to:

- Tenanted Properties;
- internal and external Common Parts (including garages, bin stores, and the like);
- managed leasehold Properties;
- sheltered housing Properties;
- market rent Properties;
- other Tenures.

Properties are likely to be occupied by Customers of the Client whilst the Works are undertaken. Works may take place to any or all of the Properties.

The Client expects the same high levels of satisfaction with the Works to be enjoyed across all ethnic groups. This will be the subject of regular review throughout the Contract Period and action will be required where necessary.

The Contract is to maintain all Properties owned or managed by the Client. This includes the Properties of any other organisation that the Client manages now or in the future and any additional Properties the Client subsequently acquires by development, stock transfer or purchase.

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MAJOR WORKS - SCOPE

Typical Scope of Works for Planned Maintenance Contracts:

Major Works; Cladding, Rainwater goods, fascias, repointing/rendering and other structural works

Including any design, installation, construction, repairs, maintenance, renewals, reinstatement or replacement Works or Works of improvement ordered in accordance with the provisions of the Contract which have been "packaged" into a pre-planned programme of works in respect of:

- **Fascia, cladding and rainwater goods renewals; and**
- **Repointing/rendering and other structural works;**

The Service Provider shall liaise with the Client's Customers in order to gain access into the identified Client's Property to undertake the following:

1. Initial survey/measure of Property/Properties as necessary for the Works including establishing if necessary both existing and post works HHSRS ratings as applicable;
2. Ascertain any Customer's choices in terms of materials and design layouts, colours etc., including all ancillary items and confirm in writing to Customer;
3. Produce computer aided design drawings of components and/or installations to be renewed etc., schedules, costings etc., and presentation reports, all signed off by Customers as agreed for access etc. Provide Client's Representative with 2 copies of all documents and obtain approvals for such.
4. Programme all Works including involving and discussing with Customer groups, individual Customers, leaseholders and suppliers as necessary;
5. Undertake the approved Works in accordance with the Contract;
6. Attend and make good any defects identified during and upon completion of the Defects Liability Period;
7. Provide data in formats to be specified to facilitate the updating of the Client's attribute, stock condition, HHSRS and SAP Energy Rating databases following completion of works to each scheme;
8. Monitor quality of workmanship against benchmark dwellings, involving the supply chain partners in monitoring the performance and identification of future innovation etc.

Major Works; Estate works

Including any design, installation, construction, repairs, maintenance, renewals, reinstatement or replacement Works or Works of improvement ordered in accordance with the provisions of the Contract which have been "packaged" into a pre-planned programme of works in respect of:

- **Fencing renewals;**
- **Roads and paving upgrades and renewals;**

1. Initial survey/measure of Property/Properties as necessary for the Works including establishing if necessary both existing and post works HHSRS ratings as applicable;
2. Ascertain any Customer's choices in terms of materials and design layouts, colours etc including all ancillary items and confirm in writing to Customer;
3. Produce computer aided design drawings of components and/or installations to be renewed etc, schedules, costings etc., and presentation reports, all signed off by Customers as agreed for access etc. Provide Client's Representative with 2 copies of all documents and obtain approvals for such;
4. Programme all Works including involving and discussing with Customer groups, individual Customers, leaseholders and suppliers as necessary;

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5. Undertake the approved Works in accordance with the Contract;
6. Attend and make good any defects identified during and upon completion of the Defects Liability Period;
7. Provide data in formats to be specified to facilitate the updating of the Client's attribute, stock condition, HHSRS databases following completion of works to each scheme;
8. Monitor quality of workmanship involving the supply chain partners in monitoring the performance and identification of future innovation etc.

Major Works; External thermal insulation and render

Including any design, installation, construction, repairs, maintenance, renewals, reinstatement or replacement Works or Works of improvement ordered in accordance with the provisions of the Contract which have been "packaged" into a pre-planned programme of works in respect of:

- **External thermal insulation and render waterproofing systems;**
 1. Initial survey/measure of Property/Properties as necessary for the Works including establishing if necessary both existing and post works HHSRS ratings and preparing pre and post works Energy Performance Certificates as applicable;
 2. Ascertain any Customers (Customers group, individual Customers and leaseholder's) choices in terms of materials and design layouts, colours etc including all ancillary items and confirm in writing to Customer;
 3. Establish availability of grants or funding contribution towards the costs of the Works, and process all grant applications on behalf of the Client;
 4. Ascertain whether "Building Control" approval will be required for the Works;
 5. Produce computer aided design drawings of components and/or installations to be installed etc, schedules, costings etc., and presentation reports, all signed off by Customers as agreed for access etc. Provide Client's Representative with 2 copies of all documents and obtain approvals for such;
 6. Programme all Works including involving Customer groups, individual Customers, leaseholders and suppliers as necessary;
 7. Undertake the approved Works in accordance with the Contract;
 8. Attend and make good any defects identified during and upon completion of the Defects Liability Period;
 9. Provide data in formats to be specified to facilitate the updating of the Client's attribute, stock condition, energy SAP ratings and HHSRS databases following completion of works to each scheme;
 10. Monitor quality of workmanship involving the supply chain partners in monitoring the performance and identification of future innovation etc.

Major Works; Cyclical Redecoration and Pre-decoration Repairs

Including redecoration of existing decorated surfaces to windows, doors, fascias, rainwater and sanitary pipework, walls, soffits, to external fenestration and common parts, together with redecoration to bin stores, garages, cycle sheds, fencing, railings, screens, gates and the like to boundaries, paths, drives and communal areas, staircases, access decks/balconies ordered in accordance with the provisions of the Contract which have been 'packaged' into a pre-planned programme of works. To include the cleaning as specified of the external surfaces of any PVCu components or products e.g. windows, doors, soffits, fascias, cladding and the like that may be encountered.

Pre-decoration repairs includes for any installation, construction, repairs, maintenance, renewals, reinstatement or replacement Works or Works of improvement that is ordered in conjunction with cyclical redecoration and is required to be undertaken in conjunction with or before the cyclical redecoration can be undertaken.

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Associated Works includes any installation, construction, repairs, maintenance, renewals, reinstatement or replacement Works or Works of improvement (other than that defined as cyclical redecoration or pre-decoration repairs) that may be ordered in conjunction with cyclical redecoration or may be ordered isolated from any cyclical redecoration works.

The work includes but is not limited to;

- Overhaul of rainwater goods including renewals;
- Overhaul of external doors and windows including associated joinery repairs and renewals prior the decoration of external and internal communal area shared hall and stairways etc;
- Decorations to external elevations including associated joinery and carpentry repairs/renewals;
- Works of renewal, improvement or repair not associated directly with Cyclical Redecoration of the component renewed or repaired;
- The provision of appropriate access to external elevations where necessary, to comply with current Health and Safety regulations;

Liaison with the Client's Customer's including leaseholders in order to gain access into identified Client's property to undertake the following:

1. Initial survey/measure of property as necessary for the Works;
2. Ascertain Customer's choices in terms of colours, materials, designs including all ancillary items (such as door/window types, ironmongery) and confirm in writing to Customer;
3. Produce computer aided design drawings if required, specifications, schedules, budget costings etc., and presentation reports of agreed colours, materials, designs, all signed off by Customer's as agreed. Provide Client Representative with **2** copies of all documents and obtain approvals for such;
4. Product costings in a format that will assist the Client in preparing individual dwelling Section 20 costings in respect of leaseholder involvement;
5. Programme all Works including liaising with Customer's, leaseholders and suppliers as necessary;
6. Undertake the approved Works in accordance with the Contract;
7. Attend and make good any defects identified during and upon completion of the Defects Liability Period

SPECIFICATION OF WORKMANSHIP AND MATERIALS

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GENERAL

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GENERAL

Applicability

- 001 This initial general section applies to all subsequent sections of this Specification of Workmanship and Materials (**"this Specification"**).
- 002 This Specification is drafted as a series of instructions that the Provider must ensure are complied with in relation to the Works. Each instruction includes all tasks necessary to comply fully with the instruction and the Schedule of Rates item(s) to which it relates.
- 003 The Schedule of Rates amounts, as adjusted by the Provider's tendered Rates where applicable, and the tendered Prices include for carrying out all tasks required by this Specification. No further payment is due to the Provider in respect of any such tasks beyond the payments provided for in the Schedule of Rates, the Price Framework and the Price Schedule.
- 004 Specifications across several trades may be relevant to each Schedule of Rates item. The Provider must comply with all requirements of this Specification applicable to the specific type of Works to be undertaken.
- 005 References to Paragraphs and Sections in this Specification are to the applicable Paragraph and Section of this Specification. If any contradiction appears within the Specification sections, Schedules of Rates, the Client's Policy documents etc., the most rigorous standard takes precedence.

Standards of workmanship and Materials

- 006 Carry out and complete all Works as required by this Contract including:
- in accordance with Law including Health and Safety Law and Building Safety Law;
 - in accordance with all applicable Codes of Practice;
 - in accordance with Good Industry Practice;
 - in accordance with the Client's Policies;
 - in accordance with any specific requirements for those Works in this Specification; and
 - to the satisfaction of the Client's Representative.
- 007 To the extent that the standard of any Works has not been specified in this Contract, agree the relevant standard for the Works with the Client's Representative before their execution. Where particular Works or working methods are to be "approved by" "agreed with" or are indicated to be "subject to the approval of" the Client's Representative, give the Client's Representative adequate notice when such approval or agreement is needed and retain evidence of all approvals given, and items that have been agreed, by the Client's Representative.
- 008 To the extent that it is necessary to Design any aspects of the Works, in preparing those use the reasonable skill, care, diligence and expedition as would be reasonably expected of a prudent experienced contractor with Design obligations having experience in carrying out projects similar in size, scope, nature, complexity and value to the Works.
- 009 Maintain all existing lines and levels at all times and carry through new Work to the same lines and levels unless otherwise Instructed by the Client's Representative.

European and British Standards & Codes of Practice

- 010 Ensure all Works undertaken and all Materials used in those Works comply with all applicable Standards and Codes of Practice that are current at the time of their use.
- 011 References in this Specification of Workmanship and Materials to any Standards and Codes of Practice are to be construed as references to the version current at the time the Order is undertaken.

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- 012 Where a specific Standard or a Code of Practice is referred to, this sets out the minimum acceptable standard of Materials or workmanship.
- 013 Any requirement in this Specification of Workmanship and Materials to use Materials defined by reference to a specified Quality Assurance Scheme, British Board of Agrément Certificate, Standard or other approval, may be satisfied by compliance with an equivalent international Standard.
- 014 A Provider offering any Materials on the basis of compliance with any such approval or international Standard shall notify the Client's Representative of such substitution in advance of placing any order for those Materials and provide (in English) technical or other details of the approval or Standard and its qualifying tests.

Materials

- 015 The Client wishes to standardise the use of Materials across its Properties. This is in order to simplify parts requirements and van stock loads, to improve its repairs processes and to reduce maintenance costs. Wherever possible, match all Materials used to materials currently used in the Properties, particularly in terms of their parts requirements and repair procedures. In this Specification the Client has set out details of its current Materials to which the Provider is required to standardise.
- 016 Where this Specification indicates that Materials are to be "Approved by the Client's Representative", provide samples of the proposed Materials to the Client's Representative for Approval. Any Materials that comply with the functionality and compatibility (including aesthetic compatibility) requirements of this Specification may be proposed. No further approval is required for any Materials listed in this Specification as being the Client's currently used Materials. The purpose of the Client's Representative's decision on the use and approval of such Materials is to ensure that they meet the Client's requirements for functionality and compatibility. The decision of the Client's Representative on this is final.
- 017 Where this Specification requires Materials to be matched to existing Materials or finishes, this match is subject to the Approval of the Client.
- 018 Do not use any Prohibited Materials in carrying out the Works. Prohibited Materials are those materials which are generally accepted or (having regard to Good Industry Practice) are reasonably suspected of:
- being harmful in themselves;
 - being harmful when used in a particular situation or in combination with other Materials;
 - becoming harmful with the passage of time; or
 - being damaged by or causing damage to the structure in which they are to be affixed.
- 019 Materials are to be regarded as harmful if, in the context of their use in the Works (whether alone or in combination with other materials) they:
- are prejudicial to health and safety;
 - may pose a threat to the structural stability or the physical integrity of any Property; or
 - could materially reduce the normal life expectancy of any part of the Property.
- 020 Sustainable Timber: All timber and wood derived products referred to throughout this document and which are supplied to the Client, or used in the Works, must be procured in accordance with all applicable Law.

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- 021 CE/UKCA Marked Products: All products referred to throughout this document and supplied to the Client, or used in the Works, must be supplied with a Declaration of Performance (DoP) and carry the appropriate CE/UKCA conformity assessment marking.

Performance Standards on the CE/UKCA mark must comply with relevant Building Regulations where required.

The CE/UKCA mark must be fixed visibly, legibly and indelibly either to the product or to a label attached to the product. If this is not possible or not warranted, then it must be fixed to the packaging or within the accompanying documentation.

The DoP must be made available by the manufacturer (this may be via a website).

- 022 Use, fix and apply all Materials strictly in accordance with the manufacturer's recommendations, directions, instructions or technical data sheets.
- 023 Participate in joint initiatives with the Client and other contractors to establish supply chain agreements.
- 024 Where appropriate suggest (economically viable) amendments to this Specification where those amendments may lead to an improvement in environmental performance or sustainability.
- 025 At the Client's request provide all information the Client reasonably requests regarding the environmental impact of the supply and use of any Materials the Provider selects for use in the Works.
- 026 **[optional clause]** If the Provider considers that decanting elderly, vulnerable, people with disabilities and other occupiers and carers from a Property whilst intrusive Works are undertaken or whilst the Works disrupt washing and/or sanitary facilities, provide (at no extra cost) the following facilities:

Decant Mobile - Daytime Decant

Temporary Accommodation conforming to all applicable Standards.

Daytime facilities (where agreed before the start of the Works in the form of either a touring caravan used outside homes between 9am and 5pm and then removed, or a mobile unit located in a fixed position supplied with at least the following:

- External door;
- Bedroom;
- A toilet compartment with WC suite, wash-handbasin and shower unit;
- A flued gas fire/electric heater (note: gas is the preferred option);
- A flued gas fire multi-point water heater or electric water heater;
- Electrical installation complying with the IET Wiring Regulations;
- Mattresses with fireproof removable covers (which shall be thoroughly cleaned and changed after each decant);
- A cooking appliance and fridge;
- Warning notice for health and safety advice to users;
- Fire blanket (to be located by the cooking appliance);
- 1kg-powder fire extinguisher (to be located by the main door);
- Smoke Detector;
- Carbon Monoxide Detector; and
- User's handbook (to be used by Provider when demonstrating the mobile to new occupants).

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Also supply the following:

- A security cabinet for 2 (two) 13kg (thirteen kilogramme) bottles of propane gas if gas is to be used (red gas bottle);
- Entrance steps, handrails, level access ramp (maximum 1:12) to be provided for people with a disability to the satisfaction of the Client's Representative;
- Water supply; and
- Mains sewerage connection (where feasible).

Daytime decanting must be as agreed with the Customer and the Client including as to the hours required for the daytime facility, its location and siting. The siting of decant facilities must not inconvenience car parking and/or access to adjoining dwellings.

Laundry and storage facilities, telephone connections [or] television aerials [or a dedicated car parking facility] are not required in a daytime facility *[Client to edit]*.

A chemical toilet compliant with all Standards for portable chemical closets may be used where no sewer connection is feasible.

Ensure that all Temporary Accommodation, including its location, installation and checking, complies with Health and Safety Law.

Comply with any Code of Practice for the transportation, siting and commissioning of caravans published by the National Caravan Council.

Agree the location of the day-time mobile decant facility with the Client's Representative.

Service checks are to be carried out by suitably qualified personnel after each decant. These checks should cover:

- Electrical;
- Gas;
- Water;
- Fire prevention equipment;
- Warning Notices; and
- Steps and Handrails.

The facility is to be cleaned between each change of user.

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The following notice not less than 200mm x 130mm with the heading printed in red is to be fixed in a prominent position in the Temporary Mobile Accommodation.

ADVICE TO OCCUPIERS

Ventilation

Do not obstruct the ventilators, which are fitted; your safety depends on them.

In Case of Fire

Get everyone out.

Turn off the outside gas valve

Raise the alarm and call the Fire Brigade

Do not stay behind to put the fire out yourself

Do not put yourself at risk

Fire Precautions

Children - must not be left alone in the caravan.

When cooking never leave a cooker unattended

Do not use multi-adaptors.

If you smoke use metal or glass ashtrays-not plastic.

Make sure cigarettes are put out properly

Do not smoke in bed.

Means of Escape

Make sure you know the location and operation of the emergency windows and doors,

Keep door and window keys handy.

Keep all escape routes clear.

If there is smoke, keep low where the air is clearer

Do not go back into the caravan.

Combustible Materials

Keep them clear of all heating and cooking appliances.

Fire Fighting Equipment

In addition to the 1kg powder fire extinguisher by the main exit door, a fire blanket is provided next to the cooker. Make yourself familiar with the instructions on your fire extinguisher and fire blanket and the fire precautions arrangements on site. Do not stay behind to put the fire out yourself. Do not put yourself at risk.

The use of chip pans in mobiles is strictly prohibited.

Permit to Work Certification

- 027 Comply with any "permit to work system" notified to the Provider by the Client's Representative and ensure that no Worker undertakes any Works covered by any "permit to work System" without a permit having been issued by the Client's Representative.

Access

- 028 Ensure that a risk assessment is undertaken and a method statement is provided to the Client's Representative detailing the means of access to undertake all Works requiring access at heights including for inspection and testing.

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SPECIFICATION – VERSION 8**

Firestopping

- 029 Ensure that all holes for cables, pipes etc., in the structure of any Property formed or drilled by the Provider are fire-stopped in accordance with Building Safety Law.
- 030 Report immediately to the Client's Representative where existing holes for cables, pipes or service media in the structure of any Property have no or inadequate firestopping, giving the detailed location of the hole and providing digital photographs.

EXCAVATION AND EARTHWORK

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EXCAVATION AND EARTHWORK

Excavation

- 001 Leave excavations for the foundations of walls and similar structures exposed until they have been inspected and approved by Building Control. Do not fill in trenches or holds or cover up the concrete until dimensions have been taken by the Client's Representative.
- 002 Refill any excessive depth to the proper level with concrete (*Gen1*) as specified in the "Concrete work" Section. Excavate the formation level to such further depth as the Client's Representative Instructs where the bottom of any excavation is found to be soft or otherwise unsound. Fill any extra depth with concrete (for which additional payment is to be made).
- 003 Any rubble, salvageable building materials and antiquities from the excavations belong to the Client.
- 004 Check in advance the location of any pipes, cables or any other services when excavations are to be carried out.

Weed killer

- 005 Use an organic weed killer approved by the Client's Representative and applied in accordance with the manufacturer's technical data sheet. All products must be used and distributed by or under the direct supervision of a person holding an appropriate Certificate of Competence.
- 006 All material used, and all methods of application and tank mixes shall be in accordance with Health and Safety Law.
- 007 The application of weed-killer is to be confined to the areas on the Area Map appended to the Contract Details. The Client's Representative must be provided with written records showing dates of application, the location of the Works, the chemical and the rate of application.
- 008 The use of residual herbicides on hard surfaces is strictly prohibited.

Disposal of excavated material

- 009 Remove from site any surplus excavated material.

Filling

- 010 Use only clean subsoil free from vegetable soil, roots and rubbish for backfilling around foundations or to make up levels, lay in layers not exceeding 200mm thick and consolidate each layer as required.

Pumping and baling

- 011 Keep the bottom of excavations free from storm or percolating water by pumping or other means during and throughout the progress of the Works until their completion.

Supporting excavations

- 012 Support all excavations using earthwork supports to ensure the safety of Staff and the Works to the satisfaction of the Client's Representative.

Work in cold weather

- 013 Protect excavations against freezing. Do not use frozen materials for backfilling.

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Hardcore

- 014 Use for hardcore only hard dry crushed brick or hard broken rubble stone, or limestone quarry waste, free from mud, dirt, clay, ashes, clinker, asbestos, timber or any other deleterious matter, broken to pass a 75mm diameter ring in all directions, well rolled and consolidated in 100mm layers.
- 015 Crushed rock under solid floor slabs, sub-bases and road bases shall be sound clean rock when tested in accordance with applicable Standards, and shall not be frost susceptible. Sample and test crushed rock in accordance with the Standards applicable before the Works and provide evidence of the tests to the Client’s Representative on request.
- 016 Crushed rock sub-bases material to roads and shared surfaces are to be graded in accordance with the following table:

100mm CRUSHED ROCK:RANGE OF GRADING FOR SUB-BASE MATERIAL	
BS Sieve Size	Percentage by Mmass passing.
125.00mm	100
100.00mm	90-100
90.00mm	82-100
37.50mm	25-52
28.00mm	10-30
14.00mm	0-10
6.30mm	0-6
3.35mm	0-2

- 017 Crushed rock road-base material to roads, shared surfaces, bases to footpaths/paved areas are to be graded in accordance with the following table:

65mm CRUSHED ROCK:RANGE OF GRADING FOR ROAD-BASE MATERIAL	
BS Sieve Size	Percentage by mass passing.
65.00mm	100
50.00mm	67-100
37.50mm	52-70
28.00mm	30-45
14.00mm	10-28
6.30mm	6-10
2.36mm	0-6
1.16mm	0-2

- 018 Crushed rock under solid floor slabs is to be graded as the table in clause 018 above, spread and levelled in layers not exceeding 150mm thick, with each layer thoroughly compacted with a vibrating roller, vibrator plate compactor, vibro tamper, power rammer or other approved means.
- 019 Crushed rock filling behind retaining walls is to be accordance with clause 016 above, graded in accordance with the table below and thoroughly compacted to the satisfaction of the Client’s Representative.

BS Sieve Size	Percentage by mass passing.
63.00mm	100
37.50mm	85-100
20.00mm	0-20
10.00mm	0-5

- 020 Sub-base material is to be spread evenly on the blinded formation. Where the total depth of sub-base is less than 250mm, this shall be spread in one layer so when it is compacted the total depth shall be as required or specified within a =10mm to -30mm tolerance and compacted in accordance with the table in clause 23 below.

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021 Road base material is to be laid in layers, the minimum compacted depth of material in one layer shall be 110mm and the maximum compacted thickness in one layer shall be 225mm, compaction shall be in accordance with the table in clause 20 below, the finished levels of the compacted road base material shall be within a +10mm to -15mm tolerance.

022 Base material to footpaths and paved areas shall be spread evenly and compacted with a roller of not less than 2.5 tonnes weight and blinded with just enough stone dust or fine granular material to give a close textured surface.

023 The compaction requirements for Granular sub-base and Road base material are as tabled below:

Type of compaction plant	Category	Number of passes of compaction equipment for layers not exceeding the following compacted depths			
		110mm	150mm	225mm	250mm
Smooth-wheeled roller (or vibratory roller operating without vibration)	Mass per metre width of roll: Over 2700kg up to 5400kg	16	N/A	N/A	N/A
	Over 5400kg	8	16	N/A	N/A
Pneumatic-tyred roller	Mass per wheel: Over 4000kg up to 6000kg	12	N/A	N/A	N/A
	Over 6000kg up to 8000kg	12	N/A	N/A	N/A
	Over 8000kg up to 12000kg	10	16	N/A	N/A
	Over 12000kg	8	12	N/A	N/A
Vibratory roller	Mass per metre width of vibrating roller: Over 700kg up to 1300kg	16	N/A	N/A	N/A
	Over 1300kg up to 1800kg	6	16	N/A	N/A
	Over 1800kg up to 2300kg	4	6	10	N/A
	Over 2300kg up to 2900kg	3	5	9	10
	Over 2900kg up to 3600kg	3	5	8	9
	Over 3600kg up to 4300kg	2	4	7	8
	Over 4300kg up to 5000kg	2	4	6	7
Vibrating plate compactor	Mass per sq. metre of base plate; Over 1400kg/sqm up to 1800kg/sqm	8	N/A	N/A	N/A
	Over 1800kg/sqm up to 2100kg/sqm	5	8	N/A	N/A
	Over 2100kg/sqm	3	6	10	N/A
Vibro-tamper	Mass: Over 50kg up to 65kg	4	8	N/A	N/A
	Over 65kg up to 75kg	3	6	10	N/A
	Over 75kg	2	4	8	N/A
Power rammer	Mass: 100kg up to 500kg	5	8	N/A	N/A
	Over 500kg	5	8	12	N/A

Blinding

024 Use for blinding only sand, fine gravel, pulverised fuel ash or other fine materials that are free from dust, spread in one layer, and compacted, well rolled and consolidated., Stone dust blinding to roads and sub-bases is to be compacted to the required thickness by 4 passes of a smooth wheeled roller weighing not less than 8 tonnes.

025 Do not use shale either as hardcore or blinding to hardcore.

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026 Use sufficient blinding material to fill the surface to provide a close smooth surface for hardcore.

Topsoil Areas

027 Grade subsoil to landforms in appropriate weather conditions to avoid compaction and to suitable concave/convex profiles according to the Client's Representative's requirements. All landforms shall be suitable compacted.

028 Excavate locally as necessary, areas of thicker topsoil. Small planting beds located in general landscape areas may be excavated separately at a later date.

029 Grade subsoil to achieve the specified finished levels of topsoil especially at kerb edges.

030 Loosen subsoil up to a minimum depth of 150mm immediately prior to top soil, obtain approval from the Client's Representative for the sub-base before any top-soiling begins on site.

031 Undisturbed topsoil which is to be landscaped is to be prepared as necessary for cultivation operations, in particular:

- Where the ground is hard, break up with a ripper;
- Where the ground is covered with turf or a thick sward, plough or dig over to the full depth of the top soil;
- Treat with a suitable herbicide to prevent seeding of weeds

Imported Topsoil

032 Topsoil is to comply with applicable Standards; general purpose grade, it must be free from aggressive weeds and hazardous foreign matter, with less than 10% volume of stones, maximum diameter 50mm, maximum organic content 35% by volume/minimum 10% and a pH range 5.0 to 8.2.

033 The areas to be top soiled shall be cultivated to break up any compaction before being covered by topsoil 400mm thick, provided and spread by the Provider. The quality and depth of topsoil must be approved by the Client's Representative before commencing planting operations.

034 Where the Client's Representative has deemed that the quality of imported topsoil does not meet the minimum grade specified undertake remedial treatment as required by the Client's Representative at the expense of the Provider. This may include improvement by the addition of organic matter, lime and fertiliser.

035 If required by the Client's Representative either provide a declaration of analysis from the supplier detailing the classification of the topsoil or, have laboratory tests undertaken on samples of the topsoil and provide details to the Client's Representative.

036 Where requested by the Client's Representative have topsoil weighed at a public weighbridge before its delivery to site and produce official dockets to the Client's Representative.

037 Ensure compliance with any necessary the Environmental Agency declaration of compliance and provenance of all greenfield soil.

038 Do not use topsoil contaminated with sub-soil, rubbish, oil based products or other materials toxic to plant life. Dispose of contaminated topsoil in a manner approved by the Client's Representative.

Topsoil Cultivation

039 Eradicate all existing annual and perennial weeds prior to commencing any cultivations. Any compacted topsoil is to be broken up to its full depth. Cultivate by rotovating to a minimum depth of 150mm in order to produce a fine tilth, any undesirable material brought to the surface including all stones, clay balls over 25mm size, tufts of grass, rubbish and other foreign matter are to be removed from site.

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- 040 Where topsoil is reasonably dry and workable, grade to smooth flowing contours, with falls for adequate drainage removing all hollows, ridges and sharp changes of levels.
- 041 Unless otherwise Instructed by the Client's Representative, ensure finished levels of topsoil after settlement are 30mm above adjoining paving kerbs, manholes and other horizontal surfaces.
- 042 Topsoil levels may be adjusted by blade grading ensuring that there is nowhere less than 100mm of topsoil. If the required levels cannot be achieved by the movement of existing soil, seek and comply with Instructions from the Client's Representative.
- 043 After grading and fertilising, carry out a further cultivation to reduce top 25mm to a fine tilth, apply a balanced fertiliser base dressing approved by the Client's Representative for grassing works to the area to be grassed at a rate of 30g/m² and lightly cultivated in.
- 044 Rake to a true lightly firmed surface, removing all stones and clay balls more than 25mm in any dimension on general areas.
- 045 Extend cultivations into any adjacent existing grass area to ensure full marrying of levels.
- 046 Obtain the Client's Representative's approval of cultivations and seed bed preparation before sowing is carried out.

Finished Levels of Topsoil

- 047 Ensure that unless otherwise Instructed by the Client's Representative finished levels of topsoil after settlement:
- are 30mm above adjoining paving or kerbs;
 - are not less than 150mm below damp proof course of adjoining buildings;
 - are Graded to give suitable surface drainage away from buildings and to avoid ponding;
 - have any slight depressions are to be filled with topsoil and graded appropriately;
 - are married-in with adjoining soil areas;

Geotextile

- 048 Ensure all non-woven geotextile material manufactured from synthetic or other fibres:
- complies with applicable Standards;
 - sustains a load of not less than 2.5KN/m at 5% axial strain determined in a wide strip tensile test;
 - allows water to flow in either direction at a rate of not less than 10 litres/m²/s under a constant head of 100mm;
 - has a pore opening size distribution between 100*10-6m and 300*100-6m.
- 049 Lay geotextile material in accordance with the manufacturer's technical data sheet with a minimum lap of 500mm.
- 050 The geotextile membrane will be part of the permanent Works to separate earthworks materials to form a permeable membrane. Provide evidence to the Client's Representative, before the geotextile is incorporated into any permanent Works that the geotextile will be sufficiently durable, when installed in contact with materials to be separated to maintain its integrity for at least 20 (twenty) years. Protect geotextile at all times from mechanical and chemical damage. Ensure that the temporary exposure of materials susceptible to light between manufacture and their incorporation into the permanent Works does not exceed 5 hours.

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Generally

- 051 Remove from the Property any imported filling Materials deemed unsuitable by the Client’s Representative.
- 052 Keep excavations and areas to be filled free from soil and rubbish.

Client’s current manufacturers/suppliers/products

- 053 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

DEMOLITION

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DEMOLITION

GENERAL

Generally

- 001 Execute all demolition Works and alterations in the most careful manner to avoid damage to the surrounding structures in accordance with applicable Standards. Make good any damage caused.
- 002 Do not allow dangerous portions of any structure to remain standing during idle periods or overnight except where this is unavoidable. Where this is unavoidable, adequately strut and prop such portions to ensure their stability until Works recommence.
- 003 Load and remove from site all materials (including debris) arising from the demolition or alterations. Do not allow these materials to accumulate. Ensure the care and protection of any Materials to be re-used.
- 004 Bear the risk of any damage in removing, re-fixing and storing old Materials that are set aside for re-fixing. Replace any damaged or defective Materials or missing parts.

Survey

- 005 Before starting the Works, examine all available information, survey the structure(s), site and surrounding area. When requested by the Client's Representative provide a survey report with a method statement covering all relevant matters listed in the Health and Safety Executive (HSE) guidance in relation to development of safe working practices (www.hse.gov.uk) for further information and describing:
- the form, condition and details of the structure or structures, the site, and the surrounding area;
 - the type, location and condition of features of historical, archaeological, geological or ecological importance;
 - the type, location and condition of adjoining or surrounding premises that might be adversely affected by removal of the structure or structures, or by noise, vibration and/ or dust generated during deconstruction/ demolition;
 - the identity and location of services above and below ground, including those required for the Provider's use, and the arrangements for their disconnection and removal;
 - the form and location of flammable, toxic or hazardous materials, including lead-based paint, and proposed methods for their removal and disposal;
 - the form and location of materials identified for reuse or recycling, and proposed methods for removal and temporary storage;
 - the proposed programme of the Works, including sequence and methods of deconstruction/ demolition.
 - the details of any specific pre-weakening required;
 - the arrangements for protection of Staff and the general public, including exclusion of unauthorized persons;
 - the arrangements for control of site transport and traffic; and
 - any special requirements.

Bench marks

- 006 Report to the Client's Representative any bench marks or other survey information found on the structure(s) to be demolished. Do not remove or destroy unless so Instructed in writing.

Existing features and adjacent works to be retained

- 007 Keep in place and adequately protect from any damage all features and adjacent work/Properties that are to be retained. Protect any trees as required by applicable Standards.

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UTILITIES AFFECTED BY DEMOLITION

Regulations affecting utilities

- 008 Carry out any Works affecting new or existing services in accordance with all applicable Regulatory Requirements.

Location of services

- 009 Locate and mark the positions of services affected by the Works. Arrange with the appropriate Utility Providers for the location and marking of the positions of mains services.

Disconnection of services

- 010 Before starting demolition, arrange with the appropriate Utility Provider(s) for the disconnection of services and removal of fittings and equipment unless the drawings provided by the Client's Representative state otherwise.

Disconnection of drains

- 011 Locate and disconnect all disused drains connections. Seal within the site all the connections to existing sewers to the approval of the Utility Provider.

Drains in use

- 012 Protect drains, manholes, gullies, vent pipes and fittings still in use. Keep them free of debris at all times. Make good any damage arising from demolition. Leave them clean and in working order on completion of the demolition works.

Bypass connections

- 013 Provide bypass connections as necessary to maintain continuity of services to occupied areas of the Property and adjoining properties. Give a minimum of 72 hours' notice to Customers if shutdown is necessary during changeover.

Services which are to remain

- 014 Notify the Client's Representative, Utility Provider and Customer of any damage. Repair such damage to the satisfaction of the Client's Representative and Utility Provider.

WORKMANSHIP

Generally

- 015 Demolish structure(s) in accordance with the Health and Safety Executive (HSE) guidance notices and applicable Standards.

Equipment

- 016 Use suitable types and standards of cutting and demolition Equipment for the location and type of Works.

Gas or vapour risks

- 017 Take adequate precautions to prevent fire or explosion caused by gas or vapour.

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Flammable liquids & gases

- 018 When removing tanks and pipes which may have contained flammable liquids or gases: inform the appropriate officer of the Statutory Authority and follow any advice given; display danger notices;
- 1) prohibit smoking and the use of naked lights;
 - 2) use only non-ferrous tools and equipment, with an ample supply of water, to reduce the risk of sparking;
 - 3) empty tanks and dispose of their contents to ensure that none enters any drainage system or watercourse;
 - 4) clean tanks and pipes and make them inert as described elsewhere in this Specification or as Instructed by the Client's Representative

Dust

- 019 Reduce dust by for example periodically spraying demolition Works with water (with suitable mitigation to prevent run off entering the drainage system). Use dust sheets and temporary screens.

Health hazards

- 020 Take adequate precautions to protect Staff and the public from health hazards associated with any dangerous fumes and dust arising during the Works including suitable consideration of/testing for lead contamination in existing painted surfaces.
- 021 Perform all Works in such a manner to ensure the safety of the Works and the public and so as to cause the minimum inconvenience to the public.

Adjoining properties

- 022 Leave adequate temporary support and protection for adjoining properties at each stage and arrange for inspection by the Client's Representative when demolishing structure(s).
- 023 Maintain and alter temporary supports and protection as necessary as the Works progress.
- 024 Demolish structure(s) causing a minimum of damage to adjoining properties. Leave no unnecessary or unstable projections.
- 025 Do not disturb any support to the foundations of any adjoining property unless otherwise Instructed.
- 026 Report to the Client's Representative any defects exposed or becoming apparent in any adjoining property.
- 027 Promptly repair any damage caused to any adjoining property by demolition work. Make good to ensure safety, stability, weather protection and security.

Structure(s) to be retained

- 028 Adequately protect all parts of existing structure(s) which are to be kept in place.
- 029 Cut away and strip out with care the minimum amount necessary so as to keep the amount of making good to a minimum.
- 030 Prevent debris from overloading any part of the structure which is not to be demolished.

Services which are to remain

- 031 Notify the Client's Representative and Utility Provider of any damage. Make arrangements for repair to the satisfaction of the Client's Representative and Utility Provider.

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Partly demolished structure(s)

- 032 Leave partly demolished structure(s) in a stable condition, with adequate temporary support at each stage to prevent the risk of uncontrolled collapse.
- 033 Prevent debris from overloading scaffolding platforms.
- 034 Prevent access to partly demolished structure(s) by unauthorised persons.
- 035 Leave safe whilst not working at the Property.

Dangerous openings

- 036 Illuminate all openings as necessary, provide guarding and barriers at all times, including outside of normal working hours, and take all reasonable steps to prevent access by unauthorised persons.

Asbestos-based materials

- 037 Where asbestos-based materials are known to be present in the structure(s) to be demolished, ensure they are removed in accordance with the Client's Policy for asbestos removal and the Health and Safety Executive's (HSE) Control of Asbestos Regulations 2012 where possible before any demolition works commence.

Unknown hazards

- 038 Inform the Client's Representative of any unrecorded voids, tanks, chemicals, etc. discovered during demolition works. Agree with the Client's Representative the methods for safe removal, filling, etc.

New openings

- 039 When forming new openings or altering existing openings:
- cut away existing arches, lintels or sills;
 - provide temporary strutting and supports and shoring;
 - cut away for hoist and insert new lintels, including cutting and pinning ends;
 - cut away for, and insert new sills, including cutting and pinning ends;
 - make good floors up to levels for new thresholds, sills etc., including latex levelling screed;
 - wedge and pin up to existing work and build up jambs as described;
 - extend and make good finishings to match existing as necessary;
 - remove all debris from the Property and site; and
 - retain supports until the new Works have adequate strength to support the existing structure.

Taking down

- 040 When taking down:
- provide temporary support;
 - remove all applied finishes;
 - make good finishes and match to existing as necessary;
 - make good floors up to levels with latex levelling screed; and
 - remove all debris from the Property and site.

Building up existing openings

- 041 When building up existing openings:
- build up in Materials to match existing or as described for the full thickness of the wall;
 - cut out existing thresholds, sills, arches, lintels, etc;
 - hack off finishings from jambs or reveals before building up;
 - prepare surfaces for raising, including lead core or similar damp proof course;
 - cut toothing;
 - wedge and pin up to existing work as required; and
 - extend and make good finishings to match existing as necessary.

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Extending finishings

- 042 Match all extensions to finishings, plasterwork, ceilings, flooring etc., and any making good exactly to the existing finishings.

MATERIALS

Ownership

- 043 Components and materials arising from demolition (other than any found during excavations) belong to the Provider unless the Client's Representative has advised before their removal that they are to remain the property of the Client in order to be reused in the Works. Remove all materials other than those belonging to the Client from site as the Works proceed.
- 044 Maintain and protect all removed materials that are to remain the property of the Client until they are removed by the Client or reused in the Works.
- 045 Where possible recycle or reuse Materials other than brick, stone and concrete rubble or other hard material, arising from deconstruction and demolition Works elsewhere on the Contract, subject to compliance with the appropriate specification [and in accordance with any site waste management plan]At least 5 (five) Business Days before such reuse, submit full details and supporting documentation as evidence of compliance with the specification to the Client's Representative for their approval.

Hardcore

- 046 Reuse brick, stone and concrete rubble or other hard materials arising from demolition as hardcore, subject to compliance with this Specification.

Bricks

- 047 Use whole, sound bricks arising from the Works for replacing cracked or defective bricks or filling to existing openings.

Infected Timber

- 048 Inform the Client's Representative when infected timber is encountered. Remove timber infected by fungal/insect attack from the Property in a way which will minimise the risk of infecting other parts of the building. Destroy it as soon as possible.

Commencement condition survey

- 049 Before starting the Works:
- survey the existing state of the Property to be kept in place;
 - record the magnitude and extent of all cracks, spalling, flaking and other irregularities of the fabric of the Property; and
 - agree the commencement condition survey record with the Client's Representative.

Extent of support work

- 050 Where necessary, provide support systems to those elements of the Property which are to be retained.
- 051 Submit detailed proposals including drawings and calculations for all systems to the Client's Representative for approval, and resolve any amendments proposed. This includes for procuring structural engineering drawings and calculations for support systems.
- 052 Provide adequate and stable support systems and thereby maintain the integrity of supported structure for the period of erection to completion of dismantling support systems.

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Workmanship

- 053 Carry out all work in accordance with the Order or any design brief issued with it.
- 054 Use Staff experienced in the methods of erecting and maintaining support systems to supervise and control the Works.

Erecting support systems

- 055 Locate the positions of existing and new services which may be affected by support systems and provide any necessary temporary diversions.
- 056 Prevent excessive loadings from foundations of support systems being imposed onto foundations of structure to be kept in place.
- 057 Erect and connect support systems to structure to be kept in place. Take:
- all necessary precautions to prevent damage; and
 - due account of movement of the structure which may occur before, during and after demolition.
- 058 Promptly repair any damage caused to adjoining properties by the erection or connection of support systems. Make good to ensure safety, stability, weather protection and security.
- 059 Report to the Client's Representative any damage caused to retained features or works by the erection or connection of support systems. Agree the methods of repair with the Client's Representative.
- 060 Check support systems at agreed stages during erection for compliance with design proposals.

Unknown hazards

- 061 Inform the Client's Representative of any unrecorded voids, flues, services, etc., discovered during the erection of support systems. Agree with the Client's Representative methods for infill, making good, relocation of support connections, etc.

Loading support systems

- 062 Complete the erection and connection of the support systems before starting the demolition of any adjoining structures.
- 063 Inform the Client's Representative when support systems are erected and all connections are made to the structure to be kept in place. Obtain any required permissions to load systems.

Maintaining support systems

- 064 Provide safe access and safe places of work in the support systems for inspection and maintenance.
- 065 Regularly inspect and maintain support systems, making good ties, wedges, connections, corrosion protection, etc., as necessary.
- 066 Adequately protect support systems from impact by vehicles, plant and site operations. Prevent access by unauthorised persons. Leave safe when not working at the Properties and outside the Provider's Working Hours.

Dismantling support systems

- 067 Inform the Client's Representative when all permanent connections between the supported structure and new construction have been made. Obtain permission before disconnecting and dismantling support systems.

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Making good

068 Repair any connection holes made in the structure kept in place, using Materials to match those existing. Repair damage caused to buildings, roads or pavements.

Site clearance

069 Clear away all debris, excess materials and temporary Works and leave the Property and its site in a tidy condition on completion of the Works.

Client’s current manufacturers/suppliers/products

070 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

ASBESTOS WORKS

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ASBESTOS WORKS

GENERAL

- 001 Removal of licensed asbestos can only be carried out by an Asbestos Licensed Contractor.
- 002 The Provider shall employ the services of an Asbestos Licensed Contractor before undertaking any Asbestos Works. All works classed as Asbestos Works should be undertaken in accordance with the Control of Asbestos Regulations (CAR) and the general procedures listed in this Specification.

Removal

- 003 Asbestos should be removed when: deemed by the survey Risk Assessment to be:
- a high risk material i.e. Insulation materials;
 - in a damage state;
 - it is breaking away from the substrate base; or
 - the asbestos is likely to be abraded or otherwise damaged.
- 004 As there is a possibility that non-asbestos materials may become contaminated from adjacent asbestos, consideration may need to be given to the removal or cleaning of adjoining materials and belongings.

Encasing

- 005 Encasing is constructing an airtight barrier around the asbestos, and is suitable where the cost of removal would outweigh the benefit or risk posed.
- 006 An encasement can be constructed from wood, metal or sheetrock, all joints must be sealed completely and be air tight.

Encapsulation or sealing

- 007 Encapsulation is suitable for use when the asbestos present is in a hard to reach place(s).
- 008 Encapsulation is the application of an impervious materials, which is secured over or around an ACM and is designed to prevent the release of fibres under foreseeable conditions, such as vibration, impact and age degradation.
- 009 For large areas the cost of encapsulation or sealing may approach the cost of removal. Any eventual removal may be more difficult and costly. Continuing assessment on a periodic basis will be defined by the asbestos survey risk assessment will also be required if the encapsulation or sealing option is taken. Not all paints and other surface coatings on the market are suitable. In particular, the sealant should not increase the fire hazard properties of the material being treated. If the asbestos is poorly bonded to the substrate, the application of a coating may result in large sections of the asbestos breaking away from the substrate. The surface to be encapsulated or sealed should be cleaned with an approved "H" type vacuum cleaner to remove all debris and dust particles ensuring good adhesion of the coating to be applied.

Removal and maintenance work

- 010 Where Asbestos Works is being performed, the Provider is required to notify the Health and Safety Executive or other enforcing authorities using Form FODASB5 14 days in advance of the works commencing, except in emergency situations where shorter notice with their agreement can be given.
- 011 Reasonable notice shall be given to any adjacent Client Party, Customers and Staff that Asbestos Works is to be carried out, and when it is to be carried out. The notification should also include an explanation of the general procedures and equipment involved and the precautions to be taken in accordance with CAR Regulations. Waste asbestos products shall be disposed of in accordance with the Hazardous Waste Regulations having given at least 3 (three) days' notice to Environment Agency.

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Notifiable Non Licensed Work

- 012 Notifiable non licensed Works (NNLW) is the removal of asbestos materials that would not normally require the Provider to give notification prior to commencement of Works, an example would be the removal of damaged or broken asbestos cement products, when the condition or the quantity of the material may give rise to significant quantities of dust and debris. This would mean this Work would be notifiable but not subject to full requirements of licensable Asbestos Works. In such instances it is advisable for the Provider to consider if the quantity of Work being carried out to asbestos containing materials would mean the Works are notifiable, in such scenarios use of an Asbestos Licensed Contractor may be necessary subject to the results of risk assessments.
- 013 Where NNLW is being performed, the Provider is required to notify the relevant enforcing authority using Form ASB NNLW1, with additional requirements and obligations being placed upon the Provider in respect of medical surveillance and maintenance of health records for each employee exposed to asbestos.
- 014 The Provider should contact www.hse.gov.uk for further information and guidance on NNLW.
- 015 In considering whether the works will require notification of non-licensed Works consideration needs to be given as to whether the Works are:
- **Maintenance** e.g. drilling holes to attach fittings or pass cables through, painting, cleaning etc. Maintenance includes some removal where it is incidental to the main task, e.g. removing an asbestos ceiling tile to allow inspection.
 - **Removal** e.g. as part of a refurbishment or redesign project.
 - **Encapsulation** e.g. work to enclose or seal asbestos materials in good condition.
- And whether Air monitoring and control, and the collection and analysis of samples will be required.
- 016 Consideration will need to be given to the asbestos type
- 017 **Is it friable?** Friable means easily crumbled or reduced to powder. The more friable a material is, the more likely it will release asbestos fibres when worked on and the greater the risk of exposure. Work which disturbs more friable materials, e.g. asbestos pipe insulation, will tend to be notifiable non-licensed work and work which disturbs the least friable materials, e.g. asbestos cement, can normally be treated as non-licensed work.
- 018 **How firmly is the asbestos bonded in a matrix?** (For removal work only). Bonded in a matrix means the asbestos is coated, covered or contained within another material, such as cement, paint or plastic. ACMs of this type in good condition can usually be treated as non-licensed work. If the ACM's are significantly damaged, and so more likely to release fibres, they will need to be treated as notifiable non-licensed work.
- 019 Consideration will need to be given to the Asbestos material's condition
- 020 **Has the material been damaged or is it in poor condition?** Removal of ACMs in poor condition e.g. due to flood or fire damage, will normally need to be treated as notifiable non-licensed work.
- 021 **Will the materials' matrix be destroyed when worked on?** e.g, using gel or steam to remove deteriorating textured decorative coatings such as 'Artex' will normally need to be treated as notifiable non-licensed work.
- 022 Examples of notifiable non-licensed work (NNLW) with asbestos:
- Using steaming or gelling methods large-scale removal of textured decorative coatings (e.g. beyond that required for maintenance activities such as installation/replacement of smoke alarms and fittings);
 - Minor short duration work to remove asbestos insulating board as part of a refurbishment project;
 - Minor short duration involving asbestos insulation (e.g. repairing minor damage to a small section of pipe insulation where the exterior coating has been broken or damaged);

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- Removal of asbestos cement products (e.g roof sheeting) where the material has been substantially damaged or broken up (e.g. as a result of fire or flood damage);
- Removal of asbestos cement products (e.g. roof sheeting) where the removal activity will mean that the material will be substantially broken up, creating significant quantities of dust and debris (e.g. 'dropping' an asbestos cement roof); and
- Removal of asbestos paper and cardboard products if not firmly bonded in a matrix

023 All non-licensed and notifiable non-licensed work with asbestos needs to be carried out with the **appropriate controls** required by the Health and Safety Executive or other enforcing authorities in place, and those carrying out the work must have had the correct level of **information, instruction and training**, to protect themselves (and others in the area) from the risks to health that exposure to asbestos causes.

024 If the Provider determines that the Works, they are about to do is notifiable non-licensed work (NNLW), the section below on notification explains how the Provider is comply with the additional requirements.

Notification

- 025 The Provider will need to notify the relevant enforcing authority of any NNLW with asbestos:
- notification is to be use of the **online notifications form** (via either a computer or Smartphone);
 - all three possible regulators can be notified via this database - the Health and Safety Executive, Local Authorities and the Office of Rail and Road (see table below);
 - notice is required before the work starts - there is no minimum notice period;
 - the Provider does not need to wait for permission from the enforcing authority – the database will provide a PDF copy of the notification;
 - if the Provider is are doing a project or contract with multiple NNLW jobs you can notify once for the whole project or contract;
 - if the Provider is a licensed asbestos contractor carrying out NNLW work, a notification will still have to be submitted; and
 - the **online notifications form** is the only method of notification accepted.

Type of premises/activity	Enforcing Authority
Shops, offices, separate catering services, launderettes, sport, entertainment and recreational activities, exhibitions, church or religious meetings, hotels, camping and caravan sites, wholesale and retail storage	LA (Local Authority)
Factories and factory offices, civil engineering, construction and demolition sites, hospitals, research and development establishments, local government services and educational establishments, fairgrounds, radio, television and film broadcasting, sea going ships, docks, transport undertakings, domestic premises, quarries, farms (and associated activities), horticultural premises and forestry's, mines or quarries and offshore installations, licensed nuclear sites	HSE (Health & Safety Executive)
Railways, railway lines, signal boxes	ORR (Office of Rail and Road)

Designating areas

026 All areas where there is NNLW taking place must be designated and marked with a suitable warning notice. These areas must be restricted to those carrying out the work.

027 **Food and drink must never be consumed in designated areas.**

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Medical surveillance

- 028 All the Provider's operatives carrying out NNLW will need to have had a medical examination **at least every 3 (three) years**, as long as the operative continues to do NNLW. Any Provider's operatives carrying out NNLW for the first time will have to have an examination before they can start such work:
- medical examinations must include an examination of the chest and a lung function test;
 - they need to be carried out by a licensed medical practitioner, e.g. a GP;
 - those operatives already under surveillance via a licensed asbestos contractor and in possession of a valid certificate do not need to have the NNLW medical;
 - medical examinations should be carried out in work time at the Provider's expense; and
 - the GP must issue a certificate to confirm the examination has taken place and on what date - the Provider needs to keep this certificate for 4 years.

Record keeping

- 029 The Provider need to keep a register (health record) of NNLW with asbestos for each operative exposed to asbestos:
- 030 This must include:
- the nature and duration of work with asbestos and estimated exposure for each individual operative; and
 - dates of the operative's medical examinations.
- 031 Registers of work (health records) must be kept for 40 years (and offered to the Health and Safety Executive or other enforcing authorities or the individual concerned should the business cease trading).
- 032 The need to record exposure does not mean that every non licensed task must have air sampling. There will often be published exposure figures or knowledge within the industry about exposures found at similar lower risk work done in the past. If a task is unusual, then sampling may be required.

Non Notifiable Non Licensed Work

- 033 Removal of non-licensable asbestos containing materials is deemed to be included within the rates contained in the Schedule of Rates **(with the exception of the rates in the Asbestos Works section of the Schedule of Rates which are only for the removal and/or encapsulation of licensed asbestos or non-licensed asbestos that may have been contaminated by adjoining licensed asbestos)** together with the Provider's tendered percentage adjustment.
- 034 Non licensed asbestos works are deemed to be:
- Sporadic and of low intensity – to be considered sporadic and of low density the concentration of asbestos fibres in the air should not exceed 0.6f/cubic centimeter measured over 10 minutes;
- 035 Carried out in such a way that the exposure of workers to asbestos will not exceed the legal control of 0.1 asbestos fibres per cubic centimeter of air (0.1f/cm³) (averaged over a four (4) hour period);
- 036 Meet at least one of the four following conditions:
1. It is a short non-continuous maintenance task, with only non-friable materials (friability describes how likely a ACM is to release asbestos fibres when worked on, so non-friable materials will only release a small number of fibres during work);
 2. It is a removal task, where the ACMs are in reasonable condition and are not being deliberately broken up, and the asbestos fibres are firmly contained in a matrix e.g. the asbestos is coated, covered or contained within another material, such as cement, paint or plastic;
 3. It is a task where the ACMs are in good condition and are being sealed or encapsulated to ensure that they are not easily damaged in the future: and
 4. It is an air monitoring and control task to check fibre concentrations in the air, or its condition and analysis of asbestos samples to confirm the presence of asbestos in a material.

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037 Examples of non-licensed asbestos work:

- Cleaning of small quantities of loose/fine debris containing ACM dust (where the work is sporadic and of low intensity, the control limit will not be exceeded and it is short duration work);
- Drilling of textured decorative coatings for installation of fixtures/fittings;
- Encapsulation and sealing –in work on asbestos containing materials (ACMs) that are in good condition;
- Maintenance Works involving:
 - Asbestos cement products (e.g. on roof sheeting, tiles and rainwater goods);
 - Asbestos in ropes, yarns and woven cloth;
 - Asbestos gaskets or asbestos rope cord (including removal as part of the repair and upkeep of equipment) if this can be done without substantial breakage;
 - Asbestos containing thermoplastic and vinyl floor tiles, bitumen roof felt, shingles, damp-proofing coatings and mastics;
 - Asbestos-containing felt and paper;
 - Plastic paint coatings, PVC floors, panels and sealing compounds;
 - Asbestos-containing conveyor belts/drive belts, bonded rubber, electric cables;
 - Resin-based ACMs such as friction products (e.g. brake linings)
 - Painting/repainting Asbestos Insulating Board) (AIB that is in good condition;
- Removal of:
 - Asbestos cement products (e.g. roof sheeting and rainwater goods) providing the material is carefully handled/removed without breaking up, this includes work with asbestos cement which is weathered but not otherwise substantially damaged;
 - Small areas of textured decorative coatings using suitable dust-reducing methods, to support other activities such as installation/replacement of smoke alarms and light fittings;
 - Textured decorative coatings provide that this can be done without deterioration of the material (e.g. if the backing board is carefully cut around to achieve virtually intact removal);
 - Loosely fixed (e.g. screwed) asbestos insulating board (AIB) panels in order to gain access to areas for other Maintenance activities (e.g. under a bath to carry out pipework maintenance, or for access to a ceiling void for repair of lighting) This also includes re-attaching the panels after the work is done;
 - An AIB door with asbestos fire proofing;
 - Asbestos cement products (e.g. roof sheeting) where the material will be substantially damaged or broken up (e.g. as a result of fire or flood damage);
 - Asbestos cement products (e.g. roof sheeting) where the material will be substantially broken up, creating significant quantities of dust and debris (e.g. dropping an asbestos cement roof);
 - Asbestos paper and cardboard products if not firmly bonded in a matrix)
- **Short duration work:**
 - To repair minor damage to AIB;
 - Involving drilling holes in AIB (e.g. installing shelving);
 - To remove asbestos insulating board as part of a refurbishment project;
 - Involving asbestos insulation e.g. repairing minor damage to a small section of pipe insulation where the exterior coating has been broken or damaged;
- Other work on:
 - On other materials containing asbestos (such as paints, bitumen, resins, rubber etc.,) where the fibres are bound in a matrix which prevents most of them being released (this includes, typically, aged/weathered AC);
 - Associated with collecting and analyzing samples to identify the presence of asbestos;
 - Large scale removal of textured decorative coatings using steaming or gelling methods (e.g. beyond that required for maintenance activities such as installation/replacement of smoke alarms and fittings)

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- 038 Certain of the operations listed in 037, dependent upon the circumstances in which the Works will be undertaken, will also be notifiable to the Health and Safety Executive or other enforcing authorities on form ASB NNLW1, with additional requirements and obligations being placed upon the Provider in respect of medical surveillance and maintenance of health records for Staff exposed to asbestos.

Demolition and structural alterations involving restricted work

- 039 Demolition and structural alteration of buildings or other structures containing asbestos material should be in accordance with the Regulations. All asbestos products, including asbestos cement sheeting, must be removed before demolition is commenced. In some circumstances, partial removal, followed by partial demolition to allow access to previously obstructed asbestos material, may be necessary. In such cases, the partial demolition operation should be conducted under conditions appropriate to the removal Work. The techniques for handling and removal of non-friable asbestos-cement products are detailed later in this Specification.

REMOVAL OF ASBESTOS

- 040 This section provides guidelines for undertaking the planned and safe removal of asbestos-based materials from buildings, equipment/plant and structures, and outlines the equipment that could be used, removal techniques and general safety and hygiene requirements.
- 041 This section applies to the removal or work on:
- Friable asbestos, including sprayed asbestos coatings used for thermal and acoustic insulation in buildings.
 - Decorative coatings in buildings;
 - Asbestos-based lagging on boilers and other industrial plant;
 - Asbestos cement products;
 - Roof coverings;
 - Asbestos Insulation Panels;
 - Ropes, felts, papers and the like; and
 - Other non-asbestos materials that have been contaminated with asbestos.
- 042 Working with asbestos and asbestos-based products is hazardous. It is the Provider's duty under the Health and Safety at Work Act to provide a healthy and safe place of work. To achieve this it will be necessary to plan the work and adopt good work practices.
- 043 In any activity involving the removal of asbestos-containing materials the procedures adopted must allow for the containment of asbestos. All practicable steps must be taken to ensure that Staff and any Client Party in the area are not exposed to asbestos fibres.
- 044 NOTE: Removal of friable asbestos that has been used for thermal or acoustic insulation and other stated applications may only be carried out by a competent person(s) with a valid asbestos removal license from the Health and Safety Executive using appropriate guidance, restricted work must be at all times be under direct supervision.

SAFE REMOVAL OF FRIABLE ASBESTOS

- 045 This section applies to the removal or work on:
- Friable asbestos, including sprayed asbestos coatings used for thermal and acoustic insulation in buildings.
 - Decorative coatings in buildings;
 - Asbestos-based lagging on boilers and other industrial plant.

Information to be provided by the Client

- 046 The Client will provide the Provider with access to the Client's electronic asbestos register where they can obtain (if available) a copy of the asbestos survey (or suitable representative survey) giving details of the ACM identified to the Provider prior to commencement of any work.

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047 It is recognised that in some cases the full extent of the asbestos material is not known until removal is under way.

048 In the preparation of job specifications by the Provider's Asbestos Licensed Contractor the following considerations should be addressed:

Location and Status of ACM:

- Internal;
- External but protected.
- External exposed to weather;
- Enclosed in ducts; "Confined Spaces Considerations"
- Difficult or unusual site conditions, which will influence the selection or application of removal methods, particularly in regard to transport, scaffolding or weather protection.
- Removal from roof space areas or areas or Working at Heights, confined spaces, or areas with other constraints within a property.

Technical description of the material to be removed with details of the type of asbestos present and any special or unusual materials or circumstances.

049 The extent of the removal Work should be adequately detailed on the Order (subject to Clause 020 above), to indicate areas for removal, otherwise, information of the following nature should be provided where available:

- Surface dimensions of flat or large curved areas, thickness of insulation, external diameters of pipes, length of each size pipe, and number and type of pipefittings, e.g. flanged joints, valves, tees, expansion bends. Particular detail is to be provided if asbestos is to be removed from any part of the building's air-conditioning system;
- Details of any pipe work sections that are steam or electrically heated and the arrangement of its insulation;
- Details of any section or materials to be left in place;
- Confirmation and details of residual heat that will remain in pipe work, boilers, etc.;
- Any unusual or specific hazards associated with the removal Works;
- Temperature considerations — normal working temperature for each portion of the plant concerned, ambient temperature at the removal area;
- Conditions of substrate surfaces — special requirements, such as the removal or otherwise of protective paint or lacquer from pipe work or for the application of paint or other protective coatings to the substrate from which the asbestos-based material has been removed;
- Types of fittings and supports and whether or not these may be removed or disposed of with the waste;
- Type of finish required or specification for re-insulation;
- Special service requirements, for example, where there is any potential hazard from contact with live electrical equipment in use in the removal area; attention should be drawn to this fact;
- Where electrical switchgear or panels are to be sealed, consideration should be given to the provision of supplementary ventilation to dispose of potential heat build-up and consequent fire risk;
- Site occupancy restrictions and conditions;
- Adjacent area cleaning (adjacent areas which are to be cleaned or are to be protected from airborne dust and are to be cleaned on completion);
- Safety practices to be followed under relevant legislation; and
- Location of any relevant electrical cables;

050 If necessary, the Provider should contact the Client's Representative where his risk assessment states a sample is required, requesting that additional sampling and testing of potential ACM's is necessary.

Information to be supplied by the Provider

051 Restricted Work involving asbestos must be notified to the Health and Safety Executive 14 days prior to abatement activities commencing.

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- 052 The Provider (or his appointed Asbestos Licensed Contractor) should provide a detailed plan of Work and all method statements with specifications or drawings showing details as require under CAR regulations as follows:
- Type, quantity and extent of isolation required at the asbestos removal area and location of restricted access borders;
 - Particular methods to be adopted when removing material, including detail of the contamination control programme, for example, provision of negative air pressure and the location of the exhaust unit;
 - This should include specifications of size, capacity and type of filter, location of decontamination unit and where it is to be discharged;
 - Detailed risk assessment for both asbestos and all other perceived risks;
 - Waste disposal programme including;
 - On-site storage system;
 - Method of removal from the building;
 - Detailed risk assessment; and
 - Waste disposal site to comply with Hazardous Waste Regulations 2005
 - Any other information required to ensure compliance with CAR Regulations and Health and Safety Executive guidance
 - Where the risk assessment requires that removal operations be undertaken under controlled conditions the Provider will request the Client to appoint a Health and Safety approved analyst to provide assurance that his operations have been completed in accordance with the Provider's plan of Work and other management duties including air testing, 4 stage clearances and issue certificate of reoccupation.
- 053 This information is to be uploaded to the Client's electronic asbestos register by the Provider on completion of the Works.

Guidelines for Providers for planning and programming:

- 054 Consideration should be given to the removal of all asbestos from a Property at the same time. Decanting (if necessary) and/or other management issues to be agreed with the Client prior to commencement of Works.
- 055 Conversely, the work of other Client Parties should be scheduled to preclude them working near to, or accidentally breaking into the asbestos removal area. The Provider is given access to the Client's Electronic Asbestos Register so he can download survey data if available, in a situation where no relevant sample or survey data exists and his risk assessment requires that samples should be taken, the Provider should bring this to the attention of the Client's Representative who will either, issue an Order with the Provider or through the Client's own analyst, get a sample or survey completed and uploaded to Client's electronic asbestos register.
- 056 The following are the major points to which early consideration should be given:
- Health and safety of Staff;
 - Health and safety of Customers and the general public;
 - Most appropriate work methods for the work;
 - Identification of types of asbestos involved;
 - Programme of commencement and completion dates. However, it should be recognised that unforeseen problems with removal or the extent of the asbestos cannot always be ascertained prior to removal Work commencing;
 - Responsibility for the supply and application of isolating materials, e.g., ropes, barriers, plastic screens, waste containers and warning signs;
 - Preparation of surfaces (pre-removal) cleaning;
 - Precise information on extent of the work covered by the Contract;
 - Limitations of access to the removal area;
 - Conditions of employment on the site, including the labour and supervision required and agreed working hours;
 - Transport facilities;
 - Protected storage area pending the removal of asbestos-based materials;

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- Availability of water, power, heat, light and drainage;
- Accommodation, decontamination and canteen facilities;
- Provision of access equipment, such as scaffolding or ladders;
- Protection of adjacent areas, plant and machinery;
- Waste disposal methods and responsibilities and cleanup requirements;
- Temporary sealing of asbestos where necessary;
- Notification to the Health and Safety Executive;
- Responsibility for air monitoring, including clearance monitoring;
- Customers furniture store;
- Decanting arrangements;
- Analyst work area
- Transit routes waste disposal facilities

Training

- 057 Instruct all asbestos removal Staff in the relevant aspects of working with or on asbestos to ensure compliance with CAR Regulation 9 and associated Approved Codes of Practice: the health hazards associated with asbestos, safe working procedures, and the wearing and maintenance of protective clothing and equipment. The level of training may vary according to the requirements of a job but all Staff should be given detailed information on the reasons for safety and health precautions.
- 058 Provide evidence that his Staff have received training for task specific removal of non- notifiable, non-licensed, and notifiable non-licensed asbestos containing materials including use of special PPE, cleaning materials, disposal procedures etc.,

Supervisory personnel

- 059 Ensure that supervisory personnel have a detailed knowledge of the precautions and procedures outlined in the CAR Regulations, ACOP HSG 247 and in this model Specification. With this knowledge and personal experience, they should assume the following responsibilities:
- To plan the total removal procedure;
 - To select the most appropriate technique for removal of asbestos;
 - The pre-removal setting up;
 - Reassurance Air Tests
 - The actual removal and final cleaning operation, 4 stage clearances and certificate of reoccupation as applicable;
 - To ensure that all necessary measures are taken to reduce the airborne concentration of asbestos dust to the lowest practicable level;
 - To ensure that asbestos fibres and asbestos-containing material do not contaminate adjacent areas;
 - To ensure that all Staff under their supervision are adequately trained in the safe working practices outlined in HSWO and in CAR Regulations;
 - To ensure that the removal is continually supervised by Staff and that the operation is carried out in a safe and proper manner, in accordance with the precautions listed in the CAR Regulations;
 - To ensure that personal protective equipment is used and maintained in good condition;
 - To ensure that the removal site is maintained in a clean condition, that waste is quickly and properly disposed of in accordance with process detailed in Provider's Plan of Work
 - To ensure personal hygiene procedures are continually observed;
 - To maintain copies of all records and a site log detailing all site operations on a daily basis and can be signed off by all parties on site; and
 - To supply all information to the Client's Representative (electronically uploading to Client's electronic asbestos register) on completion of the Works.

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Site preparation for the removal of friable asbestos from buildings and other structures

- 060 The plan of Work issued to the Health and Safety Executive or other enforcing authorities will set out the procedures adopted for the removal of friable asbestos must be designed to contain the asbestos and minimise airborne exposure. The steps required will vary from job to job but in all cases will include the following:
- Access to the asbestos removal area must be restricted to those involved in the removal work. A thorough pre clean must be undertaken prior to work area preparation and commencement of abatement activities;
 - Contamination of flooring and furnishings with asbestos containing dust must be avoided’;
 - The drift of airborne fibres must be restricted by ensuring that the removal area is effectively screened off from adjacent areas. This is usually achieved by extracting air from the removal area to ensure that it remains at negative pressure with respect to surrounding areas;
 - The precautions taken must be sufficient to ensure that any asbestos contamination in the air or surrounding areas is maintained below 0.01 fibres/ml (for a sample volume of at least 480 litres passed through a filter with an effective diameter greater than 20mm) at all stages during and after the asbestos removal work. The steps to be taken will be determined the likelihood of asbestos fibre release and the size of the job in terms of the time taken to complete it and the area involved. In the following sections, the site preparation that is considered appropriate for three commonly performed removal tasks are specified;
 - The removal of fireproofing, thermal or acoustic insulation applied to structural steel or ceilings, or other similar major asbestos removal jobs;
 - The removal of decorative coating containing relatively low percentages of asbestos; and
 - Small-scale jobs such as the removal of minor amounts of asbestos pipe lagging.

Preparation of a site for a major removal programme.

- 061 Where total enclosure of the removal area is required, isolation of the area can be achieved by the installation of low-density polyethylene sheeting (not less than 1000 gauge) on the floor and walls of the structure. It may be necessary to erect a temporary timber or metal frame to which the plastic barrier can be attached. All joints should be overlapped and taped to ensure that the area is completely sealed off. In some circumstances the use of adhesives may supplement the use of tape.
- 062 Existing floor coverings should be removed where practicable. A double layer of plastic sheeting (suitably fixed by double-sided tape or adhesive to prevent movement between layers) should be used on the floor of the containment area, and a turn-up should be used where the floor joins the sidewalls. Plywood 6mm should be used between layers to prevent accidental penetration of sheeting.
- 063 Vertical shafts should be properly sealed off to prevent the thermos-syphon effect spreading asbestos fibres throughout the building.
- 064 Where asbestos is removed from an entire floor of a multi-storey building, all passenger and goods lifts should be prevented from stopping at the floor from which asbestos is being removed. Asbestos removal Staff may gain access to the floor via the fire stairs or from an elevator dedicated for this purpose. Where a lift is used for access, all exit doors to other floors should be sealed. It is important that emergency escape exits are available when blocking off such areas
- 065 All movable furniture, plant and fittings shall be removed from the asbestos removal area. The immovable items should be fully wrapped and sealed in suitable plastic sheeting and stored in lockable container on site to facilitate involvement of the Client’s loss adjuster; an inventory (including photographs) of all items removed should be taken and where possible their condition agreed with the Customer (signed copy) so that they are effectively isolated from the removal area. In regions of heavy traffic or high wear, additional masking or barricading may be necessary.
- 066 Where masking operations may liberate asbestos fibres, all Staff in the removal area should wear respiratory protective devices approved for asbestos. This precaution is particularly applicable when removing existing barriers or partitions such as false ceiling tiles. Where asbestos materials may have fallen on to a false ceiling, the ceiling should only be removed under full controlled removal conditions. Any utility or service pipework, which penetrates into the ceiling space, is to be sealed.

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- 067 Except for the Negative Pressure Units (“NPU”) all ventilation and air-conditioning networks servicing the removal area should be closed down for the duration of the removal job. All vents should be thoroughly masked to prevent the ingress of asbestos fibres into the duct network. Upon completion and after final cleaning of the removal area, all mechanical ventilation filters for re circulated air should be replaced.
- 068 Additional care must be taken to ensure that asbestos fibres cannot escape at points where pipes and conduits pass out of the removal area. Greater attention to masking and re-assurance testing should be given in these regions, particularly if service riser-shafts pass through the removal area.
- 069 To prevent the escape of airborne asbestos fibres from the removal area enclosure, an exhaust extraction fan should be installed in a position so as to create a negative air pressure of approximately 5 Pascal’s (water gauge) within the removal area. While accepting that the measurement of this pressure is not always possible, a good guide to the effectiveness of the system can be gauged from the inwards effect on the plastic tenting. It is a requirement that clear viewing panels be installed at strategic locations throughout the enclosure to allow inspection from outside the enclosure, if clear viewing panels cannot be provided, then the Provider is to install a close circuit TV system with external monitors. If there is a visible bellowing inward, there is a good negative pressure. In this arrangement, the major and usually only route of air into the removal area would be through the three-stage unit. The correct flow of air should be verified using the smoke testing method.
- 070 The air extracted by this system should pass through an appropriate High Efficiency Particulate Air (“HEPA”) filter to remove any asbestos fibres. Ideally, air extraction units should be so situated that access to the filters can be gained from the removal area. This expedites the otherwise difficult decontamination of these units and allows another unit to be brought into service in the event of a breakdown. Where it is not possible to change the filter within the removal area, a temporary enclosure should be constructed around the unit to allow for filter replacement.
- 071 The HEPA filter should comply with the minimum 99.997 percent efficiency requirement detailed in the British Standards. A coarse pre-filter should be installed prior to the HEPA filter to prolong the useful life of the high efficiency filter. Where practicable, the discharge point for this extraction unit should be to the outside air, distant from other working areas, air-conditioning inlets or breathing air compressors. Where this is not possible, testing of the exhaust air should be carried out.
- 072 Extraction equipment should be operated continuously whilst the removal enclosure is in place. Such equipment should be DOP tested every six months.
- 073 When installing the asbestos removal area containment, extra consideration should be given to the alteration of the fire rating of the building and to the provision of the fire-fighting facilities, emergency exits and emergency lighting.
- 074 Warning notices stating “Asbestos Hazard Area, Keep Out” shall be placed at entrances to the removal area. These signs are to be placed so they are clearly visible. Other more general signs may be used elsewhere in the Properties to indicate that Works are in progress.

Compliance testing of removal area containment prior to commencement of work.

- 075 Before any asbestos removal begins in an enclosure, a visual inspection to check the integrity of the structure must be carried out. Smoke testing should also be used to detect leaks and observed by the asbestos analyst.
- 076 Attention should be given to the bellowing inward of the plastic sheeting. At the beginning of each working period the inspection should be repeated and any defects remedied immediately.

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Decontamination facilities.

- 077 To prevent the escape of asbestos as Staff enter and leave the removal area a specially constructed transit route and mobile or on-site decontamination unit will be required. In all cases where it is deemed necessary to totally enclose the removal area, a decontamination unit consisting of at least three compartments should be used. It is recommended that a 4:1 shower to the Staff member ratio be used for calculating the appropriate size of decontamination unit to be used on any particular project. Where a friable asbestos removal programme is being undertaken, a decontamination unit must be provided that incorporates the following elements or achieves the same or better protection:
- .1 A dirty area having provision for:
 - Removal of contamination from protective clothing, footwear and respirator;
 - Washing footwear in footbath;
 - Storage of contaminated clothing and footwear; and
 - Airflow towards the removal area;
 - .2 A Shower Area with hot water adjustable at the source. Body soap liquid and shampoo, nail brushes, mirror, and clean disposable towels.
 - .3 A clean area having provision for:
 - Storage of individual respirators in containers or lockers;
 - Storage of clean clothing; and
 - Airflow towards dirty area;
- 078 Spring-loaded doors between the areas should be used to ensure that an airlock is maintained as the person passes through the unit.
- 079 The decontamination unit should be sited immediately adjacent to, or joined to the enclosed asbestos removal area where possible. Where it is not physically possible to locate the decontamination unit adjacent to, and joined to, the removal enclosure transit procedures to minimise asbestos contamination should be implemented, such procedures are outlined in the Health and Safety Executive guidance HSG 247.
- 080 Decontamination procedures should be followed whenever the Staff member leaves the enclosure. While the protocol to be followed will vary with the design of the decontamination unit, it is recommended that:
- The respirator should be worn and operating until the person has removed all contamination from outer garments and equipment;
 - Personnel should not smoke, eat or drink in any part of the decontamination facility;
 - The decontamination unit should be regularly cleaned by persons wearing protective clothing
 - Standard entry and decontamination procedure to be adopted as part of this Specification.
 - The decontamination unit must have a copy of certificate of reoccupation when it arrives at the Property and a 4 stage clearance completed at the end of operations before it leaves the Property which will be completed by the asbestos analyst.

Entry to the Work Enclosure

- 081 Staff shall enter the clean room of the decontamination unit in groups of no more than two. Staff shall remove all street clothing and store it safely in their assigned locker. The Staff member will remove his or her respirator from its protective sealed bag and fit it. Battery packs will be held by hand until the The Staff member has suited up.
- 082 When the Staff member has properly fitted and tested his or her respirator a clean stripping suit will be donned or carried through the shower room into the dirty end of the decontamination unit. At this time with the respirator on, the Staff member will don work clothes and the clean stripping suit. When these items of clothing have been put on, a transit suit shall be put on over all other clothing for transit to the work area. Work clothes that are worn into a contaminated area must be bagged up at the end of each project. Clothing may be laundered utilizing a washing machine equipped with a 5-micron water filter. This washing machine must be a dedicated unit, no other clothing to be laundered in this unit.

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- 083 Transit to the work area shall be by the shortest possible route. Staff will be familiar with the transit route prior to participating in any transit procedure. When the Staff member arrives at the three-stage air lock he/she will enter the clean or exterior chamber and remove the blue transit suit. The Staff member will then pass into the interior or dirty stage of the airlock where boots and gloves will be collected and put on.
- 084 The Staff member is ready to begin tasks that have been assigned to him/her by the site supervisor.
- 085 When the Staff member is ready to leave the work area, the Staff member will adhere to the following:
- .1 Staff will wait inside the work area until permission to exit is given by the site supervisor. When permission to exit is given Staff will inspect each other while still inside the work area. Any visible debris found shall be removed prior to commencing transit procedure. Boots will be thoroughly inspected at this time and washed.
 - .2 When the inside visual examination is complete the first Staff member may enter the dirty end of the three-stage unit to begin transit out. When the Staff member is completely inside the dirty stage he/she must inspect their Personal Protective Equipment ("PPE") and Respiratory Protective Equipment ("RPE") and wipe it down or vacuum where necessary, boots and gloves will be removed and stored safely to one side of the unit. The stripping suit shall then be removed and disposed of in a labelled red asbestos bag provided.
 - .3 When the Staff member has completed these steps he is free to step into the clean end of the three stage and don a transit suit. After transit suit has been donned the Staff member may proceed to the decontamination unit via the transit route.
 - .4 After arriving at the decontamination unit the Staff member will enter the dirty end making sure to close the door behind them. The transit suit shall be removed first followed by any other clothing. RPE must not be removed or stored in the dirty end of the decontamination unit at any time.
 - .5 The Staff member is now ready to enter the shower unit of the decontamination unit. With his or her RPE- respirator still fitted the Staff member shall enter the shower unit. Water shall be turned on and temperature adjusted to a comfortable level. Before the Staff member steps under the water stream the battery pack must be turned off and the filter covered. When these steps have been completed the Staff member may step under the water stream allowing water to soak the head and the exterior of their RPE. The Staff member may then remove the RPE and thoroughly clean it making sure not to get water into the motor or battery connections. When the respirator "RPE" is clean it may be hung on a hook while the Staff member thoroughly showers and cleans his/her body.
 - .6 When the Staff member has finished showering he may then enter the clean room remembering to bring RPE with him. RPE shall be bagged prior to the Staff member drying off and getting dressed back into street clothes.

Equipment

- 086 All tools and electrical equipment, such as H type vacuum cleaners and power tools, should be left in the removal area until the completion of the removal job. When the equipment is removed it should be vacuumed thoroughly and all accessible surfaces wiped over with a damp cloth. When decontamination is not possible, the item should be wrapped in plastic and sealed and only opened in another removal area.
- 087 Any asbestos contained in the H type Vacuum cleaner should be disposed of as asbestos waste.
- 088 The H type Vacuum should be cleaned, tested and calibrated at least every month.

Removal techniques for buildings and structures

- 089 The removal of asbestos-based materials from buildings and other structures should be carried out by methods, which will minimise the release of asbestos fibres into the atmosphere both during and after removal operation. The choice of method is determined by the nature of the asbestos material, the quantity of insulation and its location.
- 090 Breaking through the finishing compound and cutting the reinforcing wire in the lagging are operations, which can liberate considerable quantities of dust. Care should therefore be taken in the selection of tools and in keeping the insulation wet. Tools should allow cutting of the insulation into small sections while keeping asbestos fibre levels in the removal area to a minimum.

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- 091 Power cables, telephone cables and fire alarms may lie beneath asbestos insulation. These cables must be clearly identified prior to the commencement of any cutting as severe damage and/or hazard to the Staff member could result.
- 092 As the techniques used for the removal of sprayed thermal insulation from buildings are not dissimilar from those used for removal from steam pipes and boilers, the following removal methods may equally be adapted to the removal of asbestos from industrial plant and machinery.

Protective clothing and equipment

- 093 Respiratory devices "RPE" and protective clothing "PPE" are required during all abatement activities, adequate rest breaks should be provided for Staff during removal to take into account the physical strain caused by the use of such equipment.
- 094 The degree of respiratory protection required is determined by the nature of the removal job, the type of asbestos and the potential for exposure to asbestos fibres.
- 095 A guide to the selection of appropriate respiratory protection for various operations involving asbestos is presented in paragraph's 99 to 115 inclusive later in this Specification.
- 096 Face masks are to be checked and tested at least every 6 (six) months.

Dismantling of asbestos removal area

- 097 The asbestos removal Work ordered should only be considered to have been completed when the Provider and/or the Asbestos Licensed Contractor has complied fully with the clearance criteria.
- 098 On completion of the asbestos removal job, all tools and equipment not used for cleaning should be removed from the removal area so that efficient vacuuming of the inside of the removal area enclosure can be undertaken. In taking these tools and equipment from the removal area, appropriate decontamination procedures should be observed.
- 099 After clearance has been given, any sealing plastic used should then be dismantled, folded inwards and placed in appropriate disposal bags and sealed. The sealing plastic should not be reused, but must be treated as asbestos waste. Safety barricades and warning signs should not be removed until the complete area has been thoroughly cleaned.

HANDLING OF NON-FRIABLE ASBESTOS -FRIABLE ASBESTOS

- 100 Works of removal and disposal of non-notifiable non licensed, and notifiable non licensed materials in accordance with this Specification are deemed to be included in the rates in the Schedule of Rates and in the Provider's Tendered Rates and as defined in the NHF Schedule of Rates Measurement Preambles – Generally as stated below;
- „3 The removal and disposal of all non-licensed work on asbestos containing materials, whether it is notifiable or non-notifiable work (in accordance with and as defined un the Control of Asbestos Regulations 2012) such as but not limited to textured coatings, asbestos cement sheeting and roof tiles, vinyl floor tiling, gaskets etc.
- .4 Working in conjunction with all non-licensed work on asbestos containing materials, whether it is notifiable or non-notifiable work (in accordance with and as defined un the Control of Asbestos Regulations 2012) such as but not limited to textured coatings, asbestos cement sheeting and roof tiles, vinyl floor tiling, gaskets etc.”

General

- 101 Non-friable asbestos products have been compounded from asbestos mixed with cement or other hard bonding materials "asbestos is firmly bound in the matrix of the material". This section recommends precautions to be observed when working with non-friable asbestos products.

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- 102 These products include, but are not limited to:
- Flat or corrugated, compressed asbestos-cement sheeting;
 - Asbestos-cement pipes for water, drainage and flue gases;
 - Roofing slates;
 - Floor or wall coverings;
 - Asbestos gaskets;
 - Pump and valve packings;
 - Asbestos bonded into bituminous products;
 - Reinforced plastic products;
 - Thermoplastic products and backings;
 - PVC floor tiles and backings;
 - Asbestos-cement ducts and the like; and
 - Asbestos-cement drip trays and tank covers.
- 103 So long as these products are maintained in good order and are not worked on with abrasive cutting or grinding tools they are not likely to present a health risk.
- 104 New building materials incorporated since 1999 should not contain asbestos.
- 105 Ensure that precautions are observed during structural alteration or demolition involving asbestos-cement materials and removal of floor and wall coverings containing asbestos.

General precautions to be observed for non-friable asbestos products can be found in the Health and Safety Executive guidance "Asbestos Essentials Task Manual"

- 106 Work procedures must be designed to minimise the generation of dust. Action should be taken to avoid the spread of asbestos fibres. In particular, the following principles should be adopted:
- Abrasive cutting or sanding power tools should not be used on asbestos-containing products. These may generate large amounts of dust containing asbestos;
 - Non-powered hand tools such as handsaws should be used;
 - Wetting down the material further reduces the release of asbestos fibres when cutting;
 - High pressure water jets/guns shall not be used because of the potential to spread asbestos waste over the surrounding environment;
 - Work with asbestos-containing products in well ventilated areas and, where possible, in the open air;
 - Good work hygiene principles shall be observed. This may entail the use of plastic drop sheets to collect off-cuts and coarse dust or the use of appropriate vacuum cleaning equipment when necessary;
 - Suitable respiratory protection should be used when airborne asbestos fibres is likely to be present; and
 - All off-cuts and collected dust should be disposed of as asbestos waste. (See section 116-126 of this Specification.)

Removal and disposal of asbestos cement sheeting (Hazardous Waste Regulations)

- 107 Ensure that the following precautions are observed when removing asbestos-cement roofing, wall sheeting or other asbestos cement products from buildings or other structures:
- The asbestos-cement sheets should be sprayed with a sealing solution or wetted with water, but not with high-pressure water jets. Roofing sheets should not be wetted during freezing weather if it is anticipated that this could create a risk of slipping or falling from the roof;
 - Power tools should not be used during removal with the exception of a low RPM drill to remove roofing screws; this method should be used in conjunction with shadow vacuum techniques. Fixings may vary from job to job but in most cases a modified bolt cutter can be used to detach roofing material from substrates. Concrete saws including all electrical grinding equipment must not be used to detach asbestos cement products from substrates;
 - Damaged asbestos-cement should be kept wet to reduce levels of dust;
 - Asbestos-cement sheets should be removed whole where possible and should be lowered to the ground, not dropped;

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- The removed sheets should be stacked on a plastic sheet and not allowed to lie about the site where they may be further broken or crushed by machinery or site traffic;
- All asbestos-containing waste should be wrapped in plastic or otherwise sealed and removed from the site as soon as possible, using covered skips or on a covered lorry;
- The asbestos-containing waste should be disposed of in a manner, and at a site licensed for the storage, labelling and disposal of asbestos waste;
- Asbestos-cement sheets must not be reused or offered for sale;
- Any asbestos-cement residues remaining in the roof space or around the removal area should be cleaned up, using a "H" type vacuum cleaner or suitable wipes if necessary;
- Customers should be decanted or relocated (where appropriate);
- As far as practicable there should be no spread of contamination beyond the work area;
- All windows and doors in the building should be closed or in buildings where there is no ceiling the area below or adjacent to the work should be barriered off; and
- Staff should wear disposable overalls and either a disposable suitable RPE respirator or half-face mask fitted with appropriate dust filters.

Working on brittle roofs

- 108 Asbestos-cement sheeting is liable to shatter without warning under a person's weight and for this reason roofs that are sheathed in asbestos cement sheeting are included in those roofs known as "brittle roofs".
- 109 Persons who have the knowledge, experience and resources necessary to allow them to work at heights safely should only undertake the removal of asbestos-cement sheeting from a roof.
- 110 The Provider should consider what hazards are involved and how they can be overcome. In the planning and execution of the Work, a system of Work should be established, taking into consideration the Work to be done, relevant statutory requirements, the type of equipment necessary, the training and experience of the Staff involved, and the instruction and supervision required. The system of Work should allow for not only those directly involved in the Work, but also other persons who could be affected.

Removal of vinyl floor and wall coverings containing asbestos

NOTE: Dry sanding of vinyl asbestos floor coverings is **prohibited**.

- 111 Vinyl-asbestos coverings (usually asbestos-backed floor coverings) may still be encountered. They do not usually present a risk on site but breaking up to prepare the surface for replacement, or removal operations, may create a hazard.
- 112 The Provider in working with products that may contain asbestos should ensure that all practicable steps are taken to confirm whether or not asbestos is present. If there is any doubt about the product being asbestos free after the Provider has completed a risk assessment he should inform the Client requesting an Order for the asbestos analyst to have samples taken and laboratory tested to ISO/ICE 17025 undertaken. The product is more likely to contain asbestos if it was installed between 1960 and 1999.
- 113 Where the vinyl-asbestos coverings are found (or assumed) to contain asbestos the provisions set out in 089 to 092 above should be followed.
- 114 Significant release of asbestos fibres can result when vinyl-asbestos products are abraded by sanding. The work methods and control procedures used when working with vinyl-asbestos products must be designed to limit Staff' exposure to asbestos and the spread of asbestos into the surrounding environment.
- 115 In deciding the approach that is to be taken in replacing asbestos-backed vinyl products, the following option may be considered:
- Removing the product with a spade or other flat instrument in accordance with the Health and Safety Executive guidance.

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MONITORING ASBESTOS IN AIR LEVELS AND CLEARANCE PROCEDURES

General

- 116 The analytical service in monitoring asbestos in air levels and clearance procedures will be undertaken by Asbestos Consultants and Analysts (Specialist Subcontractors) appointed directly by the Provider whose fees and expenses are deemed to be included in the rates in the Schedule of Rates and in the Provider's Tendered Rates.
- 117 The measurement of airborne asbestos fibre levels may be required to verify that asbestos exposure standards have not been exceeded and to check that practices set out in the Health and Safety Executive guidance and these guidelines have been met. The main objective of sampling should be to ensure that the potential for personal exposure has been minimised. Air sampling should always be undertaken by competent laboratory as set out in second edition of the Health and Safety Executive guidance HSG 248 (May 2021).
- 118 The type of monitoring that is applicable will depend on the exposure circumstances and removal methods employed. Advice should always be sought from a competent laboratory that conforms with HSG 248.
- 119 The determination of airborne asbestos fibre concentrations in air must be carried out in accordance with HSG 248.

Selection of laboratories

- 120 As set out in the Health and Safety Executive guidance all involved in asbestos must be competent and the Client's Representative must satisfy himself that those employed in asbestos management or removal are competent to standards laid down in CAR Regulations. To demonstrate such competence the laboratory should demonstrate the meet requirements of International Standards Organisation "ISO/ICE 17025" that covers the whole organization in terms of quality systems, control of records, training, test calibration methods etc.

Air sampling

- 121 The Provider will be issued with an Order to appoint a Health and Safety Executive approved analyst to witness and sign off all test and clearance operations and issue of certificate of reoccupation.
- 122 Air sampling forming part of the overall asbestos management will include some/all of the following:
- Background sampling to establish the conditions that exist before work is commenced;
 - Leak testing to check the integrity of the enclosure deployed in removal or encapsulation activities;
 - Personal monitoring to verify that action level predictions are accurate and to facilitate internal risk assessments and control;
 - Clearance air monitoring to verify that the area is safe for normal occupation following the removal of asbestos materials;
 - Reassurance sampling — sampling after the working enclosure has been removed or other works in the vicinity of asbestos have been completed.

Visual inspections

- 123 The appointed analyst will examine the Provider's appointed Asbestos Licensed Contractor's plan of work (method statements) to familiarise themselves with the scope of Works. The first stage in the 4-stage clearance process is for the asbestos analyst to ensure the Works ordered have been completed, what was removed; is there any asbestos remaining in the Work area and the actual asbestos materials that were removed.

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- 124 The visual inspection second stage of 4 stage clearance is conducted after the removal area has been meticulously cleaned and prior to clearance air monitoring. Inspections, prior to clearance monitoring, will be the responsibility of the Provider, but the asbestos analyst must duplicate this function. The asbestos analyst may request that the Asbestos Licensed Contractor's supervisor accompany him during this exercise. Any asbestos remaining (i.e. that not visible to the naked eye) will be removed rapidly in the normal cleaning process. In some circumstances sealant may be applied to work surfaces and plastic sheeting after the visual inspection and initial monitoring (see Guideline for the Removal of Enclosure Area Sheeting). Any dust present in the removal area must be treated as if it contains asbestos. If asbestos is not completely stripped from an area because of access difficulties, then it should be sealed, and the location noted.

Clearance indicator air sampling Stage three of 4 stage clearance

- 125 Following a satisfactory visual inspection, clearance monitoring will be required. The area must be dry, and the negative air switched off and the inlet capped before sampling is started. As far as is practicable the decontamination unit must be isolated from the area being cleared. Clearance air monitoring should be carried out to HSG 248 and a written report issued by the laboratory.
- 126 Guideline for the removal of enclosure area sheeting
- Clean all internal surfaces including plant cover. Run exhaust air fan to clear area. Switch off fan and cap exit;
 - Visual inspection. Carry out clearance monitoring. Is result 0.01 fibres/ml or below? Strike tenting. Dispose of waste;
 - Reoccupation is this the first clean? Seal all inner surfaces with spray on sealant. Carry out clearance monitoring;
 - Is result 0.01 fibres/ml or below? Assess where fibre contamination is coming from and take appropriate action; and
 - Before tenting is struck, a result below 0.01 fibres/ml is required or confirmation that fibre contamination has not come from the asbestos removal job.

Final Assessment post enclosure/ work area dismantling stage four of 4 stage clearance

- 127 On satisfactory completion of all previous stages the final stage of the clearance process can commence, the analyst can be present during this process and all PPE, RPE should be worn. All polythene sheeting used in enclosure is disposed of as asbestos waste. In some situations, the asbestos analyst may take a further air test as an additional safety precaution or reassurance air test" after work area is fully cleared.
- 128 When all stages are completed satisfactorily the certificate of reoccupation is issued for the Work area and before removal from site at the end of the project but after use the decontamination unit is tested and certificate of reoccupation is issued. On completion of removals the Provider shall upload all details of removals on the Client's electronic asbestos register on a Property by Property; room by room basis including inventory of customer's items, waste documentation and copy of certificate of reoccupation and waste notices.

RESPIRATORY AND PERSONAL PROTECTION FOR ASBESTOS WORK

General

- 129 Providers and others involved in work involving asbestos or abatement procedures must be fully conversant with the appropriate control measures necessary to protect against exposure to asbestos fibres. There is a legal requirement placed on Providers to ensure that their Staff and others in the vicinity are adequately protected from the effects of asbestos.
- 130 Good occupational hygiene practice requires that all practicable efforts be made to prevent asbestos fibres from entering the air of the workplace. In circumstances where it is impracticable to prevent asbestos from entering the atmosphere, suitable respiratory protective equipment should be worn.
- 131 An information sheet on approved types of respiratory protection devices is available from the local office of the Health and Safety Executive.

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Standard respirator programme

- 132 It is essential for all contractors required to use respirators in their work to develop and run a comprehensive respiratory protection programme. There are seven elements to a successful programme, which include:
- The administrative system;
 - Knowledge and assessment of the risks involved;
 - Control processes;
 - Correct selection of respiratory protection Equipment (RPEs);
 - Staff training and supervision
 - Medical assessment in compliance with CAR Regulations; and
 - Inspection, fit tests and maintenance and storage of RPEs.

Administrative system

- 133 Written standard operating instructions must be available. These should provide information on the Provider's policy in respect of the issue and use of RPEs. One person should be responsible for the coordination and direction of this policy. Each RPE programme will vary according to the peculiarities of the work being carried out.

Knowledge and assessment of risks involved.

- 134 The degree of respiratory protection required for asbestos work is determined by:
- The nature of the work;
 - The type of asbestos;
 - The work methods; and
 - Potential for exposure to asbestos.
- 135 It is essential that a full appraisal of the Work using the above criteria be carried out to assess the likely risk factors and to identify the appropriate safety measures. It may be necessary to undertake environmental background or personnel monitoring to assist with the assessment and this is a responsibility of the rovider and the Asbestos Licensed Contractor (removal contractor).
- 136 Air contaminated with asbestos fibres will be the major hazard to Staff and the most appropriate control methods will need to be considered in the assessment process. Because the greatest risk is from the inhalation of asbestos fibres, stringent protection measures must be used. Therefore, all Staff likely to be exposed to asbestos must wear approved RPEs for the whole period exposed.

Correct selection of respiratory protection Equipment (RPEs)

- 137 To determine the correct selection of the most appropriate RPE for asbestos work, the following issues must be addressed:
- Fit to the wearer: If a proper fit cannot be achieved with one type, model or size of respirator, another, which does fit, must be provided;
 - Face seal: The presence of facial hair (beard, stubble growth, or sideburns), wearing of spectacles, or facial characteristics may affect the face seal adversely. Positive pressure powered equipment with full-face piece copes better with these problems than non-powered devices;
 - Freedom of movement: The need for a Staff member to move freely about a job will influence the type of RPE. While airline respirators offer higher protection the restrictions imposed by the airline may be prohibitive;
 - Physical and thermal stress: The wearing of RPE can cause severe problems during asbestos removal because of the physical activity required. In addition, this type of work is often carried out in hot environments. The cooling effect of air-supplied respirators will make them more acceptable and condensation on the visor will not be a problem; and
 - Other factors: These could include:
 - The need to communicate;
 - Ease of cleaning; and
 - Availability of replacement parts.

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Staff training

- 138 The correct and proper use of RPE must be taught to all users. No person should be required to use respirators without first being given training in correct use, operation, care and maintenance, emergency procedures, cleaning and storage requirements.

Medical assessment

- 139 Any type of respirator may impose undue stress on some users. Persons required to routinely wear respirators should be given the opportunity of a medical assessment to determine if they are able to safely wear them.

Inspection, maintenance and storage of RPE

- 140 Proper inspection, maintenance and repair of RPDs are an essential part of the respirator protection programme. Face-pieces should be cleaned, dried and stored properly after each use. Regular checks of the diaphragms, valves and face-piece parts will reveal any defect, which should be repaired. The batteries for powered air RPE will require recharging.

Protective clothing - General

- 141 Appropriate protective clothing will afford protection to asbestos Staff and prevent spreading contamination or health risk to others. All protective clothing used to carry out restricted work must be disposed of as asbestos waste. During other work involving asbestos protective clothing may be reused but appropriate measures must be taken to ensure cleanliness (see section on laundering).

Types of protective clothing

- 142 Persons involved in working with asbestos should always wear protective clothing which:
- Is made of material that resists penetration by asbestos fibres, such as nylon or treated synthetic material;
 - Covers the body and fits snugly at the neck, wrists and ankles. It should also cover the head by having an attached hood; and
 - Is maintained in good condition and if torn or damaged, immediately repaired or replaced;

NOTE: Because of the impervious nature of this type of clothing the wearer may become affected by heat stress. The Provider should ensure that Staff are knowledgeable on the signs and symptoms of heat disorders and the means to prevent illness caused by heat. There are three types of overalls in general use for asbestos work. Each type of overall has its advantages and disadvantages. The use of disposable or single-use overalls for all asbestos work is advisable because laundering is not required. Where the use of alternative types is necessary the full implications of how they will be cleaned or laundered need to be considered.

- Disposable or single-use protective clothing which is generally used for one job and discarded as asbestos waste. These are particularly suitable for all types of asbestos work;
- Overalls made from lightweight synthetic material such as nylon, which is also waterproof, or PVC waterproof clothing should be chosen as an option for the removal of non-friable materials only. The light nylon overall is particularly suitable for large ongoing jobs because they can be washed under a shower when leaving the contaminated area. Laundering is necessary primarily for hygiene. The PVC type overalls can be used in a similar way; however, they are heavy, cumbersome and too hot for longer jobs;

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Laundering of asbestos-contaminated clothing

- 143 The laundering of contaminated overalls presents some difficulties to comply with CAR Regulations Regulation 14
- The transfer and handling of contaminated overalls may put other people at risk from asbestos. For this reason contaminated overalls should never be washed in a home laundry and Staff in a laundry handling asbestos-contaminated clothing must take special precautions;
 - While the washing process removes asbestos fibres, the spin-drying cycle deposits the fibres on to the garment again; and
 - During the mechanical drying process asbestos fibres are released into the air. International standards require that clothing which has been used in asbestos work be "... laundered in accordance with the following requirements:
 - The clothing is, wherever practicable, laundered at the place at which the work involving asbestos has been carried out; and
 - If it is not practicable to launder the clothing at that place, the clothing is, before being taken to the place where it is to be laundered, damped and placed in a closed container impermeable to asbestos dust and conspicuously marked with the words "ASBESTOS CONTAMINATED CLOTHING"; and
 - Wherever the clothing is laundered, it is laundered in such a manner as to clean the clothing and to suppress the release of asbestos dust into the air; and
 - Every employee to whom the clothing is given for laundering receives, before being given the clothing, instructions on the precautions to be taken to ensure that the clothing is laundered and handled in such a manner as to protect the safety of every employee coming into contact with it during the laundering process; and
 - The clothing is not laundered by an employee at an employee's home."

Footwear

- 144 Footwear should be adequate for the type of work being undertaken and where possible have no laces.

Gloves

- 145 If gloves are provided they should be made of impervious material for ease of cleaning. To assist with manual dexterity disposable type gloves may be more acceptable. On health grounds, there are few reasons to require people handling asbestos casually to wear gloves, however, extended contact with asbestos can lead to asbestos corns or "warts".

STORAGE, LABELLING AND DISPOSAL OF ASBESTOS

General

- 146 This section outlines the steps necessary for the Provider to ensure, as far as is practicable, the prevention of contamination by asbestos from any workplace or property; to ensure that asbestos-containing materials are stored, labelled where agreed with the Client's Representative and disposed of correctly.

Storage and disposal of asbestos

- 147 The Provider should take all practicable steps to ensure that asbestos waste products are not received into, stored, distributed or dispatched from any place of work unless in suitably sealed and labelled receptacles. The receptacles should be designed, constructed, maintained and closed so as to prevent any of the contents escaping when subjected to the stresses and strains of normal handling.
- 148 It is the Provider's duty to ensure all dangerous substances are properly packaged and labelled and all asbestos waste shall be sealed in plastic bags (500 gauge thick) and labelled "Asbestos hazard — Wear respirator and protective clothing while handling contents".

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- 149 In addition bags shall be transported for disposal in UN approved and labelled double layered (red bag on inside clear bag) and have a specified means of closure (PVC tape and swan neck and tape) and are to be placed in a sealed skip when on site and subsequently disposed of in accordance with Hazardous Waste Regulations.
- 150 Sealed Asbestos skips are only to remain on site for the duration of the Works, and once the Works are complete and 4 stage clearance achieved are to be immediately removed. Sealed Asbestos skips remaining more than 24 hours after achievement of 4 stage clearance will be removed by a Client Party and all costs incurred by the Client will be set-off against the valuation of the Asbestos Works including an administrative fee of 100% of the cost of the skip removal.
- 151 Update the Client's electronic asbestos register system after removal of asbestos, putting information against specific locations where asbestos has been removed in each room in each specific property, including uploading details of any pertinent certificates and waste documentation within 10 days of completion of the Order.

Handling

- 152 Ensure that asbestos waste received into or dispatched from any workplace is packed in sealed plastic bags and FIBC's, the following practices applied:
- Pallet loads should be securely fastened by banding (in order to not cut the bags) and covered;
 - Pallet loads should be securely mounted on suitable pallets, which can be moved by hoist, forklift truck or other mechanical handling means without damage. Hooks or other sharp equipment should not be used for handling the bags; and
 - A supply of suitable adhesive tape should be made available by the Provider to repair any damaged bags. Where the damage cannot be repaired to prevent the release of asbestos during handling, the damaged bag should be placed inside another receptacle, which can be effectively sealed.
- 153 Asbestos cement sheets and pipes or insulating board should not be broken or cut for disposal in plastic bags. The Provider should ensure that these materials are suitably sealed in plastic and transferred to a labelled truck or skip for safe storage prior to being transported to an approved disposal site. The vehicle transporting the waste should be appropriately identified in accordance with the Regulations.
- 154 Clean skip or container thoroughly after use.
- 155 Manufactured goods containing asbestos, such as boilers, should be sealed or suitably packaged (e.g. by shrink wrapping) to prevent asbestos fibres arising from abrasion during transport.

Disposal at designated landfill of transfer station

- 156 Asbestos waste may only be deposited at a suitably licensed landfill facility or received by a suitably licensed transfer station prior to onward shipment to a licensed landfill. 3 days' notice must be given to the Environment agency before moving waste and consignment note process as defined in Hazardous Waste Regulations must be followed. Producers /Licensed Waste carriers of asbestos waste should ensure they receive written confirmation of a facilities status to accept such material to ensure compliance with their responsibilities under the Hazardous Waste Regulations.

Reuse of abated asbestos containing products

- 157 The reuse of abated asbestos containing products, such as corrugated roofing and slates is not permitted.

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INSTRUCTION AND TRAINING

General

158 This section applies to all Staff who are exposed to and required to work with asbestos including supervisory and maintenance personnel.

Type and scope of instruction and training required

159 Provide instruction and training to all such Staff (including those with supervisory functions) on the hazards, risks and controls as assessed for their particular work, and satisfy himself that any Asbestos Licensed Contractor appointed by the Provider meets the requirements of Regulation 10 CAR Regulations in terms of competence. The Health and Safety Executive guidance L143 and HSG 247 provides a list of requirements for persons who work with asbestos.

160 Provide all such Staff, including such temporary Staff with:

- Training and assessment in line with the CAR ACOP L143 AND HSG 247 for the Training of Asbestos Removal Operatives.
- Safe Pass Training: Where Staff or supervisors are required to operate plant or equipment covered by specific training requirements of Regulations, ACOPS or guidelines then such training should also be provided. The Provider must maintain, on site, proof that training has been provided in accordance with the above.

Training in maintenance of control equipment

161 Ensure that any person carrying out any maintenance or servicing of exhaust ventilation equipment or other control equipment is competent to carry out the task.

Training in the use of respiratory protective equipment

162 All employees shall be provided with training on the correct use and maintenance of respiratory protective equipment.

MEDICAL MONITORING

General

163 Health and Safety Executive regulations require among other things that Providers monitor the health of their employees in relation to significant hazards and it requires medical examination of employees exposed to significant hazards. The Provider shall assure themselves that their Staff have where applicable had medical examinations in compliance with CAR Regulations (every 3 years for>NNLW) and (every 2 years for licensed asbestos removal workers).

Initial medical CAR Regulations (Regulation 22)

164 Any Staff directing employees to undertake Asbestos Works must ensure that the employee has:

- A full work history;
- A medical examination, relevant to persons who work with asbestos including specific examination of the chest and other tests that may be appropriate prior to starting employment in restricted work;
- The Provider should ensure that the employee has this asbestos medical thereafter bi annually; and
- The cost of the medical examinations shall be the responsibility of the Provider.

165 Notwithstanding the above provision, the Health and Safety Executive may direct any person undertaking work involving asbestos to have a medical examination.

166 While the employee remains in the employment of the Provider:

- The Provider shall ensure that the employee has a medical examination in accordance with the Regulations.
- The cost of the medical examination shall be met by the Provider.

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Personal medical information

- 167 The personal medical information, of the employee remains the property of that employee. The Provider will receive certification from the medical practitioner stating whether the employee is fit or otherwise for the restricted asbestos work. The employee should be encouraged to share their medical information, where appropriate, with the Provider.
- 168 Where an employee leaves the company, the Provider should ensure that the employee is aware of the need to continue with bi annual medical examinations.
- 169 Retain all medical records relating to asbestos for a period of 40 years.

Medical examinations

- 170 The asbestos medical examinations shall be performed by qualified medical practitioners with specialist qualifications in occupational or respiratory medicine it is essential that all practitioners have experience in asbestos-related diseases and conditions.

Asbestos Exposure Register

- 171 Staff who may have been exposed to asbestos should ensure that their names and appropriate details are entered in the Asbestos Exposure Register administered by the Health and Safety Executive.

SPECIALIST EQUIPMENT

Controlled Wetting Equipment

- 172 Equipment for the controlled wetting of asbestos containing materials is to be in accordance with British Standard, it should effectively wet asbestos –containing materials and suppress asbestos fibres both during and after the asbestos removal process, by multi-point injection of sprayed coatings, insulating board, thermal insulation and coatings on pipes, tanks and vessels, or spraying with low-pressure spray heads of liquid on to insulating boards and other material less than 10mm thick to suppress the release of airborne asbestos.

Negative Pressure Units (“NPU”)

- 173 Portable and/or transportable negative pressure units are to be in accordance with British Standard, they are to incorporate HEPA filters to British Standard for use in the controlled removal of asbestos containing materials. This requirement also applies to negative pressure units designed to create negative pressure within a portable contamination unit facility or working enclosure and two part negative pressure units.

Class H Vacuum Cleaners

- 174 The operation, cleaning and maintenance of Class H (high hazard) vacuum cleaners is to be in accordance with British Standard, they are to incorporate a filter conforming to British Standard in the controlled removal of asbestos containing materials.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Client’s current manufacturers/suppliers/products

175 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

EXTERNAL WORKS

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

EXTERNAL WORKS

MATERIALS

Hardcore

- 001 For hardcore in beds and when filling to make up levels under paving, use only good clean hard brick, concrete, hard tiles, stone or ballast, broken before placing to pass a 75mm ring and free from all rubbish and deleterious material.
- 002 Thoroughly consolidate hardcore to the required levels and contours with a roller, vibrating roller or mechanical punner. Take care that no damage is done to adjacent work.
- 003 Blind surfaces of hardcore with sand, ashes or other fine material approved by the Client's Representative.

Sub-bases to Roads.

- 004 Type 1 Sub-base to be unbound mixture made from crushed rock, crushed slag, crushed concrete, recycled aggregates or well burnt non-plastic shale and may contain up to 10% by mass of natural sand that passes a 4 mm test sieve.
- 005 Type 2 Sub-base to be unbound mixture made from crushed rock, crushed slag, crushed concrete, recycled aggregates or well burnt non-plastic shale, natural gravel and natural sand that passes a 4 mm test sieve.

Precast concrete paving flags

- 006 Use only precast concrete paving flags of a standard and quality to Applicable Standard, approved by the Client's Representative, made from natural and crushed aggregate, hydraulically pressed, of uniform natural colour throughout and with a non-slip surface finish. Tactile paving flags are to be in accordance with Applicable Standard and laid in accordance with the applicable Standard.
- 007 Lay flags true and square on cement mortar (1:3) dabs with 6mm joints, or sand filled joints and pointed up with cement and sand (1:6) mortar in accordance with the applicable Standards and cleaned off on completion.

Precast concrete edgings and kerbs

- 008 Lay precast concrete edgings and kerbs on edge with top 6mm below the finished level of the adjacent surface and laid in accordance with the applicable Standard. All precast concrete edgings and kerbs are to be to applicable Standard.

Bond Coat

- 009 Bond coats should comply with the applicable Standards. The minimum target rate of spread to existing substrates should not be less than 0.3kg/m² of residual binder. For application to newly laid substrates the minimum target rate of spread should not be less than 0.2kg/m² of residual binder.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Asphalt Concrete

010 Asphalt concrete is to be in accordance with applicable Standard and PD 6691 for Category B traffic and laid and compacted to applicable Standard.

011 Binder to be petroleum bitumen conforming to Table 1 of the applicable Standard.

	Surface Course	Binder Course
Asphalt Concrete Paving for Carriageways and Shared Surfaces	Thickness: 40mm Material: AC14 Close Surf to PD 6691 Table B14 Column 1	Thickness: 60mm Material: AC20 Dense Bin to PD 6691 Table B11 Column 3
Asphalt Concrete Paving for Carriageways and Shared Surfaces – Basecourse Trafficked	Thickness: 30mm Material: AC14 Close Surf to PD 6691 Table B14 Column 1	Thickness: 70mm Material: AC20 Dense Bin to PD 6691 Table B11 Column 3
Asphalt Concrete Paving for Carriageways and Shared Surfaces – Surface Course only	Thickness: 30mm Material: AC14 Close Surf to PD 6691 Table B14 Column 1	
Asphalt Concrete Paving for Carriageways and Shared Surfaces and Humps		Thickness: 40mm Material: AC20 Dense Bin to PD 6691 Table B11 Column 3
Asphalt Concrete/Hot Rolled Asphalt to Carriageways and Shared Surfaces	Thickness: 40mm Material: HRA 30/10F Close Surf to PD 6691 Table C2.A Column 4 Surface Treatment: Uncoated chippings	Thickness: 60mm Material: AC20 Dense Bin to PD 6691 Table B11 Column 3
Asphalt Concrete/Hot Rolled Asphalt to Footpaths	Thickness: 25mm Material: HRA 15/10F Close Surf to PD 6691 Table C2.A Column 3 Surface Treatment: Uncoated chippings	Thickness: 50mm Material: AC20 Dense Bin to PD 6691 Table B11 Column 3

012 Asphalt concrete shall be laid by machine on carriageways and may be laid by hand on footpaths.

Hot Rolled Asphalt

013 Hot rolled asphalt is to be in accordance with applicable Standard and PD 6691 for Category B traffic and laid and compacted in accordance with the applicable Standard

	Surface Course
Hot Rolled Asphalt to Carriageways and Shared Surfaces (surface Course only)	Thickness: 40mm Material: HRA 30/10F Close Surf to PD 6691 Table C2.A Column 4 Surface Treatment: Uncoated chippings
Hot Rolled Asphalt to footpaths	Thickness: 25mm Material: HRA 15/10F Close Surf to PD 6691 Table C2.A Column 3 Surface Treatment: Uncoated chippings

014 All aggregates used for bituminous surfacing materials shall be sound, clean, hard broken rock graded to and conforming to the applicable Standards. Aggregates in the wearing course in contact with the wheels of vehicles shall have a maximum aggregate abrasive value of 16 and a minimum polished stone value of 45. Hot rolled asphalt to be transported and tested to the applicable Standards.

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Mastic Asphalt to existing Walkways/Flooring

- 015 Existing concrete surfaces are to be cleared of any possible contaminates and loose chippings/sections to be removed with minor repairs undertaken to allow coating to act as suitable basecoat. Existing outlets and up-stands should be securely fixed and cleaned of any possible contaminates.
- 016 Mastic asphalt is to be in accordance with the Applicable Standards and laid and compacted to the applicable Standard, amount of reclaimed asphalt to be 10% by mass of the total mixture.
- 017 Binder to be paving grade petroleum bitumen conforming to the applicable Standard.

	Surface Course
Mastic Asphalt to Walkways and Flooring	Thickness: 20mm Material: Fine aggregate to Applicable Standard Surface Treatment: Uncoated chippings Movement Joints: Proprietary within topcoat, at 6 metre centres or above existing structural expansion joints

Chippings

- 018 Pre-coated Chippings to comply with and applied in accordance with the applicable Standards.

Chippings to Asphalt Wearing Surface to Carriageway	Pre-coated nominal size 14mm , maximum aggregate abrasion value at 12 and a minimum polished stone value of 55
Coloured Chippings to Asphalt Wearing Surface to Carriageway	Pre-coated Hardened red pigmented 20mm, maximum aggregate abrasion value at 12 and a minimum polished stone value of 55 coated with escorey red epoxy resin
Un-coated Chippings to Asphalt Wearing Surface to footpaths	Clean dry granite chippings of a light colour, nominal size 10mm, distributed at the rate of 1kg/m2 and rolled in

Thermostatic Road Marking

- 019 To be hot thermos-plastic road marking to applicable Standard applied as detailed in Traffic Signs Manual Chapter 8, Traffic Safety Measures and Signs for Roadworks and Temporary Situations.

Interlocking brick/block paving

- 020 Ensure concrete block paving is of uniform colour throughout and of a size, shape and colour to match existing. Block paviors to be in accordance with and laid in accordance to the applicable Standards in either herringbone or stretcher bond.
- 021 Sand for bedding to be sharp sand or crushed rock fines, not more than 10%, retained on a 5mm BS sieve and evenly graded as Applicable Standard GF85)/4/(MP) fine aggregate with clay, silt and fine dust content not more than 3% by mass, and free from deleterious salts and contaminates.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

WORKMANSHIP

Formation

- 022 Thoroughly compact the bottom of stripped or excavated areas to receive base. Remove any obstructions or soft spots and add and compact suitable additional Material to provide level or graded surfaces of equal bearing capacity.

Bases for paving

- 023 Immediately after compaction of the earth formation, lay a limestone base with limestone dust blinding in a consolidated layer not exceeding 150mm thick compacted with a vibrating roller or mechanical rammer.

Concrete paving flags

- 024 Unless specified otherwise elsewhere, lay flags to the Applicable Standard on a prepared stone base to match existing bonding and on a 25mm thick consolidated bed of semi-dry mortar. Use joints 5-10mm wide pointed with cement mortar (1:3) as the Works proceed. Protect completed paving until the pointed joints have set and then brush off and leave clean.

Asphalt Concrete and Hot Rolled Asphalt

- 025 Lay asphaltic concrete and hot rolled asphalt paving to a standard and quality approved by the Client's Representative.
- 026 Lay and compact asphaltic concrete and hot rolled asphalt in restricted areas by methods that produce a compacted finish equivalent to the thickness achieved by heavy rollers.

Kerbs and edgings

- 027 Bed kerbs and edgings on concrete and haunched half-way up on the back. Form fine open joints between units. Full height upstand is to be 125mm above road or channel level.
- 028 Drop kerb upstand shall be 0-10mm for pedestrian crossings, and 25mm for vehicular crossings.

Interlocking brick/block paving

- 029 Ensure that sub-bases are suitably accurate and to the specified gradients before laying paving.
- 030 Lay block paving on a well graded sand bed vibrated to provide a thoroughly interlocked paving of even overall appearance with regular sand filled joints and accurate to line, level and profile, and thoroughly compact block paving's with vibrating plate compactor as laying proceeds.
- 031 Cut blocks/paviors neatly and accurately without spalling to give neat junctions at edge restraints and changes in bond.

Stopcock Pits

- 032 Construct stopcock pit to specified size, including excavation, disposal, earthwork support, backfill, lay 75 mm concrete base and concrete common bricks to applicable Standard to form half brick wall in cement mortar (1:3 30N/mm²) in stretcher bond, form 2 number holes each not exceeding 55mm nominal size diameter, and fix only surface box supplied by Water Authority, bedded in cement mortar (1:3)

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Lighting Column Bases

033 Construct lighting column base to specified size, including excavation, disposal, earthwork support, backfill, place mass concrete base with cable recess, base size as table below:

Lighting Column Height	Base Size
5m	600mm x 600mm x 750mm deep
6m	600mm x 600mm x 1000mm deep
8m	600mm x 600mm x 1200mm deep
10m	600mm x 600mm x 1500mm deep
12m	600mm x 600mm x 1800mm deep

Pipe Ducts

034 Pipe ducts are to be laid straight to line, true to gradient or level on the specified bedding material, provide 50mm minimum clearance between pipe ducts when they cross, materials to be:

PIPE DUCT FOR:	
General Use	Unplasticised PVC to Applicable Standard complete with drawlines and flexible joints
Street Lighting Cables in Footways to Footpaths	32mm diameter Orange alkathene ducting made from polythene or PVC-u marked with name of Street lighting Authority and Year of Manufacture in 6mm high blue lettering along its entire length, no joints allowed
Street Lighting Cables in Carriageways or Parking Areas	160mm diameter PVC-u to Applicable Standard complete with flexible joints

Identification Tape

035 During backfilling of trenches for electricity service cables, lay continuous colour coded, heavy gauge polythene identification tapes, 300mm below the surface along the route of the cable. Marker tape for street lighting cables shall be 150mm wide coloured yellow and printed its length in 100mm high black lettering with the words caution – street lighting Cable below”

Tree Felling/Removal

- 036 Felling shall consist of the removal of the complete tree, including the stump to below ground level.
- 037 If the stump is not to be ground out, the Provider will be required to leave the stump as low to the ground as possible, unless otherwise Instructed by the Client’s Representative.
- 038 When felling trees in open spaces, if there is a delay between felling and stump removal, the Provider shall leave the stump at a height of at least 1m above ground level to prevent people tripping over it.
- 039 The resultant hole following stump removal is to be backfilled and consolidated with topsoil to ensure a finish level with the surrounding area. For trees in hard surfaces, the hole shall be backfilled with topsoil to 7cm’s below the surrounding area. Before leaving the site unattended, the Provider must reinstate the surface to match the surrounding area and leave the area safe and level with the surrounding area.
- 040 Advance warning notices must be delivered by the Provider at his own expense at least one week prior to the removal of any tree to neighbouring households where trees adjoining dwellings are required to be removed. The format of the advance warning notice is to be agreed with the Client’s Representative.

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- 041 Take due care when felling or removing trees to avoid damage to property, ground surfaces, animals, people, vegetation and surrounds. The Provider must ensure that branches, limbs, trees and stumps are removed using a safe system which complies with recognised procedures. The Client's Representative will require the Provider, in certain cases, to provide a method statement of procedure. Before the Work can be undertaken in such cases, the Client's Representative must approve the working system outlined in the statement.
- 042 All damage resulting from the felling or removal of trees is the responsibility of the Provider. The Provider must carry out all rectification and reinstatement to the satisfaction of the Client's Representative.
- 043 Remove all arising's from site.

Stump Removal

- 044 The Client's Representative will specify to the Provider whether stumps are to be grubbed up or ground out.
- 045 Where trees are removed from streets (hard paved and bitumen macadam areas), the surface must be reinstated and left safe before moving on to the next operation on site.
- 046 Any hollow remaining after stump removal shall be backfilled and consolidated with a layer of topsoil, 70mm below the surrounding ground level and the original surfacing reinstated. Great care must be taken by the Provider not to damage any services.
- 047 Where trees are removed from lawns, shrub areas etc., and the location shall be reinstated before proceeding to the next operation. Reinstatement shall consist of backfilling with topsoil and then consolidation. The backfill shall be mounded sufficiently to allow for settlement. Where the surrounding area is grass the Provider must sow the new topsoil with an adequate amount of amenity grass seed.
- 048 Grubbing up of the stump shall consist of the complete removal of the tree stump and roots over 4cms in diameter by hand, machine excavation, winching or other means, trees used as an anchorage for winching operations shall be adequately protected by rubber ties, cordwood or other suitable material in accordance with the Applicable Standard for Tree work

Site/Street Furniture

- 049 Rotary Driers are to be constructed from:
Clothes line; 2.6mm diameter, minimum 24m plastic coated line;
Non-folding arms; 3 or 4 no 25mm diameter aluminium tubes or 25mm x 13mm painted galvanised steel section;
Non-folding stays; 3 or 4 no 20mm diameter aluminium tubes or 13mm x 13mm painted galvanised steel section;
Brackets: zinc die cast;
Centre Pole: galvanised hot finished welded hollow section made from steel to Applicable Standard, minimum 34mm diameter, minimum 1.7m length;
Excavate 450mm deep hole for 300mm x 300mm x 375mm concrete (Gen 3) base, with aluminium tube cast in, backfill and disposal off site;
- 050 Tubular clothes posts are to be constructed from:
50mm heavy duty steel tube 2050mm long;
Top cross member; 750mm long, twice bored and fitted with 5mm guide rings of 15mm diameter;
Hitch handles; 5mm diameter bent to butterfly shape with no sharp projections, fitted 1100mm from top of post;
Fixing lugs; 2 no 200mm x10mm inserted through post at right angles to each other and welded Galvanised after manufacture;
Excavate 450mm deep hole for 300mm x 300mm x 450mm concrete (Gen 3) base, with post cast in, backfill and disposal off site;

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- 051 Precast concrete clothes posts are to be constructed from:
Post; 125mm x 125mm at base tapered to 90mm x 90mm at top with pyramid top, post 3050mm long, twice holed 75mm from top, and 1500mm from top to accommodate fittings;
Galvanised hook to top hole, and galvanised "D" shaped tying ring to mid hole;
Excavate 550mm deep hole for 450mm x 450mm x 450mm concrete (Gen 3) base, with post cast in, backfill and disposal off site;
- 052 Litter bins are to be constructed from:
Hardwood slats on galvanised steel frame, and galvanised steel liner fixed with a security chain;
Ground fixed to insitu concrete (Gen 3) foundation 300mm x300mm x200mm, or post or wall fixed as manufacturer's technical data sheet;
- 053 Footpath Bollards are to be comply with Applicable Standard and to be constructed from:
Galvanised tubular steel painted black with bands
Bollards to be set in concrete (Gen 3) base 300mm x 300mm x 375mm concrete base, with high intensity retro-reflective bands set back 500mm from face of kerb to centre of bollard. Excavate, backfill and disposal of excavated materials off site;

Cleaning Existing Paving

- 054 Clean existing paving with high pressure washer, the Provider is to determine the pressure and any chemical additive necessary to achieve the required level of cleaning. The Provider is to ensure that the pressure washing does not displace any jointing sand/fine aggregate during the cleaning process.

Topsoil and soil ameliorants

- 055 Preparation of undisturbed topsoil is to be in accordance with Applicable Standard. Break up hard ground thoroughly, remove visible roots and large stones with a diameter greater than [75 mm]. Areas to be covered with turf or thick sward are to be rotavated or dig over to full depth of topsoil. At appropriate times treat with a suitable translocated non-residual herbicide.
- 056 Imported topsoil for multi-purpose use accordance with Applicable Standard: Loamy sand.
- 057 Imported low fertility topsoil for specific purpose - Low fertility. - soil textural class to Applicable Standard: Sandy loam
- 058 Sanitised and stabilised composted materials is to be certified to PAS 100 with horticultural parameters: -
- pH (1:5 water extract): 7.0-8.7;
 - Electrical conductivity (maximum, 1:5 water extract): 200 mS/m;
 - Moisture content (m/m of fresh weight): 35-55%;
 - Organic matter (minimum): 25%;
 - Grading (air dried samples): 99% passing 25 mm screen, and 90% a 10 mm screen mesh aperture;
 - Carbon:Nitrogen ratio (maximum): 20:1;
 - Texture: Friable;
 - Objectionable odour: Not permitted; and
 - Quality Compost Protocol certification: Required.
- 059 Green compost for soil amelioration to be in accordance with BSi PAS 100:2011 or current revision, obtained from a PAS 100 compliant facility.

Spreading Topsoil

- 060 Spreading topsoil is to be in accordance with Applicable Standard and the following requirements:
- Temporary roads or surfacing: Remove before spreading topsoil.
 - Spreading: Spread when reasonably dry, maintaining crumb structure. Do not compact.
 - Layers: - Depth (maximum): 150 mm. - Gently firm each layer before spreading the next.
 - Depth after firming and settlement: No greater than 400 mm.

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- 061 The finished levels of topsoil after settlement is to be:
- Above adjoining paving or kerbs: 30 mm.
 - Within the root spread of existing trees: Unchanged.
 - Below dpc of adjoining buildings: Not less than 150 mm.
 - Shrub areas: Higher than adjoining grass areas by 30 mm.
 - Within root spread of existing trees. Unchanged.
 - Adjoining soil areas. Marry in.
- 062 Final cultivation of topsoil is to be:
- Compacted topsoil: Break up to full depth.
 - Tilt: Loosen, aerate and break up topsoil to a tilt suitable for blade grading.
 - Depth: maximum 400 mm.
 - Particle size (maximum): 25 mm.
 - Timing: Within a few days before planting or sowing.
 - Weather and ground conditions: Suitably dry.
 - Surface: Leave regular and even.
 - Levels: 30mm above surrounding surface.
 - Undesirable material brought to the surface:
 - Remove visible weeds. –
 - Remove roots and large stones with any dimension exceeding 25mm.
- 063 Grading of topsoil:
- Contours: Smooth and flowing, with falls for adequate drainage.
 - Hollows and ridges: Not permitted.

Seeding/ turfing

- 064 General Information/Requirements

Seeded and Turfed Areas

Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.

Appearance: A closely knit, continuous ground cover of even density, height and colour.

Climatic conditions: Carry out the work while soil and weather conditions are suitable.

Watering:

- quantity: wet full depth of topsoil;
- application: even and without displacing seed, seedlings or soil;
- frequency: as necessary to ensure the establishment and continued thriving of all seeding/turfing;

Water restrictions:

- timing: if water supply is or is likely to be restricted by emergency legislation do not carry out seeding/turfing until instructed. if seeding/turfing has been carried out, obtain instructions on watering;

Notice, give one week's notice before to the Client's Representative at the following stages:

- setting out;
- applying herbicide;
- applying fertilizer;
- preparing seed bed;
- seeding or turfing;
- visiting site during maintenance period;

Setting out:

- boundaries: mark clearly.
- delineation: in straight lines or smoothly flowing curves as shown on drawings.

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065 Preparation

Soil Requirements

Wildflower seeded areas: 100mm dressing of low fertility topsoil.

Lawn areas: Existing topsoil, incorporated with compost.

Wildflower Seed Mixture for Wildflower Meadows:

- Supplier: Emorsgate or other equal and approved. –
- Mixture reference: EM4 or other equal and approved.
- Origin of each species (as defined in Flora Locale's Code of practice for collectors, growers and suppliers of native flora): UK origin.
- Application rate: 4 g/m².

Flowering Lawn Seed Mixture for Flowering Lawn

- Supplier: Emorsgate or other equal and approved. –
- Mixture reference: EL1.
- Origin of each species (as defined in Flora Locale's Code of practice for collectors, growers and suppliers of native flora): UK origin.
- Application rate: 4 g/m².

Quality of Seed for all Grassed Areas:

- Freshness: Produced for the current growing season.
- Certification: Blue label certified varieties.
 - Standard: EC purity and germination regulations.
 - Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
- Samples of mixtures: Submit when requested.

Quality of Wildflower Seed for Wildflower and Flowering Lawn:

- Standard: In accordance with Flora Locale's 'Code of practice for collectors, growers and suppliers of native flora'.
- Germination testing: Not required.
- Freshness of seed: Produced for the current growing season.
- Samples: Submit when requested.

Sowing

- General: Establish good seed contact with the root zone.
- Method: Seed drill, Distribution: 2 equal sowings at right angles to each other.
- Season: Grass seed generally: April to October.

Cleanliness

- Soil and arisings: Remove from hard surfaces.
- General: Leave the works in a clean, tidy condition at Completion and after any maintenance operations.

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Client’s current manufacturers/suppliers/products

066 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

FENCING AND GATES

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

FENCING AND GATES

MATERIALS

Generally

- 001 Follow any timber sizes stated in the Schedule of Rates items, in preference to those stated in any applicable Standard or equivalent.
- 002 Use only galvanised/theradised ironmongery and fixings.
- 003 Where the Schedule of Rates refers to posts “not exceeding” a particular size in Orders and for Valuation use the Schedule of Rates item closest to actual post sizes used in the Works.
- 004 Use cement, water, aggregates and sand as defined in the “Concrete Work” Section.
- 005 Note that different fencing types exist amongst the Properties in a variety of heights and with concrete and metal posts set in earth or concrete.

Timber gates

- 006 Construct frames with ledge and bracing joints. Bracing shall rise up from the hinged side of the gate.

Metal gates

- 007 Properly weld together metal gates and grind all welds to a smooth finish, before undertaking galvanising.

Pressure impregnating

- 008 Where Works are described as ‘pressure impregnated with preservative’ use pressure pretreated timbers for fencing and gates with organic, solvent-based preservative treatment approved by the Client’s Representative. All timber shall receive a double vacuum treatment in accordance with the applicable Standard after machining. This treatment shall be a modern, industrial, organic, solvent based wood preservative containing no “red list” biocides. Application must be by low pressure impregnation, giving highly effective protection against wet rot fungi and having a 30 year warranty.
- 009 Carry out deep cutting, planning and other fabrication before treatment. Where any crosscutting or notching of the pressure impregnated timbers is necessary, liberally treat all new surfaces exposed with a preservative approved by the Client’s Representative.
- 010 Produce a certificate of treatment to cover all timbers processed indicating that the timber has been procured from sources which can independently be verified as being either: from a legal and sustainable source or from a FLEGT licensed or equivalent source. This shall comply with the EU timber Regulation (EUTR) and the UK Timber Procurement Policy (TPP).

Wood preservatives

- 011 Thoroughly clean all woodwork to be treated and ensure it is perfectly dry before application. Apply (by brush, trowel, injection or gravity irrigation treatment) the preservative in two coats and work it into all joints. Follow with the second coat before the first coat has dried out. Use only products registered by the Health and Safety Executive (HSE) and listed on the HSE website under non-agricultural pesticides.

Concrete mix

- 012 Ensure all concrete used for bedding in posts is Gen1 as defined in the “Concrete Works” Section.

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Nails and screws

- 013 Ensure nails, screws, clips, wire and other ancillaries and fixings are galvanised and as defined in the "Woodwork" Section.

WORKMANSHIP

Fence route

- 014 Clear vegetation or other obstructions along fence routes. Remove any humps and fill any hollows with compacted soil to provide a clear way, permitting unobstructed passage on both sides of the fence, approximately level or with smooth undulations.
- 015 Identify any services in the ground before excavations commence and take appropriate precautions to avoid any damage.

Fence erection

- 016 Erect fences as follows:
- with posts truly vertical and tops to line;
 - with struts uniformly angled to give maximum support;
 - with straining posts in strained wire fences located at each end, at each change in direction and at each acute change in level;
 - with struts to all straining posts in the direction of the line of the fence; and
 - with posts fixed, but if the ground is soft or a post or strut cannot be securely fixed in the manner specified, set in concrete (or additional concrete) or otherwise as approved by the Client's Representative, to make the fence secure.

Fixing posts

- 017 Fix posts as specified in the applicable Standard for the type of fencing involved and in accordance with the following:
- in concrete:
 - use appropriate size and depth for size of post; and
 - use appropriate size and depth for size of struts;
 - using holes with vertical sides; and
 - where using:
 - concrete in holes: half fill the hole with concrete with earth above, both well rammed;
 - earth filled holes: keep the hole as small as possible consistent with refilling and compacting with earth (Cleft Chestnut Pale Fencing only); or
 - driven posts: drive without damaging the posts. (Cleft Chestnut Pale Fencing only)

Post spurs

- 018 Use metal post spurs, where Instructed by the Client's Representative.

Painting

- 019 Ensure decoration specified in the Schedule of Rates matches the existing unless Instructed otherwise.

Maintaining protective treatments

- 020 Avoid cutting on site. Make good any damaged protective coatings (e.g. galvanising) to the standard of protection given by the specified coating. Do not cut timber treated with preservative where it will be in the ground. Apply preservative coating to any cuts to treated timber.

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Chain-link Fencing

021 Chain-link fencing shall consist of:

Galvanised steel chain link: 50mm mesh, 3.5mm galvanised, fixing to line wire with crimping rings at 300mm centres

Line wire: 3mm nominal diameter galvanised plain mild steel wire.

Posts: for 900mm high fencing, post to be 100mm x 100mm x 1450mm long, parallel sided, weathered on top, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, intermediate posts, three times holed, corner and end posts, three times holed both ways, and once holed one way with 12mm diameter holes. End and corner posts to have mortice and 10mm diameter bolt holes to engage stays. Three number line wires at 430mm centres. Excavation for corner and end post holes 450mm x 450mm x 675mm, excavation for intermediate post holes 250mm x 250mm x 675mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Posts: for 1200mm high fencing, post to be 125mm x 125mm x 1870mm long, parallel sided, weathered on top, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, intermediate posts, three times holed, corner and end posts, three times holed both ways, and once holed one way with 12mm diameter holes. End and corner posts to have mortice and 10mm diameter bolt holes to engage stays. Three number line wires at 580mm centres, nominal 3.5mm diameter. Excavation for corner and end post holes 450mm x 450mm x 675mm, excavation for intermediate post holes 250mm x 250mm x 675mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Posts: for 1800mm high fencing, post to be 125mm x 125mm x 2620mm long, parallel sided, weathered on top, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, straight run posts, five times holed, corner and end posts, five times holed both ways, and once holed one way with 12mm diameter holes, End and corner posts to have mortice and 10mm diameter bolt holes to engage stays. Three number line wires at 880mm centres, nominal 4mm diameter. Excavation for corner and end post holes 450mm x 450mm x 850mm, excavation for intermediate post holes 300mm x 300mm x 850mm, 100mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Stays: for chain-link fencing fixed to end and corner posts in-line with fencing, size and length of stay to match height of fence:

900mm Fence = 75mm x 75mm x 1500mm stay
1200 mm Fence = 100mm x 75mm x 1830mm stay
1800mm Fence = 100mm x 85mm x 2590mm stay
Or to in accordance with the applicable Standards

Stay parallel sided, splayed and holed at top for stay bolt fixing to posts on top, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, three times holed with 12mm diameter holes, bolts for fixing stays 125mm long x 10mm diameter with nut and washer, eye bolts to all cut ends. Excavation for stay holes 600mm x 300mm x 525mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

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Vertical Board Fencing

022 Vertical timber boarded fencing shall consist of:

950mm Vertical board (rounded top with bull wire):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
900mm long x 94mm x 20mm board with rounded top, fixed vertically at 114mm centres to runners;
Bull-wire 3.15mm diameter (10SW) galvanised mild steel to applicable Standard stapled to horizontal runners;

1050mm Vertical board (rounded top):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1000mm long x 144mm x 20mm board with rounded top, fixed vertically at 164mm centres to runners;

1050mm Vertical board (square top):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1000mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;

1050mm Vertical board (square top with bull-wire):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1000mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;
Bull-wire 3.15mm diameter (10SW) galvanised mild steel to applicable Standard stapled to horizontal runners;

1250mm Vertical board (square top):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1200mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;

1675mm Vertical board (square top):

3 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1600mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;

1675mm Vertical board (square top with bull-wire):

3 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1600mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;
Bull-wire 3.15mm diameter (10SW) galvanised mild steel to applicable Standard stapled to horizontal runners;

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1875mm Vertical board (square top):

3 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1800mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;

1875mm Vertical board (square top) with bull-wire:

3 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1800mm long x 144mm x 20mm board with splayed top, fixed vertically at 164mm centres to runners;
Bull-wire 3.15mm diameter (10SW) galvanised mild steel to applicable Standard stapled to horizontal runners;

1050mm Vertical board (double narrow board):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
Wide board: - 1000mm long x 144mm x 20mm splayed top board, fixed vertically at 204mm centres;
2 nr narrow boards: – 1000mm long x 72mm 20mm splayed top and fixed vertically to form evenly spaced infill (20mm spaces between all boards);

1050mm Vertical board (triple narrow board)

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
Wide board: - 1000mm long x 144mm x 20mm splayed top board, fixed vertically at 420mm centres;
3 nr narrow boards:– 1000mm long x 72mm x 20mm splayed top and fixed vertically at 92mm centres to form infill (20mm spaces between all boards);

1050mm Vertical board (picket):

2 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
1000mm long x 72mm x 20mm splayed top board, fixed vertically at 144mm centres; (72mm spaces between all boards);

1050mm Vertical board (staggered height picket):

3 nr. 44mmx 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
Alternate 1000mm/650mm long x 72mm x 20mm splayed top board, fixed vertically at 144mm centres (72mm spaces between all boards);

1800mm Diagonal board:

3 nr. 44mm x 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
144mm x 20mm splayed top edge, fixed diagonally (45% to horizontal) at 175mm centres, splayed ends to board;

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1800mm Diagonal board (with bull-wire):

3 nr. 44mm x 69mm splayed horizontally softwood runners bolted with 200mm x 10mm diameter bolt with nut and washer at connection of runner and post;
144mm x 20mm splayed top edge, fixed diagonally (45% to horizontal) at 164mm centres, splayed ends to board (20mm spaces between all boards);
Bull-wire 3.15mm diameter (10SW) galvanised mild steel to applicable Standard stapled to horizontal runners;

Posts: for 1050mm high fencing:

Post to be 100mm x 100mm x 1350mm long, parallel sided , weathered in one direction, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, twice times holed both directions with 12mm diameter holes;
Posts at 1800mm centres;
Excavation for post holes 300mm x 300mm x 425mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Posts: for 1250mm high fencing:

Post to be 100mm x 100mm x 1550mm long, parallel sided , weathered in one direction, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, twice times holed both directions with 12mm diameter holes;
Posts at 1800mm centres;
Excavation for post holes 300mm x 300mm x 425mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Posts: for 1675mm high fencing:

Post to be 125mm x 125mm x 2250mm long, parallel sided , weathered in one direction, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, three times holed both directions with 12mm diameter holes;
Posts at 1800mm centres;
Excavation for post holes 300mm x 300mm x 725mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Posts: for 1800mm and 1875mm high fencing:

Post to be 125mm x 125mm x 2440mm long, parallel sided , weathered in one direction, reinforced with 4 Nr 6mm diameter mild steel, bars laced with binding wire at 200mm centres, three times holed both directions with 12mm diameter holes;
Posts at 1800mm centres;
Excavation for post holes 300mm x 300mm x 800mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

Garden Rail Fencing

023 Garden rail fencing 450mm high consisting of:

225mm x 50mm softwood horizontal rail with splayed top edge bolted with 150mm long x 9mm diameter bolts with nuts and washers to posts;
Concrete posts 750mm long x 75mm x 75mm with splayed top edge with two 11mm diameter holes,
Excavation for post holes 300mm x 300mm x 425mm, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth.

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Cleft Chestnut Pale Fencing

024 Cleft Chestnut Pale Fencing 1200mm high to applicable Standard, type CW120 consisting of:

3 lines of (4 strands) twisted wire at 450mm spacing between wire and 75mm spaces between 1200mm long pales;
125mm x 125mm x 2050mm long wooden intermediate posts at 2250mm centres;
125mm x 125mm x 1870mm long wooden corner posts;
100mm x 75mm x 1830mm long wooden straining posts;
Posts driven into earth, minimum 300mm deep

Open Mesh Steel Panel Fencing (General Purpose Grade)

025 Open mesh panel fencing 2000mm high consisting of:

50mm x 50mm mesh welded at each intersection, 4mm diameter wire, each mesh panel to be 3025mm wide x 2000 mm high with minimum of 2 horizontal "v" rails to provide rigidity, fixings and clamps to posts as manufacturer's technical data sheet, all wire to be green organic powder coated to applicable Standard;
Posts: galvanised rectangular hollow section, powder coated to match mesh panels;

Metal Fencing

026 900mm High Steel Bow Topped Fencing constructed from:

2 no 40mm x 10mm mild steel horizontal rails with top rail holed at 112mm centres with 13mm diameter holes;
540mm girth x 40mm x 10mm intermediate mild steel support once bent and welded centrally to lower horizontal rail with 150mm x 150mm x 10mm mild steel base plate welded on;
13mm diameter mild steel Uprights with bow tops overall height 815mm welded to the 2 no horizontal rails, Uprights at max 112mm centres;
Each end of horizontal rail fixed to lug of post with 1 no 6mm diameter x 50mm long mild steel bolt with lock nut and washer.
1175mm long x 40mm x 40mm x 3.2mm mild steel hollow section intermediate posts with 4no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 6mm diameter hole, 150mm x 150mm x 10mm mild steel base plate welded on the base and solid mild steel capping welded to top of posts.
Posts at 2600mm centres;
1175mm long x 40mm x 40mm x 3.2mm x 50mm long mild steel hollow section end posts with 2no 40mm x 10mm x 3.2mm lugs welded on, each lug with 6mm diameter hole, 150mm x 150mm 10mm mild steel base plate welded on and solid mild steel capping welded to top of posts;

All components to be galvanised after manufacture and assembly;

Excavation for intermediate and end post holes 300mm x 300mm x 600mm deep, and 300 x 300mm x 300mm for intermediate supports, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

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027 1200mm High Steel Bow Topped Fencing constructed from:

2 no 40mm x 10mm mild steel horizontal rails with top rail holed at 112mm centres with 13mm diameter holes;
540mm girth x 40mm x 10mm intermediate mild steel support once bent and welded centrally to lower horizontal rail with 150mm x 150mm x 10mm mild steel base plate welded on;
13mm diameter mild steel uprights with bow tops overall height 815mm welded to the 2 no horizontal rails, Uprights at 12mm centres;
Each end of horizontal rail fixed to lug of post with 1 no 6mm diameter x 50mm long mild steel bolt with lock nut and washer.
1650mm long x 40mm x 40mm x 3.2mm mild steel hollow section intermediate posts with 4no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 6mm diameter hole, 150mm x 150mm x 10mm mild steel plate welded on the base and solid mild steel capping welded to top of posts. Posts at 2600mm centres;
1650mm long x 40mm x 40mm x 3.2mm mild steel hollow section end posts with 2no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 6mm diameter hole, 150mm x 150mm 10mm mild steel base plate welded on and solid mild steel capping welded to top of posts;

All components to be galvanised after manufacture and assembly;

Excavation for intermediate and end post holes 300mm x 300mm x 600mm deep, and 300 x 300mm x 300mm for intermediate supports, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

028 970mm High Steel Double Bow Topped Fencing constructed from:

2 no 40mm x 10mm mild steel horizontal rails with top rail holed at 103mm centres with 13mm diameter holes;
13mm diameter mild steel Uprights with bow tops overall height 885mm welded to the 2 no horizontal rails, Uprights at 103mm centres;
Extra bow tops, 13mm diameter mild steel extra bow tops to match profile of bow tops on uprights, both ends welded to bow tops on uprights;
Each end of horizontal rail fixed to lug of post with 1 no 10mm diameter x 50mm long mild steel bolt with lock nut and washer.
1325mm long x 40mm x 40mm x 3.2mm mild steel hollow section intermediate posts with 4no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 12mm diameter hole, 150mm x 150mm x 10mm mild steel plate welded on the base and solid mild steel capping welded to top of posts. Posts at 2000mm centres;
1325mm long x 40mm x 40mm x 3.2mm mild steel hollow section end posts with 2no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug with 6mm diameter hole, 150mm x 150mm 10mm mild steel plate welded on the base and solid mild steel capping welded to top of posts;

All components to be galvanised after manufacture and assembly;

Excavation for intermediate and end post holes 300mm x 300mm x 600mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

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029 1010mm High Steel Bow Topped Fencing Fixed to wall constructed from:

2 no 40mm x 10mm mild steel horizontal rails with top rail holed at 112mm centres with 13mm diameter holes;
13mm diameter mild steel Uprights with bow tops overall height 590mm welded to the 2 no horizontal rails, Uprights at 112mm centres;
Each end of horizontal rail fixed to lug of post with 1 no 6mm diameter x 50mm long mild steel bolt with lock nut and washer.
975mm long x 40mm x 40mm x 3.2mm mild steel hollow section intermediate posts with 4no 40mm x 10mm x3.2mm x 50mm long lugs welded on, each lug with 12mm diameter hole, solid mild steel capping welded to top of posts. Posts at 1900mm centres; post grouted into prepared mortice in brickwork with cement mortar (1:4)
1325mm long x 40mm x 40mm x 3.2mm mild steel hollow section end posts with 2 no 40mm x 10mm x3.2mm x 50mm long lugs welded on, each lug with 12mm diameter hole, solid mild steel capping welded to top of posts, end post supported by extended wall foundations;

All components to be galvanised after manufacture and assembly;

030 1000mm High Steel Vertical Bar Railings with separate top rail constructed from:

3 no 50mm x 30mm x 2.5mm mild steel rectangular hollow sections horizontal rails;
16mm diameter mild steel bars 610mm long, both ends welded to horizontal bars, Bars at maximum 115mm centres;
Ends of horizontal rails welded to posts;
1325mm long x 50mm x 30mm x3.25mm mild steel rectangular hollow section post, mitre cut and butt welded to horizontal rails, with 150mm x 150mm x 10mm mild steel plate welded on base, posts to have 2 no 12mm diameter holes drilled for M10 x 75mm long galvanised steel fixings, and 3 no 12mm diameter galvanised drain holes all on the centreline of post and on both sides of panel, posts at 2000mm maximum centres;

All components to be galvanised after manufacture and assembly;

Excavation for intermediate and end post holes 300mm x 300mm x 400mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

031 1000mm High Steel Vertical Bar Railings with separate top rail constructed from:

1 no 50mm x 30mm x 2.5mm mild steel rectangular hollow section horizontal rail set into sliding sockets of posts;
2 no 40mm x 12mm mild steel horizontal intermediate rails, both ends once drilled with 6mm diameter hole and bolted to lugs of posts with 6mm diameter bolts 40mm long with lock nuts and washers;
16mm diameter mild steel bars 580mm long, both ends welded to horizontal bars, Bars at maximum115mm centres;
1325mm long x 50mm x 30mm x 3.25mm mild steel rectangular hollow section intermediate post with 4 no 40mm x 10mm x 3.2mm x 50mm long lugs welded on, each lug drilled for 6mm diameter hole, 2 no 60mm long mild steel hollow sections welded on to form sliding socket to carry 50mm x 30mm x 3.2mm mild steel hollow section top rails, with 150mm x 150mm x 10mm mild steel plate welded on base and solid mild steel capping welded to top of post, posts at 2000mm maximum centres;
1325mm long x 50mm x 30mm x 3.25mm mild steel rectangular hollow section end post with 2 no 40mm x 10mm x 3.2mm x 50mm long lug welded each lug drilled for 6mm diameter hole, 1 no 60mm long mild steel hollow sections welded on to form sliding socket to carry 50mm x 30mm x 3.2mm mild steel hollow section top rails, with 150mm x 150mm x 10mm mild steel plate welded on base and solid mild steel capping welded to top of post;

All components to be galvanised after manufacture and assembly;

Excavation for intermediate and end post holes 250mm x 250mm x 400mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

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032 1100mm Steel Barrier Railings constructed from;

50mm x 25mm thick mild steel horizontal top rail;
50mm x 10mm mild steel horizontal bottom rail;
15mm x15mm vertical mild steel bars 990mm long, both ends welded to horizontal rails, bars at maximum 114mm centres, Central vertical bar to extend down into concrete base;
Ends of horizontal bottom rails welded to posts, top rail welded to posts as continuous length for length of barrier – all joints in top rail welded to obtain a smooth, continuous finish;
1525mm long x 50mm x50mm mild steel bar intermediate post welded to horizontal rails, posts at 1800mm centres;
1525mm long x 50mm x50mm mild steel bar end post welded to horizontal rails;

All components to be galvanised after manufacture and assembly;

Excavation for centre support, intermediate and end post holes 250mm x 250mm x 400mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

033 1100mm High Steel Barrier Railings fixed to Wall constructed from:

50mm x 25mm thick mild steel horizontal top rail;
50mm 10mm mild steel horizontal bottom rail;
15mm x15mm vertical mild steel bars 990mm long, both ends welded to horizontal rails, bars at maximum 114mm centres, Central vertical bar to extend down and be grouted into 40mm x 225mm deep pocket drilled into top of existing or new 215mm thick masonry retaining wall;
Ends of horizontal bottom rails welded to posts, top rail welded to posts as continuous length for length of barrier – all joints in top rail welded to obtain a smooth, continuous finish;
1525mm long x 50mm x50mm mild steel bar intermediate post welded to horizontal rails, intermediate posts at 1800mm centres, posts grouted into 75mm diameter x 450mm deep pockets drilled into top of existing or new 215mm thick masonry retaining walls;
1525mm long x 50mm x50mm mild steel bar end post welded to horizontal rails, posts grouted into 75mm diameter x 450mm deep pockets drilled into top of existing or new 215mm thick masonry retaining walls;

All components to be galvanised after manufacture and assembly;

034 1800mm High Steel Post Chain Link Fence constructed from:

Plastic coated steel chain link heavy pattern wire to be Grade "A" (wire core to be zinc coated) 1800mm wide fixed securely to line wires with 2mm nominal plastic coated wire ties Grade "A";
3 no strands, plastic coated zinc coated mild steel wire;
Intermediate posts, 2450mm long, 50mm x 50mm x 3.2mm mild steel rectangular hollow section with plastic insert cap, 3 times drilled for 3mm diameter plastic coated line wire, Posts at 3000mm centres;
Straining posts: 2325mm long x38mm x 38mm x 2.6mm rectangular hollow section;
End posts: 2450mm long x 50mm x 50mm x 3.2mm mild steel rectangular hollow section with plastic insert cap, 3 times drilled for 3mm diameter plastic coated line wire;
Stay: 2200mm long x 25mm x25mm x 2mm mild steel hollow section, 2 times obliquely drilled for 3mm diameter plastic coated line wire;
Strut: 500mm long x 25mm x25mm x 2mm mild steel hollow section, one end welded to post, other end obliquely welded to stay;

All posts, stays and struts galvanised after manufacture;

Excavation for intermediate and end post holes 450mm x 450mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Excavation for stay and strut post holes 700mm x 450mm x 450mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

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035 2440mm High Steel Paladin Type Fencing constructed from:

Panels: 2440mm x 3025mm long welded mesh (6.0mm diameter horizontal wire, 5.0m diameter vertical wire), each panel having 3 "V" beams built into mesh which span horizontally acting as reinforcing rails, green coloured mesh size 200mm x 25mm;

Posts: 60 x 60mm mild steel rolled hollow section, green coloured, resistance to bending 8.30m³, with threaded inserts fitted to front face, fitted with plastic insert cap, supplied with 25mm x25mm slotted clamp bars and 7 no M8 tamper resistant bolts, Posts and clamp bars polyester powder coated green at 2975mm centres;

Excavation for post holes 300mm x 300mm x 700mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

036 2000mm High Steel Paladin Type Fencing constructed from:

Panels: 2000mm x 3025mm long welded mesh (6.0mm diameter horizontal wire, 5.0m diameter vertical wire), each panel having 3 "V" beams built into mesh which span horizontally acting as reinforcing rails, green coloured mesh size 200mm x 25mm;

Posts: 60 x 60mm mild steel rolled hollow section, green coloured, resistance to bending 8.30m³, with threaded inserts fitted to front face, fitted with plastic insert cap, supplied with 25mm x25mm slotted clamp bars and 7 no M8 tamper resistant bolts, Posts and clamp bars polyester powder coated green at 2975mm centres;

Excavation for post holes 300mm x 300mm x 700mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Steel Palisade Fencing

037 2400mm High Steel Palisade fencing constructed from:

Pales: Corrugated "D" section, 3mm thick galvanised steel, fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed, bottom of fence with 50mm ground clearance;

Rails: 2 no 50mm x 50mm x 2.75mm galvanised steel rails, bolted with shear-nuts;

Posts: 102mm x 44mm x 7.4mm rolled steel joist (RSJ), Posts at 2.75m centres;

Fixings: Galvanised steel;

All to be hot dipped galvanised to applicable Standard;

Excavation for post holes 350mm x 350mm or 450mm diameter x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturer's and installer's certificates in accordance with the requirements of the applicable Standard;

038 2000mm High Steel Palisade fencing constructed from:

Pales: Corrugated "D" section, 3mm thick galvanised steel, fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed, bottom of fence with 50mm ground clearance;

Rails: 2 no 50mm x 50mm x 2.75mm galvanised steel rails, bolted with shear-nuts;

Posts: 102mm x 44mm x 7.4mm rolled steel joist (RSJ), Posts at 2.75m centres;

Fixings: Galvanised steel;

All to be hot dipped galvanised to applicable Standard;

Excavation for post holes 350mm x 350mm or 450mm diameter x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

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Submit manufacturer's and installer's certificates in accordance with the requirements of the applicable Standard;

Timber Gates

039 Timber single leaved Gates 844mm x 1000mm high constructed from:

2 no 44mm x 69mm softwood runners splayed horizontal;
5 no 1000mm long x 144mm x 20mm softwood vertical boards at 175mm centres;
1 no 44mm x 69mm softwood brace splayed horizontally and fixed diagonally (upwards from hinged side);
All nailed together with 51mm long x 3.3mm galvanised plain headed nails (or 55mm x 2.1mm Ring shank galvanised nails);
Hinges: 2 no 300mm x 40mm x 4mm bat and band hinges, coach bolted with nut, and with 3 no 4.1mm diameter countersunk holes at 100mm centres and screwed;
Hook Plates: 2 no 100mm x 50mm x 4mm with 12mm diameter solid mild steel pin welded on face to suit hinge, plate four times holed with 4.1mm diameter holes and screwed to vertical timber rail, top pin to pint upwards, bottom pin to point downwards;
Catch: bright zinc coated mild steel trip catch;
Gate stop: 2 no 1000mm long 20mm softwood fence boards returned to meet gate at both sides, nailed to vertical rail and end of runners.;
Softwood 850mm long x 50mm x 100mm vertical rail bolted to side of gate post with 2 no 200mm long x 10mm diameter bolts with nut and washer, bolts trimmed flush with nut after fitting and touch painted;

If Required:

Gate Posts: 2 no 1350mm long x 100mm x 100mm precast concrete gate post, weathered in one direction, reinforced with 4 no 6mm diameter mild steel bars laced with binding wire at 200mm centres, twice holed in each direction with 12mm diameter holes;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

040 Timber single leaved Gates 855mm x 1600mm high constructed from:

3 no 44mm x 69mm softwood runners splayed horizontal;
5 no 1600mm long x 144mm x 20mm softwood vertical boards at 175mm centres;
2 no 44mm x 69mm softwood brace splayed horizontally and fixed diagonally (upwards from hinged side);
All nailed together with 51mm long x 3.3mm galvanised plain headed nails (or 55mm x 2.1mm Ring shank galvanised nails);
Hinges: 2 no 300mm x 40mm x 4mm bat and band hinges, coach bolted with nut, and with 3 no 4.1mm diameter countersunk holes at 100mm centres and screwed;
Hook Plates: 2 no 100mm x 50mm x 4mm with 12mm diameter solid mild steel pin welded on face to suit hinge, plate four times holed with 4.1mm diameter holes and screwed to vertical timber rail, top pin to pint upwards, bottom pin to point downwards;
Bolt: 250mm bright zinc mild steel padlock bolt, two vertical boards cut to form a 100mm diameter hole allow access to bolt from outside;
Gate stop: 2 no 1600mm long x 20mm softwood fence boards returned to meet gate at both sides, nailed to vertical rail and end of runners.;
Softwood 1500mm long x 50mm x 100mm vertical rail bolted to side of gate post with 3 no 200mm long x 10mm diameter bolts with nut and washer, bolts trimmed flush with nut after fitting and touch painted;

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If Required:

Gate Posts; 2 no 2250mm long x 125mm x 125mm precast concrete gate post, weathered in one direction, reinforced with 4 no 6mm diameter mild steel bars laced with binding wire at 200mm centres, three times holed in each direction with 12mm diameter holes;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

041 Timber single leaved Gates 855mm x 1800mm high constructed from:

3 no 44mm x 69mm softwood runners splayed horizontal;
5 no 1800mm long x 144mm x 20mm softwood vertical boards at 178mm centres;
2 no 44mm x 69mm softwood splayed horizontally and fixed diagonally (upwards from hinged side) brace;
All nailed together with 51mm long x 3.3mm galvanised plain headed nails (or 55mm x 2.1mm Ring shank galvanised nails);
Hinges: 2 no 300mm x 40mm x 4mm bat and band hinges, coach bolted with nut, and with 3 no 4.1mm diameter countersunk holes at 100mm centres and screwed;
Hook Plates: 2 no 100mm x 50mm x 4mm with 12mm diameter solid mild steel pin welded on face to suit hinge, plate four times holed with 4.1mm diameter holes and screwed to vertical timber rail, top pin to pint upwards, bottom pin to point downwards;
Bolt: 250mm bright zinc mild steel padlock bolt, two vertical boards cut to form a 100mm diameter hole allow access to bolt from outside;
Gate stop: 2 no 1800mm long x 20mm softwood fence boards returned to meet gate at both sides, nailed to vertical rail and end of runners.;
Softwood 1700mm long x 50mm x 100mm vertical rail bolted to side of gate post with 3 no 200mm long x 10mm diameter bolts with nut and washer, bolts trimmed flush with nut after fitting and touch painted;

If Required:

Gate Posts: 2 no 2250mm long x 125mm x 125mm precast concrete gate post, weathered in one direction, reinforced with 4 no 6mm diameter mild steel bars laced with binding wire at 200mm centres, three times holed in each direction with 12mm diameter holes;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

042 Timber single leaved Gates 855mm x 1750mm high Diagonal Boards constructed from:

3 no 44mm x 69mm softwood runners splayed horizontal;
144mm x 20mm softwood diagonal boards at 175mm centres;
2 no 44mm x 69mm softwood braces splayed horizontally and fixed diagonally (upwards from hinged side);
All nailed together with 51mm long x 3.3mm galvanised plain headed nails (or 55mm x 2.1mm Ring shank galvanised nails);
Hinges: 2 no 300mm x 40mm x 4mm bat and band hinges, coach bolted with nut, and with 3 no 4.1mm diameter countersunk holes at 100mm centres and screwed;
Hook Plates: 2 no 100mm x 50mm x 4mm with 12mm diameter solid mild steel pin welded on face to suit hinge, plate four times holed with 4.1mm diameter holes and screwed to vertical timber rail, top pin to pint upwards, bottom pin to point downwards;
Catch: bright zinc coated mild steel trip catch;
Bolt: 250mm bright zinc mild steel padlock bolt, one diagonal board cut to form hand grip;
Gate stop: 2 no 20mm x 95mm softwood fence boards returned to meet gate at both sides, nailed to vertical rail and end of runners.;
Softwood 1600mm long x 50mm x 100mm vertical rail bolted to side of gate post with 3 no 200mm long x 10mm diameter bolts with nut and washer;

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If Required:

Gate Posts: 2 no 2250mm long x 125mm x 125mm precast concrete gate post, weathered in one direction, reinforced with 4 no 6mm diameter mild steel bars laced with binding wire at 200mm centres, three times holed in each direction with 12mm diameter holes;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

043 Timber two leaved Gates each leaf 1205mm x 1000mm high constructed from:

2 no 44mm x 69mm softwood runners splayed horizontal;

7 no 1000mm long x 144mm x 20mm softwood vertical boards at 175mm centres;

2 no 44mm x 69mm softwood braces splayed horizontally and fixed diagonally (upwards from hinged side);

All nailed together with 51mm long x 3.3mm galvanised plain headed nails (or 55mm x 2.1mm Ring shank galvanised nails);

Hinges: 2 no 300mm x 40mm x 4mm bat and band hinges, coach bolted with nut, and with 3 no 4.1mm diameter countersunk holes at 100mm centres and screwed;

Hook Plates: 2 no 100mm x 50mm x 4mm with 12mm diameter solid mild steel pin welded on face to suit hinge, plate four times holed with 4.1mm diameter holes and screwed to vertical timber rail, top pin to pint upwards, bottom pin to point downwards;

Catch: bright zinc coated mild steel trip catch;

Bolt: 250mm bright zinc mild steel padlock bolt, and drop bolt with ground socket to each leaf

Gate stop: 1 no 20mm x 95mm softwood fence boards returned to meet gate at both sides, nailed to vertical rail and end of runners.;

Steel Gates

044 Steel single leaved Bow Topped gate 910mm x 825mm high constructed from:

40mm x 10mm mild steel frame surround with top rail holed at 112mm centres with 13mm diameter holes; top and bottom rails to over-run gate width on hinge side for form gate hanging lugs, each lug with 6mm diameter hole, gate fixed to lugs of post with 2 no 6mm diameter x 40mm long hardened steel zinc plated hexagon bolts (half threaded) with lock nut and washers;

13mm diameter mild steel uprights with bow tops overall height 815mm, welded to horizontal top and bottom rails;

2 no 40mm x 10mm x 50mm long mild steel lugs, welded to gate frame;

100mm long x 90mm x 10mm mild steel plate as stop, rounded corners on exposed side and welded to gate frame;

Bolt: 12mm mild steel bolt with handle holed for padlock and 10mm thick back-plate, welded to gate frame and uprights, keeper designed to receive bolt and to be fitted on site with self-tapping/taping bolts;

All galvanised after manufacturer, and painted on site;

If Required:

Gate posts: 2 no 1175mm long x 40mm x 40mm x 3.2mm mild steel hollow section with 40mm wide x 10mm x 50mm mild steel lugs welded on to posts, each lug drilled for 6mm diameter bolt, 150mm x 150mm x 10mm mild steel base plate welded to bottom of posts, and solid mild steel capping welded to top;

Hangers for fixing to end posts: 2 no 40mm wide x 10mm x 50mm lugs, once holed for hanging lug, one end welded to end post;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

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045 Steel two leaved Bow Topped gate each 1227mm x 825mm high constructed from:

40mm x 10mm mild steel frame surround with top rail holed at 112mm centres with 3mm diameter holes; top and bottom rails to over-run gate width on hinge side for form gate hanging lugs, each lug with 6mm diameter hole, gate fixed to lugs of post with 2 no 6mm diameter x 40mm long hardened steel zinc plated hexagon bolts (half threaded) with lock nut and washers;
13mm diameter mild steel uprights with bow tops overall height 815mm, welded to horizontal top and bottom rails;
2 no 40mm x 10mm x 50mm long mild steel lugs, welded to gate frame;
100mm long x 90mm x 10mm mild steel plate as stop, rounded corners on exposed side and welded to gate frame;
Bolt: one leaf only, 12mm mild steel bolt with handle holed for padlock and 10mm thick back-plate, welded to gate frame and uprights, keeper designed to receive bolt and to be fitted on site with self-tapping/taping bolts;
Drop bolt: with ground sockets on 315mm 70mm x 10mm mild steel back plate welded to both gates;

All galvanised after manufacturer, and painted on site;

If Required:

Gate posts: 2 no 1175mm long x 40mm x 40mm x 3.2mm mild steel hollow section with 40mm wide x 10mm x 50mm mild steel lugs welded on to posts, each lug drilled for 6mm diameter bolt, 150mm x 150mm x 10mm mild steel base plate welded to bottom of posts, and solid mild steel capping welded to top;

Hangers for fixing to end posts: 2 no 40mm wide x 10mm x 50mm lugs, once holed for hanging lug, one end welded to end post;

Excavation for post holes 300mm x 300mm x 550mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

046 Steel single leaved gate 900mm x 850mm high constructed from:

25mm x 25mm 3mm mild steel angle frame surround with corners mitred and welded;
7 no 10mm x 10mm mild steel balusters with ends welded to horizontal top and bottom rails;
2 no 75mm girth x 6mm diameter mild steel hanging lugs, once bent, welded to gate frame;
Bolt: 130mm long x 10mm x 10mm mild steel with stop welded on, 225mm girth semi-circular support with ends welded to frame, support and frame holed for bolt;
115mm long x 38mm x 38mm x 3mm mild steel angle as stop for fixing to concrete post rounded on four corners and holed for bolt, welded to 125mm long x 12mm diameter mild steel bolt with lock nut and washer and washer welded on as spot-welded to gate frame;
115mm long x 38mm x 38mm x 3mm mild steel angle as stop for fixing to brickwork rounded on four corners and holed for bolt, welded to 2 no 150mm long a 19mm x 5mm mild steel hanger having fishtailed end;

All galvanised after manufacturer, and painted on site;

Hangers for fixing to concrete post: 2 no x 450mm girth x 38mm x 6mm straps, each six times bent and twice holed for and closed with 6mm diameter bolts 50mm long with lock nut and washer, and having 25mm x 6mm diameter tube welded on;

Hangers for fixing to brickwork: 200mm girth x 12mm diameter hanger, fishtailed one end, other end bent for lug;

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047 Steel two leaved gate each leaf 1205mm x 850mm high constructed from:

25mm x 25mm 3mm mild steel angle frame surround with corners mitred and welded;
10 no 10mm x 10mm mild steel balusters with ends welded to horizontal top and bottom rails;
2 no 75mm girth x 6mm diameter mild steel hanging lugs, once bent, welded to gate frame;
Bolt on one leaf only: 130mm long x 10mm x 10mm mild steel with stop welded on, 225mm girth semi-circular support with ends welded to frame, support and frame holed for bolt, other leaf holed for bolt;
Barrel bolt: one leaf only, 375mm long with socket;
Stop: one leaf only, 200mm long x 50mm x 6mm;

All galvanised after manufacturer, and painted on site;

Hangers for fixing to concrete post: 2 no x 450mm girth x 38mm x 6mm straps, each six times bent and twice holed for and closed with 6mm diameter bolts 50mm long with lock nut and washer, and having 25mm x 6mm diameter tube welded on;

Hangers for fixing to brickwork: 200mm girth x 12mm diameter hanger, fishtailed one end, other end bent for lug;

048 Paladin single gates 1065mm x 2000mm constructed from:

Gate frame: 50mm x 50mm x 3mm polyester powder coated galvanised mild steel with mesh as Clause 035 clamped to same with 6 no tamperproof bolts and threaded nut inserts, gate complete with adjustable hinges, drop bolt, ground sockets and latch incorporating slip-bolt for Client's padlock;
Colour: to be agreed with the Client's Representative;

If Required:

Gate posts: 80mm x 80mm x 6mm mild steel rolled hollow sections;

Excavation for post holes 500mm x 500mm x 600mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer's certificates in accordance with the requirements of the applicable Standard;

049 Paladin double gates 3600mm x 2000mm constructed from:

Gate frame: 50mm x 50mm x 3mm polyester powder coated galvanised mild steel with mesh as Clause 035 clamped to same with 6 no tamperproof bolts and threaded nut inserts, gates complete with adjustable hinges, drop bolt, ground sockets and latch incorporating slip-bolt complete with 65mm padlock fixed by welding to gate frame with chain (links 40mm x 20mm x 5mm);
Colour: to be agreed with the Client's Representative;

If Required:

Gate posts: 200mm x 200mm x 6mm mild steel rolled hollow sections;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer's certificates in accordance with the requirements of the applicable Standard;

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050 Paladin double gates 5880mm x 2000mm constructed from:

Gate frame: 50mm x 50mm x 3mm polyester powder coated galvanised mild steel with mesh as Clause 035 clamped to same with 6 no tamperproof bolts and threaded nut inserts, gates complete with adjustable hinges, drop bolt, ground sockets and latch incorporating slip-bolt complete with 65mm padlock fixed by welding to gate frame with chain (links 40mm x20mm x 5mm);
Colour: to be agreed with the Client's Representative.

If required:

Gate posts: 200mm x 200mm x 6mm mild steel rolled hollow sections;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer's certificates in accordance with the requirements of the applicable Standard;

051 Paladin single gates 1065mm x 2440mm constructed from:

Gate frame: 50mm x 50mm x 3mm polyester powder coated galvanised mild steel with mesh as Clause 035 clamped to same with 6 no tamperproof bolts and threaded nut inserts, gate complete with adjustable hinges, drop bolt, ground sockets and latch incorporating slip-bolt for Client's padlock;
Colour: to be agreed with the Client's Representative;

If required:

Gate posts, 80mm x 80mm x 6mm mild steel rolled hollow sections;

Excavation for post holes 500mm x 500mm x 600mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer's certificates in accordance with the requirements of the applicable Standard;

052 Paladin double gates 5880mm x 2440mm constructed from:

Gate frame, 50mm x 50mm x 3mm powder coated galvanised mild steel with mesh as Clause 035 clamped to same with 6 no tamperproof bolts and threaded nut inserts, gates complete with adjustable hinges, drop bolt, ground sockets and latch incorporating slip-bolt for Client's padlock;
Colour: to be agreed with the Client's Representative;

If Required:

Gate posts, 200mm x 200mm x 6mm mild steel rolled hollow sections;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer's certificates in accordance with the requirements of the applicable Standard;

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053 Palisade single gate 900mm or 1200mm x 2000mm high constructed from:

Pales: D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed;
Rails: 2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
Gate: complete with adjustable hinges welded to gate and to post;
Lockable slip bolt and keep: welded to gate and post;
Drop bolt: welded to gate and keep cast into road surfacing;
Fixings; Galvanised steel;
All to be hot dipped galvanised to applicable Standard;
Colour: to be agreed with the Client's Representative;

If Required:

Posts: 100mm x 100mm x 8mm rolled steel square section;

Excavation for post holes 400mm x 400mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer's certificates in accordance with the requirements of the applicable Standard;

054 Palisade single gate 1065mm x 2400mm high constructed from:

Pales: D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed;
Rails: 2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
Gate: complete with adjustable hinges welded to gate and to post;
Lockable slip bolt and keep: welded to gate and post;
Drop bolt: welded to gate and keep cast into road surfacing;
Fixings: Galvanised steel;
All to be hot dipped galvanised to applicable Standard;
Colour: to be agreed with the Client's Representative;

If Required:

Posts: 100mm x 100mm x 8mm rolled steel square section;

Excavation for post holes 450mm x 450mm x 600mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer's certificates in accordance with the requirements of the applicable Standard;

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055 Palisade pair of gate 3000mm x 2000mm high constructed from:

Pales: D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed;
Rails: 2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
Gate: complete with adjustable hinges welded to gate and to post;
Lockable slip bolt and keep: welded to gate and post;
Drop bolt: welded to gate and keep cast into road surfacing;
Fixings: Galvanised steel;
All to be hot dipped galvanised to applicable Standard;
Colour: to be agreed with the Client's Representative;

If Required:

Posts: 100mm x 100mm x 8mm rolled steel square section;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer's certificates in accordance with the requirements of the applicable Standard;

056 Palisade pair of gate 5880mm x 2000mm high constructed from:

Pales: D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed;
Rails: 2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
Gate: complete with adjustable hinges welded to gate and to post;
Lockable slip bolt and keep: welded to gate and post;
Drop bolt: welded to gate and keep cast into road surfacing;
Fixings: Galvanised steel;
All to be hot dipped galvanised to applicable Standard;
Colour: to be agreed with the Client's Representative;

If Required:

Posts, 200mm x 200mm x 8mm rolled steel square section;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer's certificates in accordance with the requirements of the applicable Standard;

057 Palisade single gate 1065mm x 2400mm high constructed from:

Pales: D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed;
2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;
Gate complete with adjustable hinges welded to gate and to post;
Lockable slip bolt and keep welded to gate and post;
Drop bolt welded to gate and keep cast into road surfacing;
Fixings; Galvanised steel;
All to be hot dipped galvanised to applicable Standard;
Colour: to be agreed with the Client's Representative;

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If Required:

Posts: 100mm x 100mm x 8mm rolled steel square section;

Excavation for post holes 400mm x 400mm x 600mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer’s certificates in accordance with the requirements of the applicable Standard;

058 Palisade pair of gate 5880mm x 2440mm high constructed from:

Pales: D section, 3mm fixed at 152mm centres, with rounded tops to pales if adjacent to over-hanging trees or buildings, otherwise triple pointed and splayed;

Rails: 2 no 50mm x 50mm x 2.75mm steel rails bolted with shear-nuts;

Gate: complete with adjustable hinges welded to gate and to post;

Lockable slip bolt and keep: welded to gate and post;

Drop bolt: welded to gate and keep cast into road surfacing;

Fixings: Galvanised steel;

All to be hot dipped galvanised to applicable Standard;

Colour: to be agreed with the Client’s Representative;

If Required:

Posts, 200mm x 200mm x 8mm rolled steel square section;

Excavation for post holes 600mm x 600mm x 750mm deep, 75mm concrete base, backfilled with concrete to depth 100mm below finished ground level, remainder selected earth;

Submit manufacturers and installer’s certificates in accordance with the requirements of the applicable Standard;

Client’s current manufacturers/suppliers/products

059 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

DRAINAGE

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DRAINAGE

MATERIALS

Gullies

- 001 Ensure grating, sealing plates and other metal accessories used are cast iron.
- 002 Gullies are to be:
- Roddable trapped clay gullies are to be to applicable Standard with vertical back inlet, 100mm diameter outlet, galvanised 150mm x 150mm cast iron grating and concrete bed and surround;
 - Roddable plastic trapped gully with horizontal back inlet, 100mm outlet, grating to suit and concrete (GEN3) bed and surround;
 - Roddable plastic trapped gully with vertical back inlet, 100mm outlet, grating to suit and concrete (GEN3) bed and surround;
 - Cast iron footway gully 300mm long, 230mm wide x 280mm deep channelled with 100mm diameter outlet and rodding eye, complete with hinged cast iron grating and concrete (GEN3) bed and surround;
 - Road gullies for connection to combined sewage or storm-water systems are to be precast concrete gully chamber, 375mm diameter internal diameter, 750mm deep with 150mm trapped outlet and rodding eye and stopper to applicable Standard, kite marked certified complete with cast iron gully grating and frame to applicable Standard Class D400, kite marked certified, hinged at one end so that it cannot be removed from frame, and concrete bed and surround;
 - Road gullies for use with precast channels are to be precast concrete gully chamber, 375mm diameter internal diameter, 750mm deep with 150mm trapped outlet and rodding eye and stopper and frame to applicable Standard Class D400, kite marked certified, hinged at one end so that it cannot be removed from frame, and concrete bed and surround;
- 003 Galvanised cast iron gully gratings are to be 150mm square;
- 004 Plastic gully gratings are to be 190mm diameter;
- 005 Dished cast iron gratings and frames for use at pedestrian areas are to be applicable Standard Class B125 kite marked certified at one end so that it cannot be removed from frame;
- 006 Precast Concrete gully fenders or surround kerbs are to fit around a 150mm square gully and be bedded solidly in cement sand mortar (1:3) centrally over the gully;

Granular beddings

- 007 Ensure granular bedding for pipes is:
- Class B granular bedding consisting of broken stone or gravel to applicable Standard graded 20mm to 5mm for pipes up to 525mm diameter and 40mm to 5mm for pipes over 525mm diameter.
 - Class S granular surround consisting of broken stone or gravel to applicable Standard graded 10mm to 5mm

Bricks for manholes etc.,

- 008 Ensure bricks for manholes are:
- Class B clay engineering bricks conforming to applicable Standard; or
 - Concrete bricks conforming to applicable Standard.

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Manhole Ironwork

- 009 General purpose pattern galvanised malleable cast iron manhole step irons with 230mm long tails to applicable Standard Type D Class 1, to be inserted during construction of brickwork to manholes.
- 010 Galvanised malleable cast iron precast concrete manhole pattern with 80mm tails to applicable Standard for precast concrete manholes.
- 011 Manhole ladders are to be installed to applicable Standard if invert of manhole deeper than 3.0m;
- 012 Where Instructed to be installed handrails for the edge of benching shall be formed from 25mm diameter solid mild steel bar, galvanised after manufacture in accordance with applicable Standard.
- 013 Manhole safety chains are to be galvanised mild steel short link chain to applicable Standard Class 1 with one end securely attached to a 16mm diameter galvanised mild steel eyebolt and the other end securely fastened to a suitable galvanised wrought iron hook for attaching to similar eyebolts; Safety chains are to be installed where the diameter of the outgoing pipe is 600mm or greater;
- 014 Access ladders to manholes are to be mild steel to applicable Standard galvanised after fabrication with 64mm x 19mm stringers and 25mm diameter bar rungs, galvanised surface coating to be at least 85 microns thick;

Precast Manhole Components

- 015 Precast concrete manhole rings are to comply with applicable Standard, with bitumen coated joints or preformed jointing strips applied in accordance with the manufacturer's technical data sheet to ensure watertight joints;
- 016 Precast concrete inspection chambers sections with internal dimension 450mm x 600mm to applicable Standard, with bitumen coated joints or preformed jointing strips applied in accordance with the manufacturer's technical data sheet to ensure watertight joints;
- 017 Clean all lifting holes in precast units and grout with cement mortar;
- 018 Do not use step irons for hoisting or lowering components;
- 019 Precast concrete cover slabs are to comply with applicable Standard and are to be reinforced with 12mm diameter mild steel bars at 150mm centres both ways.

Manhole Covers and Frames

- 020 Manhole covers and frames are to be non-ventilating, and be to the requirements of the applicable Standards, bedded on a gauged Class 1 (3:1) sand/cement mortar centrally over opening, level with surrounding finishes and square with joints in surrounding finishes or with any adjacent buildings.
- 021 Covers and frames to inspection chambers on house drainage (no vehicular loading) are to be class A15, galvanised steel single seal type covers, key lifted with four brass locking screws, 600mm x 450mm clear opening.
- 022 Covers and frames to inspection chambers on house drainage located in driveways /hard-standings are to be Class B125, black coated with 610mm clear opening with single seal, kite marked certified.
- 023 Covers and frames to manholes not adjacent to carriageways are to be Class B125, ductile iron black coated with 675mm clear opening with single seal, kite marked certified manholes for foul and surface water drains must have the letters FS and SW respectively cast on the lids, the letters must not be less than 35mm high.

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- 024 Covers and frames to manholes in carriageways and public footpaths adjacent to carriageways are to be Class D400, ductile iron black coated single seal with 675mm clear opening, kite marked certified, manholes for foul and surface water drains must have the letters FS and SW respectively cast on the lids, the letters must not be less than 35mm high.

Manhole Channels

- 025 Manhole Channels generally:

Form main channel invert for sizes up to and including 300mm diameter with vitrified clay, precast concrete or PVC-u channel with secure anchorage system. Form channel invert for pies over 300mm diameter in granolithic (cement, sand, 20mm coarse aggregate (1:1:2) concrete 50mm thick, laid over concrete benching and trowelled smooth, the depth of the main channel must not be less than the diameter of the largest pipe;

Vitrified clay channels shall comply with applicable Standard, kite marked certified, and bedded and pointed in cement mortar (1:3)

Precast concrete channels sections shall comply with applicable Standard, kite marked certified, and bedded and pointed in cement mortar (1:3)

Plastic Inspection Chambers

- 026 Plastic inspection chambers are to be 450mm diameter chamber with preformed channels to the relevant applicable Standard for location, installed in accordance with the manufacturer's technical data sheet.
- 027 Plastic inspection chambers risers with sealing ring are to be 450mm diameter chamber with preformed channels to the applicable Standard for location, height of riser, overall height 460mm effective height 235mm installed in accordance with the manufacturer's technical data sheet.

Precast Concrete Inspection Chambers

- 028 Precast concrete inspection chambers are to be sectional units with internal dimension 450 x600mm to applicable Standard, set on and including 150mm concrete (Gen 3) base, make all joints between chamber sections with watertight using either a bituminous coating or a preformed jointing strip.
- 029 Cover and frame to be either to applicable Standard Class A15 for house drainage with no vehicular loading, galvanised steel single seal flat type cover and frame, key lifted with 4 brass locking screws, 600 x450mm clear opening, bedded in 1:3 cement mortar centrally over the opening, and level with surrounding finished, and aligned with joints of paving etc.,
- Or
- 030 Cover and frame to be to applicable Standard Class B125 for house drainage with vehicular loading with single seal black coated with 610 mm clear opening, bedded in 1:3 cement mortar centrally over the opening, and level with surrounding finish.
- 031 Step irons to be to applicable Standard to be inserted where depth of chamber greater than 600mm.

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Pipelines

032 Pipes shall be constructed from:

- Clay pipes, bends and junctions for foul or combined drainage are to be vitrified clay to applicable Standard with flexible joints, kite marked certified;
- Clay pipes, bends and junctions for storm-water drainage are to be vitrified clay to applicable Standard with flexible joints, kite marked certified;
- Plastic pipes, bends and junctions for foul or storm drainage are to be PVC-u to applicable Standard with flexible joints, kite marked certified;
- Concrete pipes, bends and junctions are to be to applicable Standard with flexible joints, kite marked certified, strength Class 120;

Linear Drainage Channels

033 Linear drainage channels shall be constructed from:

- Proprietary precast concrete linear channel 155mm x 80mm deep x 1000mm long, with galvanised mild steel mesh locking grating, loading Class A15 to applicable Standard, maximum mesh width 10mm, channel to be bedded and haunched with concrete;
- Polypropylene “U” section linear channel 100mm x 75mm deep x 1000mm long and black plastic grating to applicable Standard loading grade A15 for pedestrian use, complete with vertical outlet to suit 110mm diameter PVC-u main drainage pipe, and end caps as required, channel to be bedded and haunched with concrete;

Road Gully Gratings

034 Road gully gratings and frames are to be “hinged” heavy duty ductile iron minimum grade D400 in accordance with applicable Standard and be BSI kite marked.

Septic Tanks

035 Septic Tanks to single dwellings are to be:

- Proprietary pre-fabricated septic tank with lockable cover, capacity 3600 litres, with 110mm diameter inlet and outlet pipes, and 100mm diameter vent pipe terminating 800mm above ground with a non-return air admittance valve, tanks to be designed and installed in accordance with the recommendations of the applicable Standard and BBA certified or equivalent, the design of the tank shall be such that sludge cannot be discharged through the outlet in any circumstances;
- Channel gratings are to be galvanised mild steel square mesh gratings and set in position;

WORKMANSHIP

Setting out

036 Set out all drains as Instructed by the Client’s Representative and provide all profiles, etc., necessary for the execution of the Works.

Existing drains

037 Check the invert levels of existing drains, sewers and manholes before laying new drains. Notify the Client’s Representative immediately if the declared invert levels are found to be inaccurate.

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038 Before commencing excavation to expose existing drains, determine the exact line and level of the drain by excavating trial holes by hand. In any case carry out the final 300mm of excavation to expose the pipe by hand to ensure that adjacent lengths of pipe are not damaged by Equipment.

Excavation

039 Excavate trenches for pipes to a sufficient depth and width to enable the pipe and the specified joint, bed, haunch and surround to be accommodated.

040 Ensure that the widths of trenches are within the limits shown in the table below, to a minimum 300mm above the top of the pipe barrel.

041 The minimum width is that width between the faces of the soil required to ensure the correct placing and compaction of bedding material equally on either side of the pipe. All sheeting and supports are outside this width.

042 The maximum width is that width between the faces of the soil which has been used in the structural design of the pipeline and it includes an allowance for sheeting and tolerance.

Nominal Internal Diameter of Pipe	Minimum Trench Width	Maximum Trench Width
(mm)	(mm)	(mm)
100	430	630
150	490	690
225	580	780
300	680	880
375	950	1150
450	1030	1230
525	1120	1320
600	1240	1440
675	1330	1530
750	1400	1600
825	1490	1690
900	1920	2120
1050	2100	2300
1200	2290	2490
Above 1200mm	Outside diameter of pipe plus 800mm	Outside diameter of pipe plus 1000mm

043 Thin the bottoms of all excavations and consolidate to the correct levels. Fill unauthorised excavations below the required levels with Materials of the same composition as for drain beds.

044 Where the bottom is insufficiently firm, excavate until, in the Client’s Representative’s opinion, a firm bottom is obtained. Make up the level with Materials of the same composition as for drain beds or with a layer of concrete blinding if so Instructed by the Client’s Representative.

045 Agree the particulars of such additional Works with the Client’s Representative before covering up the Works, otherwise no payment is to be made for such additional Work.

Planking and strutting

046 Take care not to undermine the foundations of buildings. If so Instructed by the Client’s Representative, plank and strut or adopt other means to protect the foundations.

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Backfilling

- 047 Backfill trenches to sewers immediately the preceding operations have been completed. Do not backfill trenches for house drains before these have been inspected by Building Control.
- 048 No backfilling is to be placed in trenches containing water, In trenches in footways, gardens or open country, backfill with selected excavated materials. Selected excavated materials to be readily compactable material, free from tree roots, vegetable matter, building rubbish, frozen soil, clay lumps retained on a 75mm sieve.
- 049 Backfill may be placed by machine provided the method of operation ensures that the material slides or rolls into position and does not drop from a height.
- 050 Compact backfill materials in layers not exceeding 300mm thick but do not use heavy compactors before there is 500mm of material over pipe.
- 051 Make good any subsidence causing damage in surfaces or to adjoining structures that occurs after backfilling.
- 052 Rectify all damage caused to pipework during backfilling.

Concrete beds and surrounds to precast concrete manholes and road gullies

- 053 Concrete bed to precast concrete manhole rings is to be 150mm thick grade GEN3 concrete, laid on 75mm concrete grade 10 lean mix blinding concrete.
- 054 Concrete surround to precast concrete manhole rings is to be 150mm thick grade GEN3 concrete.
- 055 Bed and surrounds to road gullies to be 150mm thick grade GEN3 concrete.

Concrete beds, haunching and surround to drain pipes with rigid joints

- 056 Ensure beds are;
- a minimum of 150mm thick below the pipes;
 - of the widths described in this Specification or the Schedule of Rates; and
 - finished to the correct gradients.
- 057 After testing, haunch up the drains on both sides in similar concrete to half the diameter of the pipe. Where so Instructed entirely surround vertical clayware drains and other drains with concrete 150mm thick. Set all gullies, shoes, etc., on a base of similar concrete 150mm thick and the sides encased in concrete GEN3 150mm thick.
- 058 Provide flexible cleavage planes at each joint by means of 25mm thick bitumen impregnated fibreboard through the entire concrete surround.

Concrete beds and surrounds to clay and PVC-u drain pipes with flexible joints

- 059 Ensure concrete beds and surround to drain pipes with flexible joints are as described in this Specification.

Granular beds and surrounds to drain/sewer pipes with flexible joints

- 060 Dig out hard obstructions and soft pockets and remove the excavated materials. Fill the resultant void with granular bedding and consolidate it. Lay 75mm concrete blinding where trenches are in made up ground, or wet conditions are encountered.
- 061 Ensure drains specified to be "bedded and surround in granular material" are laid on a bed of granular material 150mm deep, spread and compacted and finished to the correct gradients and to the correct widths as Instructed by the Client's Representative. When compacted, form socket holes in the bedding material sufficient to allow the full length of pipe barrels only to rest on them.

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- 062 After bedding, aligning, levelling and testing the drain pipes, place further granular bedding evenly and consecutively on each side to half way up the pipe. Then protect the pipe by a layer of similar granular bedding carefully consolidated by hand to 150mm above the top of the pipe for the full width of the trench.
- 063 Ensure backfilling for the next 300mm is with normal excavated Materials as described in clause 019 and carried out by hand with no mechanical ramming.
- 064 Ensure backfilling for the next 300mm after that is with normal excavated Materials as described in clause 019 and carried out by hand and/or light mechanical ramming.

Laying drains

- 065 Lay drains in straight lines to an even gradient from point to point, each pipe being "boned in" and the whole accurately laid and butted closely together at the joints.
- 066 Set drain pipes passing through foundations so that a flexible drain joint is not more than 150mm from the face of the wall foundations or manholes with a further joint 600mm from the last joint.
- 067 Commence drains at the lowest point with sockets leading up the gradient.
- 068 Rest pipes on solid and even foundations for the full length of the barrel with hollows formed in the granular bed or ground for the sockets.
- 069 Leave trenches open for inspection by the Client's Representative until the drains have been tested and approved.

Gullies etc

- 070 Set gullies, etc., on concrete seatings, surrounded with concrete and jointed together and to pipes with gaskin and cement and sand mortar or with flexible coupling.

Brickwork in manholes

- 071 Bed brickwork in manholes in cement mortar (1:3) in an appropriate bond, built fair face with flush joints internally. Where built into manhole walls ensure pipes of 225mm diameter and over have half brick relieving arches over.

PVC-u inspection chambers

- 072 Ensure PVC-u inspection chambers including all fittings, covers and frames etc., have polypropylene mustow universal chambers.

Precast Concrete Manhole Rings

- 073 Manhole rings are to be bedded with mortar, proprietary bitumen or resin mastic sealant

Benching

- 074 Ensure benching in bottoms of manholes is in fine concrete to falls of at least 45 degrees to channels finished with cement and washed sand mortar (1:2) 25mm thick, trowelled hard and smooth with all angles rounded.

Bedding and sealing covers and frames

- 075 Bed frames to manhole covers in cement mortar (1:3) and the covers in grease and sand.

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CCTV inspection of drains

- 076 Using CCTV survey all pipelines and drains as Instructed and record on digital media, all salient features of their structural and service conditions.
- 077 The CCTV Survey shall be carried out on new installations when:
- All planned laterals connections have been made and the remaining junctions and laterals are properly capped;
 - All debris has been removed from both laterals and pipelines;
 - All underground services are installed and no further excavation is planned in the vicinity of the pipeline;
- 078 The CCTV survey shall be carried out on existing drainage where Instructed by the Client's Representative following the reporting of consistently blocked or partially blocked drains. The Provider shall arrange for a copy of the video recording to be given to the Client's Representative.
- 079 All CCTV equipment and technical standards shall comply with the specification of the Water Research Centre.
- 080 Where defects are exposed in new pipelines or in pipelines still subject to defects liability, they shall be remedied by the Provider at his own expense, and a further CCTV survey carried out at his own expense. When a final survey acceptable to the Client's Representative has been carried out. The Provider shall arrange for a copy of the video recording to be given to the Client's Representative.
- 081 The video recording shall be high quality digital format acceptable to the Client's Representative. At the start of each manhole length the video shall clearly display in Alpha-Numeric form the following information:
1. Camera metreage position in the sewer line;
 2. Sewer dimensions;
 3. Manhole/pipe length reference number;
 4. Date of survey;
 5. Road name location;
 6. Direct ion of survey;
 7. Time of start of survey;
 8. Sewer use;
- 082 Obtain Instructions from the Client's Representative on remedying any blockages or problems which may be revealed.

Septic Tank Installations

- 083 The single dwelling septic tank units are to be installed strictly in accordance with the manufacturer's technical data sheet and the recommendations of the applicable Standard;
- 084 The tanks are to be handled with care and lifted using a rope or sling passed through the lifting points provided;
- 085 Prevent superimposed loading by vehicles within a radius of 5m of the tank;
- 086 In dry ground conditions place tank on a base or 150mm thickness of broken stone or gravel to applicable Standard graded 10mm to 5mm, backfill and carefully compact the graded material, filling the tank with water to match the level of backfilling;
- 087 In wet or poorly drained ground, consolidate 250mm of crushed rock, cover with a polythene membrane and 150mm concrete (Gen 1). Lower the tank on to the concrete and puddle to form a cradle, carefully place and compact concrete (Gen 1) around the tank and bring up to a level 50mm below the outlet pipe, filling the tank with water to match the backfilling;

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Septic Tank Sub-Surface Irrigation System

- 088 Pipes are to be: 100mm diameter perforated PVC-U complying with applicable Standards before perforation and laid to a gradient of 1in 200 or to a layout Instructed by the Client's Representative, at a minimum depth of 500mm. Perforations shall be 8mm diameter, at 75mm centres in three rows giving an angle of perforation of 100%.
- 089 Pipes should be laid with perforations downwards on 250mm bed of clean filter stone graded 20-50mm, further filter material should be placed to 150mm above the crown of the pipe, and a 500 gauge polythene sheet laid on the stone foiling before backfilling with excavated material.

Testing

- 090 Test pipes and manholes generally by water test or air test to the satisfaction and in the presence of the Client's Representative and the Sewage Utility Provider.
- after haunching or bedding but before backfilling; and
 - after completion of the Works.
- 091 Where possible test each pipe from manhole to manhole, test short branch drains connected to a main drain between manholes as one system with the main drain, test hung branches separately.
- 092 Water testing is to be undertaken by:
1. Applying a test pressure of 1.2m head of water above the invert of the drain at the high end but not more than 6m at low end by means of a standpipe;
 2. Test steeply graded drains in stages in order not to exceed the maximum test pressure;
 3. Allow a period of 1 hour for absorption;
 4. Measure the loss of water over a period of 30 minutes by adding water from a measuring vessel at regular intervals of 10 minutes and noting the quantity required to maintain the original water level in the standpipe;
 5. The average quantity of water added must not exceed 0.1 litre/100m.mm of pipe diameter;
- 093 Air testing is to be undertaken by;
1. Plug the length of drain to be tested and pump in air until a pressure of 100mm of head of water is indicated in a U tube connected to the system;
 2. The air pressure must not fall to less than 75mm head of water during a period of 5 minutes without further pumping, after a period for requisite stabilisation;
- 094 Testing for Obstruction:
Check the bore, linearity and jointing of completed lengths of sewer less than 300mm diameter by drawing through a mandrel 750mm long and 12mm less in diameter than the nominal bore of the pipe;
- 095 Testing for Infiltration:
1. Test sewers for infiltration, the amount of infiltration shall not exceed 0.1litres per hour/100m/mm of pipe diameter;
 2. Infiltration to manholes shall not exceed 5 litres per hour/manhole;
- 096 Water-tightness of Manholes, Chambers and Wet Well:
Manholes, inspection chambers and wet wells shall be inspected to ensure that they are watertight with no identifiable flow of water penetrating the chamber;
- 097 Provide all necessary testing apparatus and carry out any other tests required by the Client's Representative and the Sewage Utility Provider.

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Land Drainage

- 098 Before starting work on land drainage, check invert levels and positions of existing drains, sewers, inspection chambers, manholes, catch-pits and watercourses against information shown on drawings and report any discrepancies to the Client's Representative.
- 099 Check position and levels of existing services before commencing excavation, hand dig carefully near to services. Notify the relevant Utility Authority if services are exposed by excavation or if land drainage work crosses the line of a service, follow the Utility Authorities instructions concerning work near services. Replace any marker tape or protective covers disturbed by excavation work in accordance with the Utility Authorities instructions.
- 100 Excavate trenches to a gradient of not less than 1:200 and not more than 1:80. Ensure that the invert to the outfall to open watercourses is no lower than the seasonal peak or 150mm above normal water level, whichever is higher.
- 101 Perforated plastic pipes are to be twin walled PVC-u to applicable Standard with purpose made junctions etc., and flexible joints laid on granular bedding 150mm thickness and backfilled to within 50mm of finished ground level with clean gravel or crushed rock graded as table in Clause 066 below, and blind with 40mm bed of sand to applicable Standard: Gf 85 0/1 (FP) fine aggregate,
- 102 Perforated concrete sub-base land drainage pipes are to be to applicable Standard Class H with ogee joints and perforations not greater than 10mm or less than 3mm, total area of holes to be not less than 1000mm/square metre of pipe, laid on concrete bedding with perforations upwards, backfill with crushed rock grades as table in Clause 066 below, deposit filter media in layers not exceeding 225mm loose depth and length, compact each layer.
- 103 Grading of crushed rock for land drainage is to be as table below:

Applicable Standard Sieve Size	Range of Grading % by weight passing
63mm	100
37.5mm	85-100
20mm	0-20
10mm	0-5

Clean and flush all drains

- 104 Immediately before handing over m, thoroughly clean all drains and flush all pipelines not exceeding 400mm diameter with clean water while rodding from manhole to manhole with a rubber tipped plunger the same size as the diameter of the pipe;
- 105 Manholes and inspection chambers must be washed down, emptied and left to dry;
- 106 Core, clean and flush drains, gullies, manholes, etc. on completion of the Works.

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Client’s current manufacturers/suppliers/products

107 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

CONCRETE WORK

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CONCRETE WORK

GENERAL

- 001 Constituent materials, composition of mixes, production of concrete, information to be provided to the Client's Representative, sampling, testing and compliance to be in accordance with applicable Standards.

READY-MIXED CONCRETE:

- 002 The ready-mixed concrete production plant is to be currently certified by a body accredited by UKAS to applicable Standards for product conformity certification of ready-mixed concrete.
Source of ready mixed concrete: Obtain from one source if possible otherwise submit the following documentation to the Client's Representative.
- Name and address of depot: Submit before any concrete is delivered.
 - Delivery notes: Retain for inspection.
- 003 Any declaration of non-conformity received from the concrete producer is to be notified immediately to the Client's Representative.

MATERIALS

Cement

- 004 Use ordinary "Portland" cement in accordance with applicable Standard delivered to the Property in sound condition. Store and protect it from deterioration due to moisture or other causes.
- 005 Storage of Cement:
- Arrange delivery in suitable small consignments so that cement will be used within 4 weeks of delivery;
 - Store dry in weather-tight structures with a raised floor, or in suitable silos;
 - Reject any cement which is set such that it cannot be easily crumbled between the fingers;
 - Use cement fresh in the order of its delivery to site;
 - Keep sufficient cement available in store to ensure that concrete work on any section can proceed without interruption.

Aggregates

- 006 For fine aggregate use only well graded coarse river sand of Grading Zones 1-3, clean natural sand or crushed stones.
- 007 For coarse aggregate use only natural gravel, crushed gravel, or crushed stone, well graded and of the nominal sizes as specified below.
- 008 If so Instructed submit samples of aggregates proposed to be used to the Client's Representative for approval. Ensure all subsequent deliveries conform to the approved samples. Arrange for ample supplies to be available of both fine and coarse aggregates of the quality and colour selected.
- 009 Storage of Aggregates:
- Wash fine and coarse aggregates and store them on a hard, clean, paved self-drained base or in suitable hoppers or containers'
 - Ensure that stored aggregates will not become dirty or otherwise contaminated.
 - Ensure when they are handled that they remain clean and well graded and keep them separate from each other until placed in the mixer;
 - Check by visual inspection each load before tipping and each batch before mixing for consistency of particle shape, accuracy of grading, segregation of particle sizes and cleanliness;
 - Ensure consistency of moisture content of fine aggregate at time of batching, if necessary by allowing stockpiles to drain for not less than 16 hours before use.

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Water

- 010 When mixing concrete use only clean and fresh water from the main that is not below 4⁰ Centigrade at the time of use.
- 011 Ensure water does not contain any matter injurious to concrete.

Rejected materials

- 012 Reject and remove immediately from the Property any Materials which have been damaged, contaminated or have deteriorated or do not comply fully with this Specification.

WORKMANSHIP

013 Concrete mixes

	Designated Concrete for Kerb Bases, Blinding etc.,	Designated Concrete for Mass Concrete Foundations, Beds etc.,
Designated Concrete	GEN 1	GEN 3
Reinforcement/embedded metal	None	None
Aggregates – Size (maximum)	20mm	20mm
Aggregates – Coarse recycled concrete aggregate (RCA)	Permitted	Permitted
Aggregates – Other requirements	None	None
Other requirements for cement and combinations	None	None
Consistence class	Provider’s Choice	Provider’s Choice
Chloride class	Cl 1.0	Cl 1.0
Other requirements for admixtures	None	None
Other requirements	None	None

	Designated Concrete RC 20/25	Designated Concrete RC 25/30
Designated Concrete	RC 20/25	RC 25/30
Reinforcement/embedded metal	Yes	Yes
Aggregates – Size (maximum)	20mm	20mm
Aggregates – Coarse recycled concrete aggregate (RCA)	Permitted	Permitted
Aggregates – Other requirements	None	None
Other requirements for cement and combinations	None	None
Consistence class	Provider’s Choice	Provider’s Choice
Chloride class	Cl 0.4	Cl 0.4
Other requirements for admixtures	None	None
Other requirements	None	None

	Designated Concrete RC 28/35	Designated Concrete RC 32/40
Designated Concrete	RC 28/35	RC 32/40
Reinforcement/embedded metal	Yes	Yes
Aggregates – Size (maximum)	20mm	20mm
Aggregates – Coarse recycled concrete aggregate (RCA)	Permitted	Permitted
Aggregates – Other requirements	None	None
Other requirements for cement and combinations	None	None
Consistence class	Provider’s Choice	Provider’s Choice
Chloride class	Cl 0.4	Cl 0.4
Other requirements for admixtures	None	None
Other requirements	None	None

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	Designated Concrete for Rigid Pavement/Stepped Ramps
Designated Concrete	PAV1
Reinforcement/embedded metal	None
Aggregates – Size (maximum)	20mm
Aggregates – Type/Density	Normal weight
Aggregates – Coarse recycled concrete aggregate (RCA)	Not Permitted
Aggregates – Other requirements	Freeze-thaw resisting
Limiting value for composition – WC ratio (maximum)	0.45
Limiting value for composition – Cement combination content (minimum)	300kg/m ³
Limiting value for composition – Cement combination content (maximum)	Not applicable
Limiting value for composition –Air content minimum	4.5%
Consistence class	Provider’s Choice
Cement combination	Main cement and combination type 11
Chloride class	Cl 1.0
Admixtures	For air entrainment see limiting value for composition item
Colour	Not required
Other requirements	None

Design/Batching and Mixing

- 014 For each designed mix, before making concrete for use in the Works and whenever a change in the materials or mix proportions is proposed, submit and obtain approval of:
- Details of proposed quantities of each ingredient per cubic metre of compacted concrete and proposed workability;
 - Either existing data or details of appropriate tests on trial mixes to show that the proposed constituent Materials and method of manufacture will produce concrete of the required quality, which will not segregate or bleed and will be capable of being fully compacted.
- 015 In special circumstances, subject to the consent of the Client standardised prescribed concrete mixes may be substituted for designated concrete.
- Substituted mix must conform to applicable Standard;
 - Substitution: In accordance with applicable Standard: table A.13. Submit for each substitution, stating reasons.
 - Mixes: If standardised prescribed concretes are made on site, this must conform to applicable Standard.
- 016 Water content of concrete must be carefully controlled and adjusted to allow for moisture content of aggregates to give consistent quality and workability.

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Identity Testing/Certification of Concrete

- 017 Testing of fresh concrete is to be to applicable Standards.
- Obtain Instructions from the Client's Representative immediately in the case of non-conformity.
 - Test concrete on a regular basis for compressive strength at least one sample for each day of use of a particular mix, or as directed by the Client's Representative.
 - Recording: - Maintain complete correlated records including:
 - Sampling, site tests and identification numbers of specimens tested in the laboratory.
 - Location of parts of the structure represented by each sample.
 - Location in the structure of the batch from which each sample is taken.
- 018 The testing laboratory: Is to be accredited by UKAS or other national equivalent. The Provider is to submit the name of the testing laboratory and its UKAS reference number well in advance of concrete being supplied.
- 019 If a concrete sample fails to achieve specified criteria or to pass specified tests, The Provider is to inform the Client's Representative without delay and submit:
- Confirmation of the validity of the test results, and/or
 - Proposals for further tests to assess the strength of the concrete in the structure, as set out in the applicable Standard and/or
 - Proposals for rectification.
 - Obtain agreement with the Client's Representative of all such evidence and proposals before proceeding. The Client's Representative may issue Instructions for the work to be stopped or delayed until reasons for the failure have been established; possible consequences assessed and appropriate preventative and remedial measures taken.

Placing and Compacting

- 020 Form construction joints as follows:
- Carefully brush and spray surface while concrete is still green to remove surface laitance and expose aggregate finish. Obtain agreement of the Client's Representative for any alternative method.
 - Surface to be clean and damp when fresh concrete is placed against it.
- 021 At time of placing ensure that all surfaces on which concrete is to be placed are clean, with no debris, tying wire clippings, fastenings or free water.
- 022 Inform the Client's Representative before each pour of concrete to allow inspection of reinforcement and surfaces against which concrete is to be placed. Agree with the Client's Representative the period of notice to be given.
- 023 In placing concrete, the Provider is to:
- Record time, date and location of all pours.
 - Place while sufficiently plastic for full compaction. Do not add water or re-temper mixes. The temperature of concrete at time of placing must be not less than 5 degrees C. Do not place against frozen or frost covered surfaces.
 - Place in final position in one continuous operation up to construction joints. Avoid formation of cold joints.
 - Do not discharge from an excessive height or through reinforcement or other obstructions in a way which may cause uneven dispersal, segregation or loss of ingredients. Use suitable chutes or trunking to place concrete where necessary.
 - Place in layers no thicker than can be effectively compacted with the equipment being used.
 - Do not use vibrators to make concrete flow horizontally into position, except where necessary to achieve full compaction under void formers and cast in accessories and at vertical joints.
- 024 Fully compact concrete to full depth (until air bubbles cease to appear on the top surface), especially around reinforcement, cast-in accessories, into corners of formwork and at joints. Ensure amalgamation with previous batches, but do not damage adjacent partly hardened concrete. Use mechanical vibration for all reinforced concrete.

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- 025 Sudden irregularities in the flatness of concrete floors is not permitted. When measured to applicable Standard, the variation in gap under a 3m straightedge placed anywhere on the surface to meet the following requirements:
- Floors which are to be self-finished, and floors to receive sheet or tile finishes directly bedded in adhesive: the floor surface regularity to meet Classification SR2.
 - Floors to receive screeds/toppings/beds; the floor surface regularity to meet Classification SR3.
- 026 Inform the Client’s Representative of the number and type of vibrators to be used. Provide standby vibrators. Do not use external vibrators without agreement.

Curing and Protection

- 027 Curing Generally:
- Prevent surface evaporation from concrete throughout the period(s) specified below by:
 - Retaining formwork in position and, if necessary, covering exposed surfaces immediately after striking, and
 - Covering top surfaces of fresh concrete immediately after completion of placing and compacting, removing covering only to permit any finishing operations and replacing immediately thereafter.
 - Maintain surface temperature above 5 degrees C throughout the periods specified below or four days, whichever is the longer;
 - Maintain detailed records of location and timing of casting of individual batches, removal of formwork and removal of coverings. Keep on site, available for inspection.
 - Coverings for curing may be suitable impervious sheet materials or a suitable curing compound with an efficiency of at least 75%, and:
 - Must be effective in preventing evaporation of water from the concrete, particular attention being paid to sealing at edges and junctions.
 - Must not disfigure permanently exposed surfaces.
 - Must not affect the satisfactory bond of subsequent construction and finishes.
 - Until the exposed top faces of fresh concrete are in a state suitable to receive sheets in direct contact or a sprayed curing compound as applicable, cover with waterproof sheeting held clear of the surface and well-sealed against draughts at edges and junctions.

Curing Periods.

028 The curing periods, in days:

Concrete surfaces which will be exposed to frost or chemical attack. Concrete wearing surface floors and pavements. Watertight concrete:		
	Concrete made using OPC, SRPC, RHPC	Concrete made using PPFAC, PBC, PFA, GGBS
November to April	10	12
May to October	7	10
Other structural concrete surfaces: No special requirements if in damp weather and protected from sun and wind, otherwise as follows (cement as above):		
November to April	6	10
May to October	4	7

- 029 Obtain prior approval for curing periods for mixes using admixtures or other types of cement.
- 030 Prevent damage to concrete, including:
- Surfaces generally: From site, indentation and physical damage.
 - Surfaces to be exposed in the finished work: From dirt, rust marks and other disfiguration.
 - Immature concrete: From thermal shock, physical shock, overloading, movement and vibration.
- 031 Ensure there is no traffic over, or loading on, concrete for at least seven calendar days after placing.

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Work in cold weather

- 032 Do not concrete when the air temperature is below 4⁰C. Bear the entire risk of concreting done below this temperature.
- 033 Take adequate precautions to protect concrete from freezing. Bear all risks of damage to concrete from frost action.
- 034 Keep a reliable maximum and minimum thermometer at the site of any concreting Works.

Designed Joints in Insitu Concrete

- 035 All joints to be accurately located, straight and well-aligned, and truly vertical or horizontal.
- 036 Construction/Movement Joints:
- Form joints accurately to detail and in locations shown on the drawings or as Instructed.
 - If modifications to any joint or location are necessary on site, agree revisions with the Client's Representative.
 - Do not allow concrete to enter any gaps or voids in the formwork or to render the movement joints ineffective.
 - Do not allow concrete to impregnate or penetrate any materials used as compressible joint fillers.
 - Do not place concrete simultaneously on both sides of movement joints.
- 037 Additional construction joints in concrete exposed to view required by the Provider, will not be permitted, unless permission is given by the Client's Representative.
- 038 Construct using rigid, grout-tight side forms or stop ends designed to accommodate projecting bars or fabric without temporary bending or displacement.
- 039 Brush and spray surface of construction joints while concrete is still green and leave a thoroughly roughened exposed aggregate finish.
- 040 Tie bars are to be:
- To applicable Standard, clean and free from oil, dirt, loose rust or scale;
 - Fixed securely at the stated centres, and at the required depth, placed centrally on the joint.
- 041 Dowel bars are to be:
- To applicable Standard, perfectly straight and clean with sawn ends;
 - Coated half the length of each bar with suitable proprietary de-bonding compound or fit with a suitable plastic sleeve;
 - Fixed securely at the required depth, level at right angles to and centred on the joint;
 - Fitted with a cap at expansion joint, incorporating a compressible material, to de-bonded end of all bars.
- 042 Sheet joint filler for expansion joints is to be:
- Firm compressible, rot-proof, non-absorbent, non-extruding material;
 - Fixed accurately in position;
 - Ensure sufficient space is left for sealant.
- 043 Sealant for joints is to be:
- Cold-applied sealants complying with applicable Standard.
 - Cured to manufacturer's recommendations to form a durable seal of low modulus elastomeric material.

Worked Finishes to Insitu Concrete

- 044 Carborundum dust is to be to applicable Standard.

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- 045 Timing:
- Carry out all finishing operations at optimum times in relation to the setting and hardening of the concrete;
 - Do not wet surfaces of concrete to assist surface working;
 - Do not sprinkle cement on to surface.
- 046 Tamped finish is achieved by:
- Float concrete to an even surface with no ridges or steps, then immediately commence curing as specified in Clause 026;
 - When the concrete is suitably stiff, tamp surface in one direction to give a uniform ribbed surface;
 - Resume specified curing without delay.
- 047 Smooth floated finish is to be achieved by the use of a hand float; skip float or power float to give an even surface with no ridges or steps.
- 048 Trowelled finish is to be achieved by:
- Float concrete to an even surface with no ridges or steps, then immediately commence curing as specified in Clause 026.
 - When the concrete is suitably stiff, hand or power trowel to give a uniform smooth but not polished surface, free from trowel marks and other blemishes, and suitable to receive the specified flooring material.
 - Resume specified curing without delay.
 - Adequately protect the surface from construction traffic until flooring material is laid.
 - If, because of inadequate finishing or protection, the surface of the concrete is not suitable to receive the specified flooring material, it must be made good by application of a smoothing compound to the satisfaction of the Client's Representative. Allow for the cost of any such making good.
- 049 Trowelled finish for wearing surfaces is to be achieved by:
- Float concrete to an even surface with no ridges or steps, then immediately commence curing as specified in Clause 026.
 - Successively hand or power trowel at intervals, applying sufficient pressure to close the surface, to give a uniform smooth finish free from trowel marks and other blemishes.
 - Resume specified curing without delay.
 - Complete a sample area of the finished work, size 1m. sq., in advance of the remainder, at a specified location, and allow inspection of appearance before proceeding.
- 050 Trowelled finish with non-slip additive is to be achieved by:
- Float concrete to an even surface with no ridges or steps, then immediately commence curing as specified in Clause 026.
 - When the concrete is suitably stiff, sprinkle carborundum evenly over the surface at the rate of 1 kg/m sq. and hand trowel to give a uniform smooth, but not polished surface, free from trowel marks and other blemishes.
 - Resume specified curing without delay.
 - Complete a sample area of the finished work, size 1m sq., in advance of the remainder, at a specified location, and allow inspection of appearance before proceeding.
- 051 Brush surface textured finish is to be applied evenly across the concrete road slab or house path in one direction by the application of a wire brush not less than 450mm wide with wire tufts initially 100mm long.
- 052 Trowelled finish/brush textured finish to paths is applied evenly across the concrete path in one direction by the application of a wire brush not less than 450mm wide with wire tufts initially 100mm long, with a minimum 100mm wide margin trowelled smooth finish as Clause 046.

Surface finishes - Generally

- 053 Place concrete so that the face is free from voids and shows a uniform distribution of aggregate and uniform texture.

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- 054 Use wrot formwork where a fair finish is required to the concrete surface. After removing the formwork, remove the feathers caused by the joints in the boards. Fill any holes or honeycombing which may have formed in the surface by first drenching with water and then filling the void with cement mortar composed of cement and washed sand in the same ratio as that in the concrete mix.
- 055 Use surface lined formwork where a perfect finish is required to the concrete. Immediately after removing the forms bring the concrete to a true, smooth and even surface, free from board marks, honeycombing, etc., by rubbing down with carborundum stone dipped in cement grout.
- 056 When no specific finish is required, tamp upper surfaces to a plain or evenly ribbed finish with tolerances suitable for subsequent Works. When a floated finish is specified, close the surface to produce an even slightly coarse texture free from ridges and depressions.
- 057 Trowel concrete to receive a thin floor covering by power float or other suitable method to produce a dense very smooth surface that is visually flat and suited to the direct application of thin floor coverings. Ensure there are no Defects in the finished concrete that show through the floor.
- 058 The maximum permissible deviation from flat is 3mm from a 3.00m straight edge.

Formwork for insitu concrete

Generally/Preparation

- 059 Design and construct formwork to withstand the worst combination of:
- Total weight of formwork, reinforcement and concrete.
 - Construction loads including dynamic effects of placing, compacting and construction traffic.
 - Wind and snow loads.
- 060 Temporary Works including propping shall comply with Health and Safety Executive Information Sheet No 56 and the applicable Standard Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework.
- 061 Provide adequate propping to prevent deflection and damage to the structure. Carry down such props to bearings strong enough to provide adequate support.
- 062 Temporary supports to the formwork shall not be cast into the concrete construction.
- 063 For work below ground:
- Vertical faces of strip footings, bases and slabs may be cast against faces of excavation, provided:
 - Prior agreement is obtained;
 - The faces are sufficiently accurate and stable.
 - Adequate measures are taken to prevent contamination of concrete;
 - Faces of walls must be cast against formwork.
- 064 Basic finish: No particular requirements, except those for tolerances and full compaction.
- 065 Formed finish: Where the surface is described as having a formed finish, the formwork shall be such as will give a perfectly smooth and even, but not polished surface, with neat sharp arrises.
- 066 Steelwork: Remove all loose mill scale and loose rust before encasing in concrete.

Construction

- 067 Construct formwork accurately and robustly with adequate supports to produce finished concrete to the required dimensions. Cast surfaces of concrete must be free from twist and bow (other than any required cambers), all intersections, lines and angles being square, plumb and true.

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- 068 Joints in forms: Construct formwork, including joints in form linings and between forms and completed work, to prevent loss of grout, using seals when necessary. Secure formwork tight against adjacent concrete to prevent formation of steps.
- 069 Inserts, holes, mortices, chases:
 - Confirm positions and details to ensure that alterations to and decisions about their size and location are not made without knowledge and agreement of the Client’s Representative.
 - Fix inserts or box out as required in correct positions before placing concrete. Form all holes, mortices and chases. Do not cut hardened concrete without permission.
- 070 Treatment of formwork:
 - Remove, rubbish, debris, water, etc. from the interior of the formwork before concrete is placed.
 - Coat inside surface of formwork with a mould release agent to prevent adhesion to the concrete.
- 071 Give sufficient notice of intention to place concrete to allow the Client’s Representative reasonable time to check the construction and condition of formwork.
- 072 Use the same type and make of release agent throughout the entire area of any one finish. Use the minimum amount necessary to obtain a clean release and prevent excessive local collection. Prevent release agent touching the reinforcement or other materials not part of the form face or formwork.

Striking

- 073 Strike formwork without disturbing, damaging or overloading structure, and without disturbing props. Notwithstanding other clauses in this Specification and any checking by the Client’s Representative, the responsibility for safe removal of any part of the formwork and any supports without damaging the structure rests with the Provider. When formwork is struck, any holes shall be filled with suitable concrete and fins shall be carefully removed so that a flat surface is presented.
- 074 Minimum Periods before striking:

The following periods (in days) for retaining formwork in position before striking apply to ordinary Portland cement concrete with no cement replacement materials or admixtures:

TABLE STRIKING TIMES.

	Average mean of daily minimum and maximum air temperatures during the period.		
	16 degrees C.	7 degrees C.	3 degrees C.
Vertical formwork to columns, walls and beams.	0.5	1	2
Soffit forms to slabs.	4	6	8
Props to slabs.	10	15	20
Soffit forms to beams.	10	15	20
Props to beams.	14	21	28

- 075 Submit details of proposed periods for mixes using admixtures or other types of cement.
- 076 Days during which the average air temperature is below 2 degrees C shall be disregarded in calculating the minimum time which shall elapse before forms are removed.

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Reinforcement for Insitu Concrete

Reinforcement generally

- 077 Reinforcing steel must comply with applicable Standard, be cut and bent to applicable Standard and be obtained from a firm holding a valid certification of approval issued under a product certification scheme operated by a third party certification body with appropriate Category 2 accreditation from the United Kingdom Accreditation Service (UKAS).
- 078 Plain bar reinforcement is to be to applicable Standard Grade 250.
- 079 Deformed bar reinforcement is to be to applicable Standard grade 460.
- 080 Steel fabric reinforcement generally is to be to applicable Standard.

REFERENCE	MINIMUM LAPS
A142	400mm
A193	400mm
A252	400mm
A393	400mm

- 081 Store reinforcement clear of the ground and prevent contamination by other materials. At time of placing concrete, reinforcement to be clean and free of corrosive pitting, loose mill scale, loose rust, ice, oil and other substances which may adversely affect the reinforcement, concrete, or bond between the two.

Before Fixing

- 082 Reinforcement must not be roughly handled, dropped from a height, or subjected to shock loading or mechanical damage.

Bending reinforcement

- 083 Bend or straighten bars cold, gradually and evenly and in a manner that will not injure the Material.
- 084 Bend steel to the shape exactly as shown on the drawings. Ensure all bends have an internal radius of at least twice the diameter of the bar.
- 085 Provide on-site facilities for hand bending to deal with minor adjustments.
- 086 Projecting Reinforcement:
- Grade 250 bars may be bent to radii not less than indicated in the applicable Standard.
 - Grade 460 bars must not be bent or straightened without the approval of the Client's Representative.
- 087 Reinforcement may be made up into cages. The cages shall be straight and out of winding when placed in position.

Placing reinforcement

- 088 Place reinforcement exactly as directed by the Client's Representative and use the correct concrete cover. Adequately support and bind the reinforcement at intersections with 16 swg soft pliable or annealed mild steel tying wire, steel clips or tack welding if permitted so that displacement does not occur when the concrete is deposited. Wire or clips must not encroach into the concrete cover. Ensure the lap:
- is at least 40 times the diameter of the bar size and at least 300mm; and
 - to the mesh is at least 450mm.

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- 089 Spacers to comply with applicable Standard. In addition to supports shown on drawings or schedules, provide spacers and chairs at not more than 1m or 1000mm centres or closer spacing as necessary to support reinforcement in position and maintain the specified cover. Reinforcement must be fixed in position before the concrete is placed.
- 090 Cover spacers should be staggered on adjacent parallel bars and placed at approximate centres of 50 x diameter of bar but not exceeding 1000mm for individual bars or 500mm for welded fabric.
- 091 Cover Spacers which will adequately support the reinforcement, adequately resist displacement, not cause indentation of the formwork are to be made from:
- Plastics (perforated to at least 25% of their area), or
 - Fibre cement, or
 - Concrete (strength and durability to match surrounding concrete).
- 092 The actual concrete cover shall not be less than the required nominal cover minus 5mm.
- 093 Where reinforcement is located in relation to only one face of a member, the actual concrete cover shall be not more than the required nominal cover plus 5mm on bars up to and including 12mm size, 10mm on bars over 12mm up to and including 25mm size and 15mm on bars over 25mm size. Before concreting check thoroughly that the specified cover dimensions have been obtained.

Holes, chases, fixing blocks, etc.,

- 094 Incorporate any conduit, pipes, fixing blocks, chases, etc., in concrete members as required. Submit full details of these to the Client's Representative for approval before the Works start. Ensure all fixing blocks, bolts, chases, holes, etc., left in the concrete are:
- of the sizes required; and
 - accurately set out and cast with the concrete or boxed out as the Works proceed.
- 095 Do not cut holes or chases in the concrete unless the Client's Representative Instructs this to be done.

Precast concrete – Small Units

- 096 Ensure precast concrete is of the mixes specified.
- 097 Ensure reinforcement is 25mm clear of the soffit of lintels, steps, etc. Hook the ends of bars for a distance of 38mm and crank to resist shear. Mark the tops of members at the time of casting.
- 098 Reinforce precast concrete not described as reinforced as necessary to withstand handling and temperature stresses.
- 099 Adequately cure precast concrete before it is handled and fixed in position.
- 100 Rub down the surfaces of precast concrete described as "finished fair." Neatly stop any holes, etc. Leave the surfaces perfectly smooth with no sharp arrises. Leave remaining faces rough for plastering or rendering unless stated otherwise in the relevant part of this Specification.

Precast Concrete - Large Units

Components

- 101 Precast concrete stairs shall comply with the applicable Standard.
- 102 Concrete generally: Constituent materials, composition of mixes, production of concrete, information to be provided, sampling, testing and compliance to be in accordance with applicable Standards.

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- 103 The Chloride ion content of the constituents of each mix shall comply with the applicable Standard.
- 104 Reinforcement type:
- Plain bar reinforcement to be to applicable Standard Grade 250.
 - Deformed bar reinforcement to be to applicable Standard, Grade 460.
- 105 Reinforcement generally:
- Reinforcement to be clean and free from corrosive pitting, loose mill scale, loose rust, ice, oil and other substances which may adversely affect the reinforcement, concrete or the bond between the two.
 - Fix accurately and securely using tying wire or steel clips. Wire and clips must not encroach into the concrete cover.
 - In addition to reinforcement required for structural purposes, precast units must be reinforced as necessary to resist shrinkage and handling stresses.
- 106 Cover to reinforcement: Minimum nominal cover to reinforcement on exposed faces to be 35mm. Cover spacers must not be used to concrete faces which will be exposed in the finished work.
- 107 The following tolerances on the nominal dimensions are permitted:-
- Length ± 6 mm;
 - Depth ± 3 mm;
 - Width ± 3 mm.
- 108 Moulds must be:
- Constructed accurately to give straight, square and true components.
 - Maintained in clean, sound condition and inspected carefully for defects before each reuse.
 - Damaged moulds must not be repaired and reused if this would impair the surface appearance of the components.
 - Constructed to prevent loss of grout.
 - Designed to permit de-moulding without damage to the components.
 - Coated evenly with a suitable release agent, which must not be allowed to touch the reinforcement.
- 109 Finishes: Exposed surfaces shall have a smooth and even but not polished surface. Arrises or faces which are broken, chipped, cracked, crazed, honeycombed, irregular, inconsistent, stained or otherwise marred such that their appearance or performance is significantly impaired will not be accepted.
- 110 Casting and curing:
- Thoroughly compact concrete by vibration.
 - Do not de-mould components prematurely.
 - Prevent damage to and distortion of immature components from movement, vibration, overloading, physical shock, rapid cooling and thermal shock.
 - Ensure that components are protected from sun and drying winds until they are at least 5 days old.
 - Do not deliver components on site until at least 14 days after casting.
- 111 Storage of units: When units are stored they shall be firmly supported at such bearing positions as will ensure that the actual stresses induced are always less than the permissible stresses.
- 112 Lifting of units: Units shall be lifted only at points indicated by the manufacturer and shall be handled and placed without impact.
- 113 End bearing: The minimum end bearing for precast stair units shall be 100mm on brick/blockwork and 75mm on steelwork. Where the top of the supporting member is irregular, the stairs shall be bedded on a layer of mortar.
- 114 Cutting of units: Units shall only be cut on site in accordance with the manufacturer's technical data sheet and with the Client's Representative's agreement.

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- 115 Repairs to units: Any repairs to precast stairs shall be authorised by the Client's Representative and shall be carried out using a compatible concrete repair material.
- 116 Loading on units: When the units have been set in position, ensure that they are not overstressed by the placing upon them of heavy loads from other building materials.
- 117 Mortar for bedding shall be cement lime sand (2:1:6).

Precast/Composite Concrete Decking

Proprietary Floors/Roof Decks

- 118 Precast concrete floor units:
- Precast concrete floor units shall comply with applicable Standards. The manufacturer shall supply drawings showing the proposed layout of the floor units and a schedule of the reinforcement/pre-stressing wire arrangements to be used in each unit.
 - Grout all joints between units with concrete Grade RC 25/30 as Clause 012 and allow to harden before any loads are applied.
- 119 Marking of units:
- Each unit shall be indelibly marked in such a manner that by reference to the manufacturers schedule, its nominal size and intended position on the floor layout may be easily found.
 - If the units are of symmetrical section, the face which will be uppermost when the units are in their correct position shall be clearly marked.
- 120 Dimensions:
- The manufacturer shall make known the nominal sizes of his units. The following tolerances on the nominal dimensions are permitted;
 - Length +/- 9mm;
 - depth +/- 3mm;
 - width +/- 6mm.
 - Where there is a camber in the units due to pre-stressing, the variation in camber between adjacent units shall not be greater than 6mm.
- 121 End bearing: The minimum end bearing for precast floor units shall be 100mm on brickwork/blockwork and 75mm on steelwork. Where the top of the supporting member is irregular, the units shall be bedded on a layer of mortar.
- 122 Storage of units: When units are stored they shall be firmly supported at such bearing positions as will ensure that the actual stresses induced are always less than the permissible stresses.
- 123 Lifting of units: Units shall be lifted or supported only at points indicated by the manufacturer and shall be handled and placed without impact.
- 124 Cutting of units: Units shall only be cut on site in accordance with the manufacturer's technical data sheet and with the Client's Representative's agreement.
- 125 Repairs to units: Any repairs to precast concrete floor units shall be authorised by the Client's Representative and shall be carried out using a compatible concrete repair material.
- 126 Loading on units: When the units have been set in position, ensure that they are not overstressed by the placing or storing upon them of heavy loads from other building materials.
- 127 Mortar for bedding shall be cement lime sand (2:1:6).

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- 128 Lateral restraint straps:
- Ensure that floors tightly abut walls.
 - Material/Finish: Galvanised steel.
 - Size: Not less than 30mm x 5mm cross-section; not less than 650mm long including each end cranked 100mm.
 - Position with one cranked end in tight contact with cavity face of wall inner leaf, other cranked end grouted into a floor joint.
- 129 Precast beam and block: (floor)
- Beams: designed to applicable Standard
 - Type: Reinforced pre-stressed concrete T-Beam.
 - Infill blocks: clause 123.
- 130 Detailing of proprietary system:
- Installation details: Submit location and assembly drawings showing every aspect of the construction, incorporated components and features, trimming for voids, holes for services, and related work by others.
 - Purpose: To allow checking of compatibility with surrounding structure and coordination of services.
 - Submit method statement and risk assessment for installation
 - Submit programme well in advance of construction.
- 131 Standard precast concrete infill blocks: (floor)
- Type: Solid block to applicable Standard.
 - Size: 440 x 215 x 100 mm.
 - Compressive strength (minimum) 3.5 N/mm²
 - Transverse load capacity (minimum): 3.5 kN/m² measured on a 420 mm span.

Bituminous damp-proof membrane

- 132 Thoroughly clean the surfaces to receive the bituminous membrane. Apply this strictly in accordance with the manufacturer's technical data sheet.

Polythene damp-proof membrane

- 133 Use heavyweight building sheet for any polythene damp-proof membrane. Lap all joints and make them with double welt folds. Tape all in accordance with the manufacturer's technical data sheet.
- 134 Take special care to prevent joints unsealing and to avoid puncturing the sheeting during placing operations, subsequently during the laying of the brickwork or securing fixing grounds. Remove and replace any damaged sheeting.
- 135 Seal any holes through the damp-proof membrane for services by wrapping the pipes in small sheets and using sealing tape around the pipes and main film barrier.

Repairs to Concrete – Exposed Reinforcement

- 136 All materials used shall form part of an integrated concrete repair system and the works shall be carried strictly in accordance with the manufacturer's technical data sheet.
- All loose and friable particles and areas of low strength concrete shall be removed and cut back to expose the sound concrete around the reinforcement;
 - The sound substrate shall be exposed over the full length of any rusted section of reinforcement, and for at least 25mm of the rust free portions of the bar at either end. Any damaged concrete shall be removed to a minimum depth of 12mm clear space behind the reinforcement, provided that this does not endanger the structural form or stability of the concrete component. The cut area shall be shaped such that a butt edge of at least 10mm deep results in the repair and no feather edges shall be permitted;

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- Any surface contaminants which could interfere with the bond, i.e. dirt, oil, grease, etc., shall be removed;
- Remove all corrosion from the exposed reinforcement by grit blasting, to finish with a clean surface and immediately apply a corrosion resistant primer which must provide a good physical key for, and be compatible with the subsequent repair material;
- The repair material shall be a polymer modified cement slurry or a solvent free high build epoxy resin sprinkled with sand or similar materials;
- If at any point corrosion has reduced the diameter of a reinforcing bar by more than 10%, a new bar shall be lapped with the existing bar all in accordance with the Client's Representative's Instructions before proceeding with the repair;
- The cut back face of the concrete shall be coated with a concrete primer coat of polymer modified cement mortar or any epoxy resin;
- The patch repair mortar shall be purpose designed, factory mixed, polymer enhanced cementitious mortar with aggregate grading appropriate to the thickness of the repair. It shall be capable of being applied in layers up to 25mm thick;
- The material shall be fully compatible with the base materials and any proposed decorative coating and shall be applied strictly in accordance with the manufacturer's technical data sheet; and
- After completion of the full concrete repairs, coat the whole of the surface of the repaired component with a flexible microporous membrane, in accordance with the manufacturer's technical data sheet.

Structural Repairs to Defective Concrete

- 137 All materials used must be certified in accordance with applicable Standard and form part of an integrated concrete repair system and the works shall be carried strictly in accordance with the manufacturer's technical data sheet.
- The Provider shall only break out and remove concrete from areas specifically identified and marked out in agreement with the Client's Representative. Before removing any concrete the Client's Representative shall determine the position and depth of the reinforcement using non-destructive test methods and shall mark reinforcement clearly in the vicinity of repairs prior to any works commencing.
 - The perimeter of the concrete to be removed shall be saw cut perpendicular to the face of the concrete to a minimum depth of 15mm or to within 10mm of any reinforcement. Cover depths may vary significantly across the structure. If inadequate cover exist for saw cutting, saw cuts shall continue to within 10mm of reinforcement and concrete carefully broken out across the reinforcement face using dry breakout techniques. Saw cuts should be along the lines marked on the concrete surface during the inspection by the Client's Representative;
 - The Provider shall remove all defective concrete as marked until sound concrete is reached to the acceptance of the Client's Representative;
 - At the upper limits of the manufacturer's recommended repair volumes, sloping cuts may be used to avoid the entrapment of air when the concrete is poured;
 - Saw cut edges shall be abraded to ensure a satisfactory key for the repair mortar where directed by the Client's Representative;
 - The method of removal and breaking out of defective concrete including the use of dry break-out techniques shall be proposed by the Provider to the Client's Representative for acceptance prior to works commencing;
 - Over-break of concrete shall be made good at the Provider's own expense using an approved concrete repair system. Where the Provider feels that the repair area needs to be extended beyond the originally agreed area this must be agreed with the Client's Representative prior to any breaking out works;
 - Sound reinforcement damaged during concrete removal shall be made good by the Provider at no additional expense to the Client;
 - Existing reinforcement that has corroded and is identified by the Client's Representative as being defective, shall be Instructed to be removed by the Provider;
 - All new reinforcement shall be attached to the existing reinforcement either by lapping new and existing reinforcement steel or by using mechanical couplers. The Provider must submit his proposed methodology for the fixing of new reinforcement to the Client's Representative for approval; and
 - The Provider shall take measures to keep the site, work areas and access platforms free of concrete debris. Solid material shall not be permitted to accumulate and shall be removed safely off site.

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Surface Preparation - Reinforcement

- 138 Surface preparation for reinforcement shall be as follows:
- Removal of all detrimental contamination and corrosion products within the concrete repair areas to produce a generally bright steel appearance overall;
 - The surfaces shall be free of embossed abrasive particles and corrosion products when viewed through a x10 illuminated magnifying glass and shall be offered up by the Provider for inspection by the Client's Representative;
 - Surface preparation of reinforcement shall be completed using dry abrasive blasting, mechanical wire brush or hand tool abrasion techniques as proposed by the Provider as part of his safe working procedures; and
 - Surface preparation methods must be agreed with the Client's Representative prior to Works commencing.

Surface Preparation – Existing Concrete

- 139 Surface preparation of existing concrete shall be as follows:
- Concrete surfaces shall be clean and dry and free from all grease, oil, dust and loose material;
 - Loose material to the interior of repair areas shall be removed by a methodology approved by the Client's Representative;
 - The surface shall be such that repair concrete shall flow freely into all voids and be in intimate contact with the existing concrete;
 - Where dry breakout percussive methods have been used for concrete removal, surface preparation of the concrete surfaces to the interior of repair areas shall be completed using one of the following methods:
 - Dry abrasive blasting;
 - Mechanical surface preparation (e.g. scabbling);
 - Hand tool preparation (e.g. wire brushing);

Surface Preparation – Priming of concrete and steel

- 140 Prior to placing any repair mortar, preparation and priming of the concrete and steel substrates should be undertaken in accordance with the manufacturer's technical data sheet.

Remedial Works to Spalling and Cracks in Concrete Surfaces

- 141 All materials used shall form part of an integrated concrete repair system and the works shall be carried strictly in accordance with the manufacturer's technical data sheet.
- All loose and friable particles and areas of low strength concrete shall be removed and cut back to expose the sound concrete around the reinforcement;
 - Any surface contaminants which could interfere with the bond, i.e. dirt, oil, grease, etc., shall be removed;
 - The repair material shall be a polymer modified cement slurry or a solvent free high build epoxy resin sprinkled with sand or similar materials;
 - The cut back face of the concrete shall be coated with a concrete primer coat of polymer modified cement mortar or any epoxy resin;
 - The patch repair mortar shall be purpose designed, factory mixed, polymer enhanced cementitious mortar with aggregate grading appropriate to the thickness of the repair. It shall be capable of being applied in layers up to 15mm thick;
 - The material shall be fully compatible with the base materials and any proposed decorative coating and shall be applied strictly in accordance with the manufacturer's technical data sheet; and
 - After completion of the full concrete repairs, coat the whole of the surface of the repaired component with a flexible microporous membrane, in accordance with the manufacturer's technical data sheet.

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Client’s current manufacturers/suppliers/products

142 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

BRICKWORK AND BLOCKWORK

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BRICKWORK AND BLOCKWORK

MATERIALS

Cement

001 Use either normal setting ordinary or rapid hardening or sulphate resisting Portland cement or blast furnace cement. All cement must comply with applicable Standard and be manufactured by a firm with their capability assessed and registered with BSI or other quality certification body acceptable to the Client.

Lime

002 Use Class B hydrated lime, to applicable Standard

Sand

003 Sand for mortar is to be to applicable Standard FP or MP Category 3 unless specified otherwise. Sand for face-work mortar is to be from one source, different loads to be mixed if necessary to ensure consistency of colour and texture'

Sand and aggregate Material Property Limits	applicable Standard Category for other aggregates and Sand	applicable Standard Category for Air cooled blast furnace slag
Acid soluble sulphate content	AS0.2	AS 1.0
Total sulphur	≤ 1% by mass	≤ 2% by mass
Water soluble content	≤ 1% by mass	≤ 1% by mass
Loss on ignition	PFA ONLY ≤ 7% by mass	≤ 3% by mass

Cement mortar

004 Ensure all cement mortar used is composed of one part cement and three parts sand. Use this in brickwork built below ground level, copings, chimneys, parapet walls and any other brickwork in severely exposed situations.

005 In other situations unless otherwise Instructed, use only gauged cement mortar composed of:

- one part masonry cement;
- one part lime; and
- six parts sand.

006 Ensure all mortar used is fresh and made only in quantities sufficient to meet the immediate demand. Use mortar within 2 hours of mixing at normal temperatures. Do not revive or re-use any mortar which has been partially set. Measure materials accurately by volume using clean gauge boxes. Proportions of mixes are for dry sand, allow for bulking if sand is damp. Mix materials thoroughly to a consistency suitable for the work and free from lumps, do not over mix mortars containing air entraining admixtures. Keep plant and banker boards clean at all times.

007 Premixed lime:sand:mortar shall be obtained premixed in accordance with applicable Standard from a competent mortar manufacturer to the satisfaction of the Client, Ordinary portland cement is added on site by volume in accordance with the mix specification.

008 Coloured lime:sand:mortar, where required is to be made using a proprietary coloured ready-mixed lime:sand to applicable Standard; colour to be as specified or to match existing. Pigments used in lime:sand mortar are to conform to applicable Standard.

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Ready to Use Retarded Mortars

- 009 Ready to use retarded mortars shall be in accordance with applicable Standard and Render/Plaster mixes to be in accordance with applicable Standard. The Client is provided with CE Marked performance information to Annex ZA before mixing commences.
- (i) All mortar storage containers are kept in good condition.
 - (ii) Storage containers are thoroughly cleaned out between fills.
 - (iii) Storage containers are clearly marked with mortar mix designation i.e. building/plaster/render, date and time of delivery.
 - (iv) Under no circumstances may partially full storage containers be 'topped up' with fresh mortar.
 - (v) The mortar is properly protected from adverse weather conditions, prior to, during and after use.
 - (vi) On no account should the mortar be re-mixed in a mechanical mixer
- 010 Under no circumstances can anything other than minimal amounts of water be added to the mix on site and this only to maintain workability during use i.e., by bricklayer on a spot board.
- 011 Absolutely no cement or any other additive may be added to the mix on site.
- 012 Care should be taken to ensure that the mortar is used in its 'fresh' state and that no remixing for use takes place after the period of retardation has passed.
- 013 All mortar, which has been contaminated in any way, shall be disposed of in such a manner as to render it unusable.

Waterproofing Agents

- 014 Waterproofing agent is to be to applicable Standard, supplied and installed in compliance with a current British Agrément Board certificate or other Quality system approved by the Client. The quantities of agent to be used are to be strictly in accordance with the manufacturer's technical data sheet. The Provider is prohibited from using admixtures based on calcium chloride and ethylene glycol.

Bonding Agent

- 015 Bonding agent is to be Opaque white non-toxic externally plasticised PVA emulsion of high viscosity and manufactured to applicable Standard. The bonding agent is to be suitable for the exposure conditions and supplied and installed in compliance with a current British Agrément Board certificate or other Quality system approved by the Client.

Air Entraining Admixture

- 016 Air entraining admixture is to be to applicable Standard, supplied and installed in compliance with a current British Agrément Board certificate or other Quality system approved by the Client. The quantities of admixture to be used are to be strictly in accordance with the manufacturer's technical data sheet.

Water Reducing Admixture

- 017 Water reducing admixture is to be to applicable Standard, supplied and installed in compliance with a current British Agrément Board certificate or other Quality system approved by the Client. The quantities of admixture to be used are to be strictly in accordance with the manufacturer's technical data sheet.

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Common bricks

018 Use clay common bricks to applicable Standard

Location	Bond	Mortar mix
Superstructure Brickwork above DPC	Stretcher	1:1:6 cement lime mortar
Superstructure Brickwork above DPC	English	1:1:6 cement lime mortar
Substructure Brickwork below DPC	Stretcher	2:1:6 cement lime mortar
Substructure Brickwork below DPC	English	2:1:6 cement lime mortar

019 Use concrete common bricks to applicable Standard, with an average compressive strength of 20N/mm² with no brick from any 10 no tested having a strength less than 16N/mm sq.

Location	Bond	Mortar mix
Superstructure Brickwork above DPC	Stretcher	1:1:6 cement lime mortar
Superstructure Brickwork above DPC	English	1:1:6 cement lime mortar
Substructure Brickwork below DPC	Stretcher	2:1:6 cement lime mortar
Substructure Brickwork below DPC	English	2:1:6 cement lime mortar
Substructure Brickwork below DPC	Honeycombed	2:1:6 cement lime mortar

020 Use concrete common bricks to applicable Standard, with an average compressive strength of 30N/mm² with no brick from any 10 no tested having a strength less than 24N/mm sq.

Location	Bond	Mortar mix
Manholes	Stretcher	1:3 cement sand
Manholes	English	1:3 cement sand

Facing and Engineering bricks

021 Ensure facing bricks and engineering bricks are clay and of a size, type and colour to match the existing bricks.

022 Where approved by the Client’s Representative, clean and reuse sound facing and engineering bricks taken down as part of repair works.

Air bricks and wall ventilators

023 Use unglazed clay/concrete air bricks of a colour to match the facing bricks.

Cavity wall insulation – Built in Boards

024 Mineral fibre batt built in cavity wall insulation to applicable Standard generally made to fill the cavity, with conductivity less than 0.038W/mK, complete with a current BBA certificate or equivalent current quality system approved by the Client’s Representative.

025 Expanded grey polystyrene injection moulding full fill board cavity wall insulation to applicable Standard with 10mm weathering space, and with conductivity less than 0.032W/mK, and compressive strength more than 70kPa at 10% compression, complete with a current BBA certificate or equivalent current quality system approved by the Client’s Representative.

026 Composite, full-fill. Cavity wall insulation board, with polyisocyanurate foam to applicable Standard between foil skins faced with a vacuum formed or injected high density polystyrene moulding with weathering space 5mm nominal, thermal conductivity less than 0.023 W/mK, compressive strength > 70kPa at 10% compression, complete with a current BBA certificate or equivalent current quality system approved by the Client’s Representative.

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- 027 Foil faced polyurethane/polyisocyanurate (PUR/PIR) foam partial fill cavity insulation board to applicable Standard, thermal conductivity less than 0.023W/mK, compressive strength more than 120pKa at 10% compression, with a tongued and grooved edge profile, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative.
- 028 Foil faced phenolic foam partial fill cavity insulation board to applicable Standard, thermal conductivity less than 0.023 W/mK, compressive strength more than 120pKa at 10% compression, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative.
- 029 Closed cell polystyrene board wall insulation (for use below ground level) to applicable Standard, thermal conductivity less than 0.038W/mK, compressive strength more than 300pKa at 10% compression, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative. Boards fixed underground to resist uplift or displacement with flooding.
- 030 Closed cell foam glass board wall insulation (for use below ground level) to applicable Standard, thermal conductivity less than 0.038W/mK, Compressive strength more than 300pKa at 10% compression, complete with a current BBA certificate or equivalent current quality system approved by the Client's Representative. Boards fixed underground to resist uplift or displacement with flooding.

Installation Generally

- 031 Install in compliance with the manufacturer's technical data sheet and the relevant BBA certificate or equivalent quality system approved by the Client's Representative.
- 032 Neatly cut and fit insulation securely, with staggered vertical joints and no gaps, and temporarily support in position when necessary. Include for 300mm girth DPM as requires at external corners.
- 033 When available use tongues and groove edge profiled boards.
- 034 Ensure that board edges are not damaged, and all parts of the inner cavity leaf face are covered.
- 035 Protect top edges from mortar droppings and other debris with a temporary batten.
- 036 Place and secure each course of insulation firmly against the inner leaf, before building up the outer leaf above level of previous course of insulation.
- 037 Wall ties are to be corrosion proof to suit manufacturer's board fixings including insulation retention clips as necessary and must **not be galvanised mild steel**.

Mastic compound and sealants

- 038 Sealants are to conform to applicable Standard:
- low modulus and mould resistant; or
 - low modulus; or
 - fire retardant
- 039 Before commencing application of sealants check suitability of joints to ensure that:
- Joint dimensions are within limits specified for the sealant;
 - Surfaces are smooth and undamaged;
 - Joints are to be to applicable Standard
- 040 Clean surfaces to which sealant is to adhere using methods and materials recommended by the sealant manufacturer's technical data sheet.
- 041 Remove all temporary coatings, tapes, loosely adhering material, dust, oil, grease and other contaminants which may affect bond.

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- 042 Keep joints clean and protect from damage until sealant is applied.
- 043 Protect adjacent surfaces with masking tape to prevent staining and protect surfaces which would be difficult to clean if smeared with primer or sealant.
- 044 Backing strips, bond breaker and primer are to be of the types recommended by the sealant manufacturer's technical data sheet. Backing strips and/or bond breaker tape are to be inserted into joint leaving no gaps.
- 045 Use equipment and methods recommended by the sealant manufacturer's technical data sheet for the application of sealants. Sealants are to be applied within the recommended application life of primer and sealant and the recommended air and substrate temperature ranges.
- 046 Sealants are not to be applied to:
- damp surfaces (unless recommended otherwise);
 - surfaces affected by ice or snow;
 - surfaces during inclement weather;
- 047 Joints are not to be heated to dry them or to raise the temperature.
- 048 Fill joints completely, leaving no gaps, excluding all air and ensuring firm adhesion of the sealant to required joint surfaces. Tool the sealant to a neat, slightly concave profile unless otherwise specified, and protect till cured.

Wall ties

- 049 Wall ties are to be stainless steel 225mm to suit cavity and built in as work proceeds;
- Type: to applicable Standard
 - Material: Austenitic stainless steel conforming to applicable Standard grade 1.4301 (304)
- 050 Wall ties are to be stainless steel 225mm to suit cavity and with suitable fixings for any partial fill boards and built in as work proceeds;
- Type: to applicable Standard
 - Material: Austenitic stainless steel conforming to applicable Standard grade 1.4301 (304)
- 051 Wall ties are to be stainless steel 275mm to suit 150mm cavity and with tie mounted insulation retaining clips as recommended by insulation manufacturer and built in as work proceeds;
- Type: to applicable Standard
 - Material: Austenitic stainless steel conforming to applicable Standard grade 1.4301 (304) Product to have BBA certification or equivalent.
- 052 Wall ties are to be stainless steel 275mm to suit 150mm cavity and built in as work proceeds;
- Type: to applicable Standard
 - Material: Austenitic stainless steel conforming to applicable Standard grade 1.4301 (304) Product to have BBA certification or equivalent.
- 053 Wall ties are to be proprietary moulded black polypropylene wall ties 185mm long with a central 75mm x 9mm steel rod incorporating 3 annular collars and with 56mm wide fish-tail ends incorporating keying edges to suit 225mm cavity
- Type: to applicable Standard;
 - Material: Plastic/steel;
 - Supplied and installed in compliance with a BBA certificate or equivalent quality assurance system approved by the Client's Representative.

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- 054 Wall ties are to be mineral fibre resin composite wall ties minimum 225mm and with suitable fixings for any partial fill boards
- Material: Mineral fibre resin composite;
 - Supplied and installed in compliance with a BBA certificate or equivalent quality assurance system approved by the Client's Representative.
- 055 Wall ties are to be bedded not less than 50mm into bed joint of each leaf, sloping towards the exterior with drip centred on cavity, and evenly spaced at maximum 900mm centre horizontally, staggered in alternate rows and at 450mm centres vertically, provide additional ties within 225mm of sides of openings, at not more than 225mm centres vertically, (to suit blockwork courses).
- 056 Wall ties are to be stainless steel ties to timber frames are to conform to applicable Standard.
- Material: austenitic stainless steel conforming to applicable Standard;
 - Fixing: Fix securely to timber studs with 50mm x 11 gauge stainless steel annular shank nails, bed not less than 50mm into bed joint of brick cladding sloping towards the exterior, ties evenly spaced at not more than 800mm centres horizontally, staggered in alternate courses and at 450mm centres vertically, and with suitable fixings for any partial fill insulation boards, provide additional ties within 150mm of sides of openings, at not more than 225mm centres vertically.
- 057 Spiral stainless steel ties for timber frames are to be austenitic stainless steel conforming to applicable Standard and installed in accordance with the manufacturer's technical data sheet and the Client's requirements.
- 058 Brick extension ties are to conform to applicable Standard
- Material: 22 gauge austenitic stainless steel conforming to applicable Standard;
 - Fixing: Fixing screws to be 50mm austenitic stainless steel with washers, 155mm austenitic stainless steel, Plugs to be 8mm high density polyamide;
 - Sealing: Sealing strip to be neoprene resin-impregnated micro-cellular polythene, self-adhesive 10mm x 20mm x 2.4mm;
- 059 Wall ties spaced at not more than 225mm centres vertically at vertical edges.

Chimney pots and cowls

- 060 Clay, clay louvered, and clay "H" type chimney pots as Instructed and approved by the Client's Representative are to be to applicable Standard, bedded and flanchied in cement mortar (1:3) incorporating a waterproofing agent and a bonding agent mixed in accordance with the manufacturer's technical data sheet.
- 061 Ventilating caps as Instructed and approved by the Client's Representative are to be vitrified clay, set in position in chimney cap with a neat fit joint.
- 062 Chimney cowls as Instructed and approved by the Client's Representative are to be aluminium, fixed to clay chimney pots in accordance with the manufacturer's technical data sheet.
- 063 Clay anti-draught terminals as Instructed and approved by the Client's Representative are to be to applicable Standard, bedded and flanchied in cement mortar (1:3) incorporating a waterproofing agent and a bonding agent mixed in accordance with the manufacturer's technical data sheet.
- 064 Galvanised steel anti-draught terminals as Instructed and approved by the Client's Representative are to be bedded and flanchied in cement mortar (1:3) incorporating a waterproofing agent and a bonding agent mixed in accordance with the manufacturer's technical data sheet.

Expansion joints

- 065 Movement joints are to be formed from 60mm x 18mm wide impregnated compressible insulation board, 25mm polyethylene foam strip and 10mm thiosulphide joint sealant pointed to finish slightly behind the brick face or concrete threshold.

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Samples of bricks and blocks

066 Use only common, facing and engineering bricks and lightweight concrete blocks that conform to samples that have been approved by the Client’s Representative.

Precast concrete components

067 Unless the Client’s Representative Instructs otherwise, bed precast concrete components on mortar with a bearing of at least 150mm, packed on slate.

068 Precast concrete is to be:

Components	Copings, Pier Caps Chimney Capping’s Lintels Door Thresholds
Designated Concrete	RC 25/30
Reinforcement	applicable Standard
Aggregate Size	20mm
Coarse recycled concrete aggregates (RCA)	Permitted
Chloride Class	C1.0.4
Finish Requirements	Fair face on exposed surfaces

Components	Window Sills,
Designated Concrete	RC 25/30
Reinforcement	applicable Standard
Aggregate Size	10mm
Coarse recycled concrete aggregates (RCA)	Permitted
Chloride Class	C1.0.4
Finish Requirements	Fair face on exposed surfaces

Prefabricated steel lintols

069 Unless the Client’s Representative Instructs otherwise, bed steel lintols on mortar with a bearing of at least 150mm, packed on slate.

070 Lintels are to be hot dipped galvanised steel to applicable Standard BSI kite marked, BBA or equivalent certified quality system as approved by the Client’s Representative.

Facing Brick Slips

071 Facing brick slips must be clay of a size, type and colour and to a bond to match existing facework to the property; subject to approval of the Client’s Representative.

072 Acrylic brick blips must be of a size, type and colour and to a bond to match existing facework to the property; subject to approval of the Client’s Representative.

WORKMANSHIP

Brickwork

073 Except where otherwise Instructed, lay new brickwork:

- to a gauge of 34 courses to 2550mm rise; or
- where existing brickwork is of a different gauge, to match the coursing of that brickwork.

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- 074 Flush up solid horizontal and vertical joints with mortar throughout the thicknesses of the wall. Keep bed joints horizontal and quoins and perpends square and vertical. Lay bricks with single frogs with the frogs upwards.
- 075 Carry up walls in a uniform manner, with no part being raised more than 1 metre above another at one time. Rack back brickwork for jointing up (do not tooth it). Do not use bats except where required to bond.
- 076 Where the Schedule of Rates refers to "half brick thick", provide half brick thick walls in either metric or imperial sizes, as required for the Works.

Cavity walls

- 077 Construct cavity walls:
- with a cavity minimum 100mm, maximum 150mm wide between the inner and outer casings;
 - bonded together with austenitic stainless steel wall ties;
 - spaced according to manufacturer's technical data sheet and to suit cavity width but a maximum of 900mm apart horizontally, each row staggered and 450mm vertically; and
 - spaced at a maximum 225mm apart vertically (to suit blockwork courses) within 225mm of vertical edge of opening.
- 078 Fit ties for batt type insulated cavity walls with an adjustable plastic anchor for securing the insulation in position against the inner skin of the wall.
- 079 Keep cavities clear of mortar dropping by draw boards across the cavity. Leave access holes at the bottom of cavities and over lintels for cleaning out. Fill them in after this has been done.
- 080 Close cavities of cavity walls with proprietary insulated cavity closers as Clauses 115 to 119, damaged brickwork closing cavities of hollow walls at sills and jambs of openings is to be repaired with brickwork to match existing, solid for a minimum depth of 100mm, and properly bonded to the surrounding work.
- 081 Take all precautions whilst undertaking the Works not to lose the integrity of the insulation in existing cavity walls that contain loose fill insulation materials.

Weather and protection

- 082 Adequately protect bricks on site and keep them dry. Where covers are used to protect bricks, ensure that there is sufficient circulation of air to prevent condensation forming. Ensure bricks are laid dry.
- 083 Do not carry out bricklaying:
- in driving rain; or
 - when the temperature in the open is at or below 5^o Centigrade.
- 084 Use plasticisers only with the Client's Representative's approval. Do not use antifreeze compounds.
- 085 Adequately protect new brickwork from damage by frost or excessive wet weather.

Fair face

- 086 Face surfaces of brickwork or blockwork described as "built fair face" with common bricks or blocks selected from bulk for even and unmarked faces and square undamaged arrises. Finish them with a neat flush joint as the Works proceed to match the existing brickwork. Protect them from mortar droppings and damage and ensure they are left clean on completion of the Works.

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Facework

- 087 Joint facework as the Works proceed. Finish the vertical and horizontal joints with a convex jointer (bucket handle) or to match the existing framework. Keep the leading edge of damp-proof courses/cavity trays 5mm back from face of wall. Rake back mortar to fully expose edge of damp-proof course/cavity tray.
- 088 Keep facings free of all mortar splashes, droppings or other blemishes and leave them perfectly clean on completion of the Works.

Damp-proof courses (Polyethylene DPM)

- 089 Lap damp-proof courses 150mm at all joints and full width at angles and intersections.

Bituminous and silicone waterproofing liquid

- 090 Ensure surfaces to receive the waterproofing liquid are thoroughly dry and clean.

Pointing

- 091 Match the pointing of new work to that of adjacent work, or to be flush or bucket handle pointing as Instructed by the Client's Representative.
- 092 Match pointing closely to the existing pointing in finish, colour and texture.
- 093 Carefully rake out existing brickwork joints by hand to form a square recess of 15mm – 20mm depth, remove dust, lightly wet and neatly point in cement lime sand mortar (1:1:6) of a colour to match existing to a neat weather struck profile to match existing in a continuous operation.
- 094 Carefully rake out existing stonework joints by hand to form a square recess of 15mm – 20mm depth, remove dust, lightly wet and neatly point in cement lime sand mortar (1:1:6) of a colour to match existing.

Work to chimneys and fires

- 095 Adequately protect the Customer's finishes, fittings and furnishings from falling debris and soot during Works to chimneys and fires. Take all necessary precautions to protect existing fire appliances from damage. Rectify any damage caused.
- 096 Ascertain whether any flueways affected by the Works serve a gas appliance. If so, immediately notify the Client's Representative of this in writing, so that appropriate safety precautions can be implemented.
- 097 Remove all debris from flueways and from behind fires and appliances on completion of the Works.

Cavity Wall Insulation (CWI)

System Guarantees

- 098 The Provider is to provide a 25 year, third party, insurance-backed guarantee to cover the cavity wall assessment, insulation materials, system and installation. For each property insulated, a guarantee certificate should be provided stating the exact address of the Property covered by the guarantee.
- 099 The guarantee must meet the following criteria:
1. Provide a minimum guarantee of 25 years.
 2. Provide assurance that funds are available to honour the guarantee, including in the event the contractor/installer/manufacture ceases to trade.
 3. Cover the full replacement of a failed CWI system, including remedial works, materials and installation.
 4. Have Trustmark accreditation in place whereby the quality of the system and its installation are independently assessed by a UKAS accredited body.

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- 100 A list of appropriate guarantees can be found on the Ofgem website under their ECO Guidance. Please note this list is not exhaustive and other appropriate guarantees may be available.
- 101 All costs associated with providing the guarantee are to be borne by the Provider and the Provider must make the Client's Representative fully aware, in advance and in writing, of any maintenance regime required to uphold the guarantee.

PAS 2030

- 102 The installation must be undertaken by persons with appropriate skill and experience, approved by the manufacturer and in accordance with PAS 2030.
- 103 Evidence must be provided that the CWI installation contractor has PAS 2030 certification and Trustmark accreditation.
- 104 A pre-design survey of the dwelling is to be carried out by a competent person in accordance with PAS 2030 to assess its suitability to receive the insulation. The Client's Representative, Provider and system designer should be made aware of any remedial works required and, if Work is to proceed, these should be carried out prior to installation.
- 105 Pre-design survey, method statements and the related requirements of PAS 2030 are to be provided to the Client's Representative prior to installation.
- 106 Clear records of Work undertaken must be kept and be presentable at the reasonable request of the Client's Representative to allow monitoring of installation Work.
- 107 On completion of the Work, a "Declaration of Conformity" to PAS 2030 standard shall be provided to the Client's Representative for their records.

Design Considerations

- 108 The proposed design and installation must not have a negative effect on the ventilation, air quality, humidity and comfort of the Property. When presenting designs, the Provider must make recommendations for any further measures required to prevent environmental changes occurring as a result of the insulation works, and to ensure the continued or improved comfort of the Customers. The proposed design must, satisfy or exceed the minimum standards in the Building Regulations.
- 109 The insulation system designer should:
- Calculate U-values in accordance with:
 - applicable Standard
 - BRE report BR 443
 - Ensure that thermal bridges, air leakage and condensation are avoided or at least kept to a minimum within the acceptable parameters, in accordance with the following applicable Standard methods of calculation and assessment:
 - Hygrothermal performance of building components and building elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation.
 - Thermal bridges in building construction. Heat flows and surface temperatures.
 - Thermal performance of buildings. Transmission and ventilation heat transfer coefficients.
 - BRE BR 262 – Thermal Insulation: avoiding risks.
 - Code of Practice for the Control of Condensation in Buildings.
 - Assess the subject walls for the effects of wind-driven rain and the suitability of the proposed system in accordance with:
 - Code of Practice for assessing the exposure of walls to wind-driven rain.

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Cavity Wall Pre-Installation Inspection

- 110 Prior to any Works, the Client's Representative must receive evidence from the Provider that the Property has been inspected in accordance with, and independently verified by, the BBA Cavity Assessment Surveillance Scheme (CASS), or other UKAS accredited inspection body equal and approved by the Client's Representative. The inspection body must satisfy the requirements of PAS 2030, be independent of any system installer or designer and hold UKAS accreditation to either ISO 17065 or ISO 17020 'Type A'.
- 111 The inspection should include an external visual assessment of the elevations, and an internal visual inspection of the dwelling.
- 112 A rigid 90 degree optical borescope with attached digital SLR camera or another optical system of comparable image quality should be used to record clear photographs to the Client's Representative's satisfaction. The illumination, depth of field, and camera resolution will be sufficient to clearly identify defects and fibre and expanded polystyrene insulation up to one meter from the camera.
- 113 Longer focus images may be in black and white or a single illumination colour wavelength, provided that the materials shown in the images are identified. 10 different sample digital photographs of wall cavities, including mineral or glass fibre and cavity bottom debris, shall be submitted to become contractual image quality benchmarks and should include views of materials 1 meter away from the viewing prism or lens.
- 114 The CWI inspectors may, if they wish, use a thermal imaging camera with an appropriate scale to assist them in deciding where exactly to drill for the boroscope inspection but it should comply with the following pattern:
- 115 For single storey Properties this will include 3 boroscope readings per elevation:
- One of these will be at least 300mm above the damp proof course
 - One will be within 300mm of the wall plate below the roof (For gable walls this should be along or just above the dividing line between the ground floor accommodation and the loft).
 - One will be below a window sill (For gable walls where there are no windows, this can be halfway up the wall between the ground and roof space line)
- 116 For two storey dwellings this will include 4 boroscope readings per elevation:
- One of these will be at least 300mm above the damp proof course
 - One will be within 300mm of the wall plate below the roof (For gable walls this should be along or just above the dividing line between the first floor accommodation and the loft).
 - One will be at first-floor floor joist level (i.e., between ground and first floor)
 - One will be below a second storey window sill (For gable walls where there are no windows, this can be halfway up the wall between the first floor and the loft).
- 117 Prior to any Work, the Provider must produce a Property specific report on their findings to include confirmation of the following:
1. Address, postcode and Client's UPRN of the Property being inspected.
 2. The location of boroscope holes, each with a unique reference number, presented on sketch elevations or photographs.
 3. Date stamped photographs from boroscope tests with images of similar quality to the benchmark digital images.
 4. The construction type and its condition, including the build-up of the walls, the condition of masonry and pointing materials and the thickness of each element.
 5. Condition and width of the cavity and wall ties, including the presence of mortar snots, debris etc., and whether or not it is deemed to be a Hard to Treat cavity.
 6. Any visible evidence of continuing or developing structural problems, including steel lintel or wall tie corrosion, settlement or subsidence cracking, movement, failures in structural timber.
 7. The presence of insulation and its type, e.g., mineral or glass wool (fibre), bonded bead, loose bead, Urea Formaldehyde foam, or insulation board.
 8. Condition of insulation, including whether the cavity is filled to the correct density in accordance with the system designer specification.

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9. The original injection drill pattern in relation to whether or not it conformed to the system designer specification for the type of insulation.
10. The U-value of the existing construction.
11. The presence of an adequate DPC.
12. The suitability of the cavity to receive CWI in relation to the property location and exposure, in accordance with applicable Standard and BRE Report 262.
 - i. Any evidence of voids or other problems caused by insulation failure.
13. Where voids or other problems are evident, what are the reasons e.g. insufficient insulation (fibre or bead), settlement of fibre, insufficient glue for bonded beads, boards not properly fitted, etc
14. Locations and severity of any mould, condensation, water penetration or other obvious defects evident internally.
15. Locations and severity of any mould, condensation, water penetration or other obvious defects evident externally.
16. The presence of openable ventilators and adequate mechanical ventilation in relation to condensation/mould.
17. Adequate existing ventilation for any fuel burning appliances located within the property.
18. Any ventilation openings that would require remedial works to ensure they are not compromised during extraction or injection of insulation.
19. The location of flues to ensure they are not compromised during extraction or injection of insulation.
20. Injection drill holes were adequately filled upon completion of the original installation.
21. Boroscope drill holes were adequately filled with sand/cement and to closely match the colour and texture of the existing wall, upon completion of the inspection.
22. Any evidence of ingress of CWI materials in roof space/at services.
23. Relevant feedback from the Customer.
24. Any other information considered relevant e.g. absence of cavity barriers, etc.
25. Conclusions and any recommendations for remedial action to improve or replace insulation if considered appropriate.
26. Any Property constraints that would prohibit the execution of any recommended Works.

Cavity Wall Cleaning

- 118 Cleaning of cavity walls may only be carried out by a company currently registered with the BBA Cavity Cleaning Company Scheme, or other UKAS accredited body equal and approved by the Client's Representative, that includes for clearing rubble and other material from the cavity in addition to the extraction of insulation.
- 119 Cleaning may only take place when Instructed by the Client's Representative and is subject to the outcome of the surveillance scheme inspection.
- 120 Cleaning company must inform the Client's Representative of any remedial Works that are required, following the independently verified cavity inspection.
- 121 Cleaning company must include for the removal of rubble within the cavity and any other material that may bridge the cavity. The Client's Representative should be informed of any Material that cannot be removed and may compromise the integrity of the cavity.

Cavity Wall Insulation - Injected

- 122 Mineral fibre of a type currently certified by BBA, or other UKAS accredited certification body equal and approved by the Client's Representative, as suitable for the purpose and exposure. Only to be used to top up existing mineral fibre insulation, subject to the outcome of the surveillance scheme inspection. Thermal conductivity max 0.04W/mK, installed to the recommended density and in accordance with the quality assurance certificate and manufacturer's technical data sheet.

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- 123 Expanded polystyrene beads/granules with grey/metallic additive, bonded by adhesive, and currently certified by the BBA or other UKAS accredited certification body equal and approved by the Client’s Representative as suitable for the purpose and exposure. Suitable for both existing and newly constructed cavities, subject to the outcome of the surveillance scheme inspection. Thermal conductivity max 0.033W/mK, installed to the recommended density and in accordance with the quality assurance certificate and manufacturer’s technical data sheet.
- 124 The installer must be trained and approved by the system designer, have Trustmark accreditation and carry out the installation in accordance with the:
- surveillance scheme;
 - the BBA certificate;
 - the certificate holder’s instructions;
 - any additional requirements of the insurance backed guarantee provider.

The completed installation is to be covered by an insurance backed minimum 25 year guarantee.

- 125 Form injection holes neatly to a regular pattern, preferably at the junction of vertical and horizontal mortar joints, and to sizes recommended by the cavity fill manufacturer. Drill additional holes as necessary to ensure a full fill. Avoid damage to damp-proof courses, cavity trays, flues etc., and prevent debris falling into cavity. Form all holes in any one wall before commencing filling of that wall. Fill injection holes, replacing existing material where possible to ensure a close match of colour and texture with the existing surface. Obtain agreement from Client’s Representative of finished appearance of first few holes before completing the remainder.
- 126 Check regularly during installation for leakages of insulation and seal immediately.
- 127 Check and confirm, following completion of the works, and at the end of each day if the work spans more than one day, that all ventilation outlets, flues etc have not been compromised by the injection of insulation and remain in working order, ensuring to clear any blockages immediately.
- 128 Check for and remove any wall insulation that has been blown up through the top of the cavity into the loft space.
- 129 Keep a detailed record of the installation including survey results, materials, weather conditions and any unusual features. Records shall be returned digitally to the Client’s Representative as a spreadsheet or database in a format compatible with Microsoft Office and named with the Client’s UPRN, as approved by the Client’s Representative.
- 130 Submit copies of all certificates, records, guarantees and other documents to the Client’s Representative on completion.

Fire-stopping Works – Proprietary Material

- 131 Fire-stopping material for use as a gap filling material where cables, non-combustible dusts or pipework services penetrates fire compartment floors and walls shall be a proprietary compound that is to be non-fibrous, non-toxic and to contain no asbestos, phenol’s or halogen’s, applied as a mortar to the following thicknesses.

Fire Resistance	Minimum Depth of Filling Material
One Hour	50mm
Four Hour	100mm

- 132 Use 50mm thick non-combustible mineral wool slab as permanent shuttering to fire-stopping compound mortars.

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- 133 For horizontal barriers the mineral wool slabs are to be friction fitted into the opening and around the penetrating services, so that the compound mortar may be poured on top of the slab to the required thickness, temporary support may be needed until the compound mortar has achieved its setting requirements
- 134 For vertical or wall barriers the mineral wool slab should be installed at the centre line of the fire compartment wall by friction fitting around the penetrating services, the vertical slab is then to have the compound mortar applied either side of the slab to a maximum thickness of 25mm.
- 135 Apply the fire-stopping mortar strictly in accordance with the manufacturer’s technical data sheet.
- 136 Fire-stopping material for use as a gap filling mortar around cable penetrations through fire compartment and separation walls and floors shall be a proprietary non-combustible material manufactured from lightweight aggregates, inorganic hydraulic binders and other fire protective additives which impart rheological properties. It is to be used in situations where the subsequent installation of additional cables through the wall or floor penetration is likely to take place and a flexible filling material would facilitate this event.
- 137 Mix the mortar by hand and applied strictly in accordance with the manufacturer’s technical data sheet
- 138 Fire-stopping material for use as fire protection to fire compartment floors and walls penetrated by air conditioning ducts or service pipework shall be a proprietary non-combustible non-fibrous and non-toxic material manufactured from lightweight aggregates, inorganic hydraulic binders and other fire protective additives which impart rheological properties, applied in layers as a mortar to the following thicknesses.

Fire Resistance	Minimum Depth of Filling Material
Four Hour	160mm

- 139 Temporary shuttering may be required where the mortar is applied to wall penetrations, if there is likely to be movement in the pipes or ducts, the pipe or duct is to be wrapped in a 5 to 10mm thickness of mineral or ceramic wool.
- 140 Mix the compound by hand and applied strictly in accordance with the manufacturer’s technical data sheet.
- 141 The Provider or his approved subcontractor is to have FIRAS certification (www.firas-database.co.uk) and to produce certified copies of their registration as and when requested by the Client’s Representative.

Fire-stopping – Non Proprietary

- 142 Fire-stopping material to party walls and similar situations can be either:
- Non-combustible mineral wool to applicable Standard, compressed fitted between timber members and fixed with large galvanised nails, cut to profile; or
 - Non-combustible mineral wool with density ne 80kg/m³ to applicable Standard, compressed fitted between timber members and fixed with large galvanised nails, cut to profile; or
 - Non-combustible mineral wool with integral galvanised wire mesh with density ne 80kg/m³ to applicable Standard, compressed fitted between timber members and fixed with large galvanised nails, cut to profile; or
 - Asbestos free mineral fibre reinforced board, moisture resistant to applicable Standard, bedded in mortar to match walling;
- 142 Fire-stopping to loft access hatch door shall be asbestos free mineral fibre reinforced board, moisture resistant to applicable Standard.
- 143 Joint sealants are to be intumescent fire resistant mastic to applicable Standard installed in accordance with the manufacturer’s technical data sheet;

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- 144 Ensure that any imperfections of fit between building elements which are required to have fire resistance and/or resist the passage of smoke are completely sealed with non-combustible sealing material e.g. mortar, mineral filler paste or plaster, not plastic foam filler. Where not specified otherwise, tightly pack with mineral fibre.

Removal and Replacement of Failed Wall Tiles

- 145 Cut out corroded metal ties carefully, causing least possible disturbance to surrounding masonry and remove any associated rust debris.
- 146 Remedial wall ties shall be manufactured from austenitic stainless steel and be capable of meeting the test criteria for Type 2 wall ties.

Physically Inserted DPC'S to Existing Walls

- 147 When renewing damp-proof courses, cut out brickwork in short hit and miss lengths not exceeding 1.00m at any one time and prevent structural damage, installation is to form a continuous barrier to rising damp, finished flush with face of wall externally and to lap 150mm (minimum) with damp-proof membrane. Replace brickwork before commencing further lengths.
- 148 The installation is to form a continuous barrier to rising damp, the undertaking of joint cutting is to undertaken in such a manner as to prevent any structural damage. The damp-proof course is to extend the full width of the wall and any finishes. The damp-proof course is to finish flush with external face of wall, and internally is to lap 150mm (minimum) with damp-proof membrane.
- 149 Physically inserted damp-proof course system material is extend the full width of wall and finish and to be either:
- Polyethylene to applicable Standard, weight not less than 1.55kg/m²; or
 - Bituminous Felt to applicable Standard, weight not less than 0.46kg/m²

Insulated Cavity Closers and Insulation to Jambs

- 150 Insulation to window and door jambs must comprise:
- 50mm minimum front to back dimension, notional width 100mm, insulation to be securely built in between inner and outer skins at jambs with vertical damp-proof course;
 - Insulation to provide minimum 30 minutes fire resistance in terms of integrity and 15 minutes in terms of insulation when tested to applicable Standard;
 - Thermal conductivity to be no greater than 0.038W/mK, insulation to be under compression within cavity and installed in accordance with the manufacturer's technical data sheet and the Building Regulations.
- 151 Built in insulated cavity closers must comprise proprietary insulated cavity closer to flush reveal, to bridge between inner and outer skins at window and door reveals.
- Cavity closers to be covered by a current BBA certificate or equivalent quality assurance certificate acceptable to the Client's Representative;
 - Rigid PVC-u casing enclosing insulation with double flange to internal and external leaf to provide a key for rendering and plastering;
 - Thermal conductivity of insulation to be no greater than 0.038W/mK;
 - Cavity closer to provide minimum 30 minutes fire resistance in terms of integrity and 15 minutes in terms of insulation when tested to applicable Standard;
 - Installed in compliance with current BBA certificate or equivalent quality system acceptable to the Client's Representative;
 - Accessories: Manufacturer supplied compatible Polypropylene or PVC-u wall ties built in in accordance with the Manufacturer's technical data sheet.

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152 Built in insulated cavity closers must comprise proprietary insulated cavity closer to check reveal, to bridge between inner and outer skins at window and door reveals.

- Cavity closers to be covered by a current BBA certificate or equivalent quality assurance certificate acceptable to the Client's Representative;
- Rigid PVC-u casing enclosing insulation with single flange to internal leaf to provide a key for plastering;
- Thermal conductivity of insulation to be no greater than 0.038W/mK;
- Cavity closer to provide minimum 30 minutes fire resistance in terms of integrity and 15 minutes in terms of insulation when tested to applicable Standard.
- Installed in compliance with current BBA certificate or equivalent quality system acceptable to the Client's Representative;
- Accessories: Manufacturer supplied compatible Polypropylene or PVC-u wall ties built in in accordance with the Manufacturer's technical data sheet.

154 Built in proprietary insulated cavity closer to bridge between inner and outer skins at window sills:

- Cavity closers to be covered by a current BBA certificate or equivalent quality assurance certificate acceptable to the Client's Representative;
- Rigid PVC-u casing enclosing insulation with double flange to internal and external leaf;
- Thermal conductivity of insulation to be no greater than 0.038W/mK;
- Cavity closer to provide minimum 30 minutes fire resistance in terms of integrity and 15 minutes in terms of insulation when tested to applicable Standard;
- Installed in compliance with current BBA certificate or equivalent quality system acceptable to the Client's Representative.

155 Built in insulated cavity closers must comprise proprietary insulated cavity closer to bridge between inner and outer skins at window heads

- Cavity closers to be covered by a current BBA certificate or equivalent quality assurance certificate acceptable to the Client's Representative;
- Rigid PVC-u casing enclosing insulation with single flange to internal leaf;
- Thermal conductivity of insulation to be no greater than 0.038W/mK;
- Cavity closer to provide minimum 30 minutes fire resistance in terms of integrity and 15 minutes in terms of insulation when tested to applicable Standard;
- Installed in compliance with current BBA certificate or equivalent quality system acceptable to the Client's Representative

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Client’s current manufacturers/suppliers/products

156 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s details

[complete table as appropriate]

ROOFING

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ROOFING

GENERAL

Generally

- 001 Stock adequate compatible Materials for the numerous types of tiled roofs that exist throughout the Properties.
- 002 Ensure tiles, slates and accessories laid or fitted are of a colour to match the existing.
- 003 Provide samples of the Materials as and when requested by the Client's Representative. The quality of Material be not less than that of the samples of the agreed standard. Materials shall be stored in a manner which will prevent damage and the introduction of deleterious matter.
- 004 Carry out tests on Materials as and when requested by the Client's Representative and supply certificates from a testing laboratory showing the results of each test.
- 005 Reinstate or replace any missing or defective battens and roofing felt when undertaking repairs.

MATERIALS

Dry and Wet ridge/hips/valleys/verges

- 007 Ensure mechanically fixed dry ridge and dry verge Works are compatible with the existing dry ridge and dry verge installation and existing roof coverings.
- 008 Ridges are to be designed and fitted in accordance with the applicable Standard and the manufacturer's technical data sheet and to be formed with either 240mm diameter x 457mm long concrete half-round ridge capping tiles or 237mm x 154mm x 457mm long concrete angled mono ridge capping tiles to the applicable Standards complete with plastic profile filler units to match tile profile, and plastic ridge end caps.
- 009 Hips are to be designed and fitted in accordance with the applicable Standard and the manufacturer's technical data sheet and to be formed with 240mm diameter x 457mm long half round ridge capping tiles to the applicable Standards.
- 010 Valleys are to be designed and fitted in accordance with the applicable Standard and the manufacturer's technical data sheet from neatly and accurately cut tiles to give a valley width of 125mm.
- 011 Dry cloaked verge systems are to be designed and fitted in accordance with the applicable Standard and the manufacturer's technical data sheet. Verge to be formed with one and a half tiles in alternate courses, with overhang kept to a minimum. Under-cloak is to be mineral fibre sheet 150mm x 12mm thick laid between the underlay and tiling batten.
- 012 Ensure wet ridge and wet verge Works are compatible with the existing wet ridge and wet verge installation and existing roof coverings.

Underlay

- 013 Lap roof tile underlay a minimum 150mm or length as stated in the manufacturer's technical data sheet at horizontal and vertical joints over adequately supporting members. Underlay should be sealed at penetrations through the roof and at the ridge to accommodate high level void ventilation.

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014 As specified by roof designer, underlay to be either:

- Reinforced felt, in repairs only, to the applicable Standards; or
- 3 layer composite polypropylene membrane, composed of an impermeable polypropylene film sandwiched between 2 layers of spun-bonded polypropylene with:
 - Tensile strength: min 240N/50m (Longitudinal), 200N/50m (Transverse)
 - Tear Resistance: min 120N (longitudinal), 120N (Transverse)
 - Water Tightness: W1 to the applicable Standard
 - Certification: British Agreement Board (BBA) or equivalent; or
- Breather membrane: 3 layer composite membrane, composed of a water vapour permeable membrane, sandwiched between 2 layers of spun-bonded polypropylene. Product to have British Agreement Board certification (BBA) or equivalent.
 - Vapour resistance no more than 0.6MN s/g.
 - Tensile Strength: min. 240 N/50 mm (longitudinal), 200 N/50 mm (transverse).
 - Tear Resistance: min. 120 N (longitudinal), 120 N (transverse).
 - Water Tightness: W1 to the applicable Standard

015 Follow the applicable Standard Code of Practice for slating and tiling for guidance on the appropriate detailing of roofing components and installing underlay.

016 On timber structures use only inodorous sheathing felt or proprietary underlay as specified by the manufacturer as underlay for copper, lead and zinc roofing in a accordance with the applicable Standard.

Battens

017 For the tile battens use good quality deal, reasonably free from knots, clean and with no waney edges and in accordance with applicable Standard impregnated with an appropriate wood preservative before delivery to the Property, as specified under the 'Carpentry and Joinery' Section. Tile battens and counter battens to comply with applicable Standard.

018 Fix battens with staggered joints and square butt jointing. These are to span at least 3 supports.

Wood rolls

019 For wood rolls for copper, zinc or aluminium roofing use wrot seasoned timber to a tapered profile shown in Code of Practice 143:5, 143:12 and 143:15. Use common rolls approximately 45 x 40mm overall unless otherwise Instructed by the Client's Representative.

020 For wood rolls for lead roofing, use wrot seasoned timber to the smooth rounded profile shown in the applicable Standard. Use common rolls approximately 45 x 45mm with a 25mm wide flat base unless otherwise Instructed by the Client's Representative.

Mortar

021 Use cement mortar (1:3) for bedding and pointing as described in the "Brickwork and Blockwork" Section, but slightly tinted in colour and specially mixed for the purpose.

Nails

022 Use galvanised steel clout nails for underlay and battens in compliance with the applicable Standard. Use the right size nails for battens to give a secure fixing without splitting the batten. For slates and tiles use aluminium alloy, copper, or silicon bronze nails to the applicable Standard or other nails approved by the Client's Representative.

023 Use copper jagged or ring shank nails, at least 20mm long with large flat heads for lead roofing.

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Clips

- 024 Where roofing slates or tiles are described as fixing with clips, use lead or copper clips, approx. 300mm long x 20mm wide. Fix them to the roof batten beneath the slate or tile and bend them up and over the bottom edge of the slate or tile. Use aluminium alloy or stainless steel clips to the applicable Standard for slates.

Steel hook bolts and nuts and roofing screws

- 025 Steel hook bolts for fixing corrugated sheets are to be cadmium or zinc coated steel bolts with plastic sleeves and washers to a standard and quality approved by the Client's Representative. Ensure the bolt profile and size suits the sheets and roof members.
- 026 For corrugated sheets use galvanised drive roofing screws complete with plastic sleeves and washers to a standard and quality approved by the Client's Representative. Seams to be fixed with self-tapping screws or bolts.

Plywood decking for flat roofs

- 027 Ensure plywood sheets are to be for structural use to the applicable Standard or equivalent material with Class 3 Bonding (external conditions) to the applicable Standard, durability Class H and to comply to a standard and quality approved by the Client's Representative. Sheets to be fixed at 150mm centres to supports with 50mm x 3mm annular ring shank nails.

Woodwool slab decking for flat roofs

- 028 Where appropriate, reinforce woodwool slabs to comply with the applicable Standard with pressed steel channels. Use galvanised steel large flat headed nails as fixings for the slabs of a length to suit the application of galvanised steel clips to the applicable Standard or such other fixings as the manufacturer of the slabs recommends. Slabs to be cut accurately and fixed with joints tightly butted and centred on supports, ends and cut edges are to be fully supported or reinforced in accordance with the slab manufacturer's technical data sheet.

Wood chipboard decking for flat roofs

- 029 Ensure chipboard conforms to the applicable Standard and is of an appropriate moisture resistant grade suitable for the purpose and fix it with galvanised nails to comply to the applicable Standard or screws to a standard and quality and of an appropriate size and gauge approved by the Client's Representative.

Lead

- 030 Use best milled Code 4 lead for lead roof coverings in accordance with the applicable Standard, flashings, soakers, rainwater chutes, valley gutter linings, hips, ridges and the like, colour marked for thickness and weight. Provide tacks minimum 40mm wide of the same lead substance at not more than 1 metre centres to flashings.
- 031 Clips for leadwork are to be 50mm wide and of a length to suit Client's details and to be formed from either:
- Lead cut from sheets of the same code as the sheet being secured; or
 - Copper cut from 0.7mm thick sheet to applicable Standard, temper grade ¼ H, dipped in solder, if exposed to view; or
 - Stainless steel, cut from 28 gauge sheet to the applicable Standards, terne coated if exposed to view

Self adhesive flashings

- 032 Use self adhesive flashings in strict accordance with manufacturer's recommendations and only with the approval of the Client's Representative.
- 033 Fix self adhesive flashings over existing flashing and fillets. Apply an appropriate primer before use to ensure complete adhesion and in strict accordance with manufacturer's recommendations.

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Asphalt roofing

- 034 Use as rubbing sand clean natural coarse sand passing a 600mm micron test sieve.
- 035 For chippings use hard light coloured non-absorbent natural stone graded 6 to 10mm.
- 036 Use white solar reflective paint.
- 037 Ensure asphalt roofing subject to traffic is to the applicable Standard Type R988 undercoat with finishing coat to a standard and quality approved by the Client's Representative.
- 038 Use glass fibre tissue for the isolating membrane for roofing subject to traffic.

High performance felt roofing

- 039 Apply high performance felt roofing from an approved manufacturer to suit the relevant sub-surface and applied in strict accordance with the manufacturer's technical data sheet.

High performance "torch on" felt roofing

- 040 Prepare and apply high performance "torch on" felt roofing from an approved manufacturer to suit the relevant sub- surface and applied in strict accordance with the manufacturer's technical data sheet.
- 041 One layer torch on mineral felt roofing is to be to the applicable Standard Class S3PS
- 042 Two layer torch on felt roofing is to consist of an intermediate layer of torch on felt roofing to applicable Standard Class S2PS, and a top layer of torch on felt roofing to the applicable Standard Class S2PS.
- 043 Two layer torch on felt roofing with ventilating layer is to consist of a ventilating layer equivalent to Type 3G glass-fibre reinforced bitumen, perforated venting layer and a top layer of torch on felt roofing all to the applicable Standard Class S2P3.

Bitumen primer

- 044 For felt roofing, use cut back bitumen primer with a maximum volatile solvent 60% by weight and Redwood No. 2 viscosity at 21⁰ Centigrade 25 sec maximum.

Bitumen compounds

- 045 For felt roofing, use a bitumen bonding compound having a penetration of 20/30 at 25⁰C and a softening point (R & B) of 80/100⁰ Centigrade. For the dressing compound use cut back bitumen to the applicable Standard. Use cold compounds dressing for bonding solar reflective chipping only with the approval of the Client's Representative. Ensure the bitumen coating for lead, copper or zinc roofing is a black coating solution to the applicable Standard.

WORKMANSHIP

Roof tiling

- 046 Lay roof tiling in accordance with the applicable Standards and in even courses to suit the existing gauging and laps. Secure tiles with the appropriate patent clips and/or nails.
- 047 Underlay to be laid and fixed with extra-large head nails parallel to eaves, cut neatly and accurately around pipes etc.,

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- 048 Battens to be in straight horizontal lines with no batten less than 1200mm long, butt joints are to be centred on supports and must not occur more than once in any group of four battens at any one support, provide additional battens where necessary to prevent underlay being opened at laps by wind suction, fix each batten to each support with round galvanised steel nails 65mm long x 3.35mm.
- 049 Plain tiling is to be laid with each course to a half lap bond with tails aligned and joints slightly open, cut tiles the minimum necessary and then only with a masonry saw to give clean straight edges, nail tiles (minimum) every fifth course using two aluminium alloy nails per tile.
- 050 Nail fixed interlocking tiling is to be laid with tails aligned, cut tiles the minimum necessary and then only with a masonry saw to give clean straight edge.
- 051 Clip fixed interlocking tiling is to be fixed in accordance with the manufacturer's technical data sheet, tiling is to be laid with tails aligned, cut tiles the minimum necessary and then only with a masonry saw to give clean straight edges.
- 052 Form mechanically fixed dry ridge with underlay overlapping by not less than 150mm, fit correctly sized ridge batten along the apex of the trusses or rafters and secure to each rafter using stainless steel straps as supplied by the tile manufacturer and fitted in accordance with their technical data sheet, Fit top tiling batten on either side of ridge, fit top row of tiles to either side of ridge and fix to batten with two aluminium alloy nails per tile. Fit the plastic profile filler units in accordance with the manufacturer's technical data sheet, form ridge with ridge capping tiles and secure to ridge batten through the preformed hole in the ridge to ridge seal using the provided screw and washer. Fit the plastic ridge end caps.
- 053 Ridges spanning a party wall are to have a fire-stop formed by filling the ridge void with a suitable non-combustible material.
- 054 Form mechanically fixed dry hip with underlay overlapping by not less than 150mm, form ridge with ridge capping tiles. And neatly and accurately cut mitre tiles at junction with ridge.
- 055 Ventilating roof tiles are to proprietary ventilated in-roof ventilator tiles to match interlocking tiles in pattern, colour and texture and to be approved by the Client's Representative, to provide ventilation to the applicable Standard, product to have BBA certification or equivalent. Tile to provide 20,000mm² free opening and to exclude driven rain and large insects, openings are not to be more than 4mm. Tile to be installed approximately 300mm above the level of the insulation. Tile to have an integral apron and spigot for connection to flexible ducting and fixed in accordance with the manufacturer's technical data sheet.
- 056 Ridge ventilators are to be a proprietary concrete ridge ventilator tile to provide ventilation to the applicable Standard, product to have BBA certification or equivalent. Profile and colour to match adjacent ridge tiles, and mechanically fixed and bedded in accordance with the manufacturer's technical data sheet.
- 057 Form eaves with a double course of tiles.
- 058 Form verges with tile and a half in alternate courses including any undercloak and pointed in cement mortar to match the existing mortar. Ensure there are no exposed cut edges of tiles.

Roof slating

- 059 Close joint natural slate roofing with horizontal and alternate vertical joints ranging through perfectly straight.
- 060 Head nail slates with two nails to each slate in every course. Secure slates to eaves, verges, ridges, hips, valleys and abutments with two nails to each slate. Ensure there are no exposed cut edges of slates.
- 061 Form eaves with double course of slates.

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- 062 Form verges with slates and slate and a half slates in alternate courses including any undercloak and bedded, jointed and pointed with mortar, tinted to match the colour of the slates. Ensure there are no exposed cut edges of slates.
- 063 Ensure ridges and hips are of the type stated in the Schedule of Rates. Bed, joint and point ridge and hip tiles with mortar tinted to match the colour of the tiles or slates.

Fibre cement sheet roofing

- 064 Where appropriate, incorporate end and side lap sealing strips in fibre cement sheet roofing to the applicable Standard.

Galvanised steel

- 065 Lay galvanised corrugated sheeting in accordance with Code of Practice 143 section 4 and 10 to allow slight movement between the structural frame and sheeting. Lap all sheets 150mm at the ends and two corrugations at the sides. Fixing by drive screws and washers at maximum 375mm centres, and 2 hook bolts at every purlin. All cut edges of sheets to be coated with acrylic paint

Reinforced plastics

- 066 Where specified use reinforced corrugated plastic sheets in limited areas in association with roof sheeting of another Material. Lap at the ends and sides, as for the main roofing Material, and seal with approved woven fibre sealing strip.

Fixing sheets

- 067 Secure the sheets to steel with galvanised steel hook bolts and nuts, and to timber with galvanised steel roofing screws. Do not drill steelwork.

Holing sheets

- 068 Drill sheet fixing holes through the crown of the corrugations 1.5mm larger in diameter than that of the bolt or screw shank.

Safety precautions

- 069 Prevent unauthorised persons having access to the area below the roof whilst corrugated sheet roofing is under construction. Do not allow any person to go on to roofing without using crawling boards.

Insulation

- 070 Butt joint insulation quilts and lay them up to wall plates, leaving sufficient space to maintain adequate ventilation of the roof space. Lay the quilt under electrical cables and over horizontal pipes wherever possible. Do not lay quilt under water storage tanks. Bag quilts to hatches in polythene and securely fix them to the hatch. Insulation to be turned over eaves.

General

- 071 Clear all debris resulting from roof Works from all gutters.

Leadwork

- 072 Ensure sheet lead Works are undertaken by skilled leadworkers in accordance with Lead Development Association recommendations and in accordance with the applicable Standard. Do not use solder without the approval of the Client's Representative. Undertake close and open nailing with copper nails at 25mm and 75mm centres respectively. Do not use lead pieces larger than 3.00m in length or 2.20m² in area.

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- 073 Clips to be fixed with two fastenings not more than 50mm from edge of lead sheet, Clips welted around edges of sheet are to be turned over 25mm.
- 074 Ensure laps to finishings are no less than 100mm.
- 075 Form welted joints with a 50mm overlap, 25mm underlap and copper or stainless steel clips at no more than 450mm centres, welt overlap and clips around underlay, loosely turn over and lightly dress down.
- 076 Dress underlap to drips with splash lap into rebate along top edge of drip, fix to lower level base with two rows of nails, 25mm and 50mm from face of drip, at 75mm centres in each row, evenly spaced and staggered, dress overlap over drip and form a 75mm splash-lap, secure with lead clips, lead burned to underlap at not more than 300mm centres, with not less than 2 clips per bay.
- 077 Dress underlaps to drips without splash-laps into rebate along top edge of drip and fix with one row of nails at 50mm centres on centre line of rebate, dress overlap over drip to just short of lower level.
- 078 Form roll joints without splash-lap over wood core rolls, dress under-cloak three quarters over core roll, fix copper or stainless steel clips to roll at not more than 450mm centres, dress lead over cloak around core roll with edge welted around ends of clips, finishing 5mm clear of the main surface.
- 079 Form roll joints with splash-lap over wood core rolls, dress under-cloak three quarters over core roll, and fix with nails at 150mm centres for a distance of about one third of the length of the panel starting from the head of the sheet, dress over-cloak around core roll and extend on to main surface to form a 40mm splash lap.

Lead flashings

- 080 For flashings use milled sheet lead to comply with and be in accordance with the applicable Standards.
- 081 Dress lead flashings to the appropriate profiles without reducing the thickness of the lead sheet.
- 082 Turn the top edges, which should be welted of all cover flashings 25mm into grooves chased or cut into brick, blockwork or other cladding material, securely wedged and pointed with low modulus silicone mastic in brick, block, masonry and concrete and in other cladding where appropriate.

Asphalt roofing

- 083 Lay asphalt roofing generally in accordance with the applicable Standard and the recommendations and publications of the Mastic Asphalt Council. Lay underlay loose and with 50mm laps.
- 084 Lay asphalt roofing in two coats with 150mm laps. Properly bond it to the edges of existing sound sphalt and unless otherwise Instructed by the Client's Representative maintain all existing planes. Provide fillets 50mm on the face at all internal angles. Unless otherwise Instructed by the Client's Representative, ensure that the asphalt surface finish matches the existing surface.

Felt roofing

- 085 Roofing felt to comply with the applicable Standard unless otherwise specified or guided. Immediately seek Instructions from the Client's Representative if, when removing any defective felt, the base is found to be defective or unsuitable in any way to receive the new felt and that repair of the base is outside the scope of the Order.
- 086 Lay felts 90 degree to the direction of the roof gradient starting at the lowest point with 75mm side and 100mm end laps, and breaking joints between layers. Apply by mopping, brushing or spraying to achieve an even and full cover of the surface a priming coat recommended for the purpose by the felt manufacturer to all concrete and screed base surfaces. Other than where the Order is for Emergency Works, allow 24 hours to elapse before laying the felt.

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- 087 Partially or fully bond the first layer of felt to the base with oxidised bonding compound to the applicable Standard Bitumen and bituminous binders Framework for specification of oxidised bitumen. Grade as recommended by the felt manufacturer, and heated in thermostatically controlled kettles, to a temperature not exceeding 215⁰ Centigrade, but sufficient to provide a 200⁰ Centigrade laying temperature.
- 088 Effect any partial bonding system by spot, strip or frame bonding the first felt layer with hot bonding compound.
- 089 Fully bond the perimeter of the roof for a width of 450mm, leaving 150mm wide ventilation channels at appropriate centres.
- 090 Effect a fully bonded system by applying a continuous even coating of hot bonding compound to the base at the rate of 1.5kg/m². Apply the first layer of felt to provide a complete bond excluding all trapped air. Bond subsequent felt layers to match the underlayer excluding all trapped air. If any air bubbles become apparent in the Works, cut back and renew the felt.
- 091 Renewing or making good existing roofing:
- Remove existing chippings and clear roof of all dust, dirt, debris, moss and grease;
 - Star cut blisters, dry out and re-bond;
 - Fill ponded areas of sound roofing to level surface with compound recommended by the felt manufacturer;
 - Cut out defective areas of felt, dry out base and patch repair level with existing finish with three layers of matching felt lapped not less than 100mm;
 - Cut back to base 150mm width of felt over cracks and splits, dry out and insert 150mm strip of bitumen polyester felt bonded to base at edges only. Fully bond a further layer of bitumen polyester felt over the first strip and lap not less than 100mm onto the existing felt at each edge;
 - Remove rainwater outlet gratings and set aside for reuse on completion;
 - Cut out all existing skirting's and make good as for new work;
 - Renew damaged insulation;
 - Remove waterproof coverings from existing skirting's and re-cover as specified.
- 092 For chippings use coloured non-absorbent natural stone graded 6 to 10 mm/nominal 14 mm single size 6. Ensure gravel guards are fitted to all outlets, scatter chippings at rate of approximately 16kg/m², on completion remove loose chippings.
- 093 Use cut back bitumen or a suitable cold applied bitumen based adhesive to applicable Standard as a dressing compound for chippings applied at the rate of 1.5kg/m².

Torch on felt roofing

- 094 Ensure the existing roof is clean and dry. Cut out and patch blisters, nicks etc. If necessary, prime the surface and allow it to dry. Lay sheeting with 75mm side and 100mm end laps. Loose lay the first specified layer to roof surfaces, but do not carry up angle fillets and vertical upstands. Apply flame to the lower surface directed at the junction with the substrate so as to melt the adhesive across the roll width. Unroll felt onto the molten bitumen and press down firmly. Seal laps with wide bladed scraper and seal the plain finish (not mineral surface) by applying heat from above.
- 095 Use hard light coloured non-absorbent natural stone chippings graded 6 to 10 mm/nominal 14 mm single size 6. Ensure gravel guards are fitted to all outlets, scatter chippings at rate of approximately 16kg/m², on completion remove loose chippings.
- 096 Use cut back bitumen or a suitable cold applied bitumen based adhesive to the applicable Standard as a dressing compound for chippings applied at the rate of 1.5kg/m².

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Asphalt coverings to balconies and walkways

- 097 Lay asphalt to balconies and walkways in accordance with the applicable Standard and the recommendations and publications of the Mastic Asphalt Council. Lay underlay loose and with 50mm laps.
- 098 Use a glass fibre tissue isolating membrane approved by the Client's Representative.
- 099 Use bitumen coated 'plain expanded' steel lathing of a minimum 26 swg and a minimum 10 mm short way of mesh.
- 100 Use a high bond primer as approved by the Client's Representative.
- 101 Use oxidised bitumen suitable for applying hot as bitumen based bonding compound for bonding vapour barriers and for general bonding purposes.
- 102 Use clean natural coarse sand passing a 60 micron test sieve for rubbing sand.
- 103 For chipping, use hard light coloured non-absorbent natural stone graded 6 to 10 mm/nominal 14 mm single size 6. Ensure gravel guards are fitted to all outlets, scatter chippings at rate of approximately 16kg/m², on completion remove loose chippings.
- 104 Use cut back bitumen or a suitable cold applied bitumen based adhesive to the applicable Standard as a dressing compound for chippings supplied at a rate of 1.5kg/ m².
- 105 Use a reputable proprietary brand of solar reflective paint approved by the Client's Representative.
- 106 For aluminium edging, use a proprietary section profiled to suit asphalt manufactured from aluminium.
- 107 Asphalt concrete to be laid and compacted in accordance with the applicable Standard.
- 108 Hot rolled asphalt is to be transported, laid, compacted and tested to the applicable Standard.

Inverted Roof Insulation

- 109 Inverted roof insulation is to be 200mm thick extruded polystyrene board to the applicable Standard, conductivity 0.035 W/mK or less than, strength more than 250pKa at 10% compression, grade/density to be a minimum 30kg/cubic metre. Clean off all dirt and debris from base, lay boards tightly butted and to broken bond pattern, cut cleanly to fit closely around projections, upstands, rainwater outlets etc., lay surface protection.

Single layer plastic roof covering

- 110 PVC-u single layer membrane to the applicable Standard, minimum thickness 1.2mm laid in accordance with the manufacturer's technical data sheet with not less than 80mm head and side laps secured with the manufacturer's recommended thermal welding, break bond between layers with side laps staggered by one half sheet width, joint edges are to be completed with a bead of liquid PVC, membrane laid on separating layer as recommended by the manufacturer.
- 111 Warm deck roof designed in accordance with the applicable Standard and to comprise foil faced polyurethane /PIR foam insulation board to applicable Standard, conductivity less than 0.023 W/mK, strength more than 140kPa at 10% compression, boards fixed in accordance with the manufacturer's technical data sheet with minimum of 6 fixings per square metre, extra fixings may be necessary around roof perimeter.
- 112 All edge trims, upstands, flashings, verge trims are to be proprietary items supplied as required by the roof covering manufacturer and formed from PVC coated metal and fixed in accordance with the manufacturer's technical data sheet.

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Single Ply Membrane Roofing Systems

- 113 Clean all stone chippings, moss and debris off the entire roof surface to be re-covered and remove from site, felt blisters to be cut open and the damaged are made good, lay 1000 gauge vapour barrier to be laid loose over the entire roof surface, lay 25mm insulation board or 25mm closed cell moisture resistant board, mechanically fixed to the deck before the roofing membrane is laid.
- 114 Butyl rubber based membrane (Polyisobutylene) 0.75mm thick (fabricated in factory to cover the complete roof) laid on one layer of applicable Standard sheathing felt laid on existing roofing membrane or vapour barrier, the butyl membrane to be ballasted with 18mm diameter round gravel to a depth of 40mm over the entire roof area. The butyl membrane is to be dressed a minimum of 150mm and fully bonded to the upstands of the roof, at intersections between roof and walls the butyl membrane is to be carried up and fully bonded to the wall, turned and pointed into a wall chase for a minimum of 38mm deep, or dressed behind lead flashings, the edge of the membrane is to be pointed with the appropriate mastic, the lead flashing is to be carefully dressed down.
- 115 Eaves are to be finished with PVC coated metal "standard" edge trim and "GutterZ" edge trim to all perimeters, butyl membrane is to be stuck down to roof at eaves, a treated timber batten is to be fitted to the eaves where necessary for fixing the trim.
- 116 Where gutters are incorporated in the roof structure, the insulation is to be stopped at the edge of the gutter, the butyl membrane is to be stuck down to the roof surface in the gutter. The butyl membrane is to be dressed over the eaves and into the gutters or trunk heads and in the case of flat roof outlets, dressed over and into the outlets, fix a 50mm x25mm treated timber batten to all edges to form a stopping piece for the insulation, fixed with suitable fasteners at 400mm centres.
- 117 EPDM (Rubber Polymer) single ply membrane mechanically attached rubber sheeting, laminated to a non-woven polyester backing to be laid as specified by the Manufacturer's technical data sheet, delivered in sealed rolls and mechanically fixed to decking with galvanised steel discs and self-tapping screws. Fixing to be fully treated with a rustproof coating and have a minimum pull out force of 1.5kN per fixing and applied as 4 No fixings per m² on flat roof surfaces, 8 no per m² on edge zone and 12no per m² on corner zone. All joints are to be sealed by using hot bonding splicing machine with a 150mm wide splicing strip specially developed for hot-bonding application.
- 118 Fully bond the roofing membrane at intersections between roofs and walls with butyl adhesive applied to the wall. Lead flashings are to be fitted to prevent the ingress of rain, the roofing membrane is to be fully bonded to the wall surface under the lead flashing.

Metal Tile Roofing

- 119 Metal tile roofing shall comprise:
- Natural stone chip with acrylic overglaze finished proprietary metal roof tiles each size 1330mm x 450mm x 0.9mm thick, pantile in profile, and terracotta or charcoal or green or red in colour, each tile fixed with four no 50mm x 2.5mm coated fixing nails driven through the down turned nose of the tile into 50 x25mm sawn softwood applicable Standard battens fixed to each support with round galvanised steel nails 65mm long x 3.5mm, with additional battens where necessary to prevent underlay being opened at laps by wind suction.
 - Underlay to be reinforced felt to the applicable Standards, laid with minimum 150mm horizontal and vertical laps and fixed with galvanised steel extra-large head felt nails parallel to eaves so that water will drain freely, laps to coincide with supports, including all abutments, eaves, verges, ridges, hips and valleys
 - All to be in accordance with Code of Practice for Lightweight Metal Roofing.

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Metal Profiled /Flat Sheet Claddings

- 120 Plain Galvanised corrugated iron sheeting is to be in accordance with CP 143-10:1973, 24 gauge in sheets each 1260mm x 370mm, laid in accordance with the Manufacturer's technical data sheets from ridge to eaves, with side-laps being at least 2 corrugations and 150mm minimum end laps, sheets to fixed with drive screws and washers placed at maximum 375mm centres to 38mm x25mm battens, and secured to purlins with at least 2 bolts. Seams to be made watertight with suitable lapping material and secured with self-tapping screws or bolts at maximum 450mm centres. Breathing felt to applicable Standard lapped and carried into gutter is to be installed under corrugated sheeting.
- 121 Ridge to be galvanised sheet 22mm gauge to comply with the applicable Standard, ridge capping to be formed from equal angle pieces with 200mm sides formed to fit securely on top of galvanised roofing sheet.

Plastic profiled Sheet Claddings

- 122 PVC-Ue planks (Open 'V' joint, shiplap or Tongued and Grooved) in cladding shall comprise:
- Lightweight foamed cellular core and homogeneous skin of PVC-UE having a nominal thickness of 0.6mm manufactured in accordance with the applicable Standards;
 - Extruded Cellular Unplasticised (PVC-Ue) Profiles:
 - Standard length: 5m
 - Cover width: maximum 100mm
 - Nominal thickness; 6mm
 - Fire resistant to Class 1Y to applicable Standard;
 - Weight: Not less than 0.50kg metre;
 - Density: Not less than 500kg/m³;
 - Appearance: Self-coloured smooth semi-matt or glass finish;
 - Fixing: Maximum 600mm centres, 5mm gap every 5m run and at abutments for thermal expansion of plank and joint ends;
 - Method of fixing: 30mm hot dipped galvanised or stainless steel jagged nails with staggered joints;
 - Perimeter Trims: Single or two part PVC-Ue trims (capping's, angle pieces, closure pieces, flashings, trims, sill) as manufacturer's technical data sheet;
 - Breather membrane; Spun bonded polypropylene BBS certified, vapour resistance to be no more than 0.6MN.s/g and fixed with galvanised or stainless steel fixings every 300mm at studs and every 150mm at edges , horizontal laps to be 100mm, vertical laps 150mm and staggered to shed water away from substrate and structure;
- 123 PVC-Ue chipped finished planks in cladding shall comprise:
- Lightweight PVC-Ue not exceeding 7kg/m² and a density of between 0.5 and 1.5kg/m³;
 - Impact resistance strength: 30k/m²;
 - Yield Stress: at/more than 14.5N/mm²;
 - Tear Strength: at/more than 13.5N/mm²;
 - Bending Stress: 18N/mm²;
 - Elasticity module; at /more than 640/mm²;
 - Fixings pull out strength: at least 500N;
 - Thermal Impact: in accordance with BRE Digest 228
 - Surface spread of flame: both internal and external surfaces to Class O, tested in accordance with applicable Standards, All fixings to be non-ferrous
 - Fixing supports to ETAG001 and ETAG 029
 - Fire resistant to Class 1Y to applicable Standards;
 - Weight: Not less than 0.50kg metre;
 - Density: Not less than 500kg/m³;
 - Appearance: Self -coloured smooth semi-matt or glass finish;
- 124 The system will be required, under testing, to prevent transfer of water across the cavity to the masonry of the existing building under peak pressure testing to Class R7 as set out in applicable Standard.

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- 125 If battens are used to create a minimum 25mm vented cavity they must be formed from the same material as the cladding planks, the vented cavity is to provide adequate ventilation to remove any condensation or water permeating through the system before it reaches the masonry with drainage openings of at least 10mm;
- Defection in accordance with the applicable Standards. All testing must be in accordance with current applicable Standards.
 - The system must be able to accommodate building movement and must be secured to suitable non-ferrous cladding rails/support structure approved by the manufacturer;
 - Aggregate: between 3 and 6mm incorporated into the surface of the cladding under strictly controlled factory conditions with the colour aggregate pre-mixed under quality controlled factory procedures to achieve uniformity.
- 126 PVC-Ue Fascia/Barge or Barge Overlay Board shall comprise:
- Profile: Bull nosed or square edge with ribbed back;
 - Composition: Low density cellular (closed cell) core and homogeneous impact resistant skin of PVC-UE. Manufactured in accordance with the applicable Standard UV stability and UV aged impact resistance requirements;
 - Dimensions: Width Minimum 175mm;
 - Thickness: Minimum 9mm;
 - Weight: Average density 500kg/m³, Tolerance deviation of +/-12.5% per m length;
 - Tolerances Width: 151mm – 250mm +/- 1.5mm;
 - Tolerances Thickness: 5mm – 12mm +/- 0.5mm, over 12mm +/- 0.75mm;
 - Tolerances Length: 5m =10mm-00mm;
 - Flatness; Must not exceed +/- 0.6mm over 100mm;
 - Thermal Movement: Linear thermal expansion of less than 7mm x 10.5 degree C. Tested in accordance with applicable Standard;
 - Fire Resistance: Satisfy the requirements of the applicable Standards particularly Class 1 spread of flame;
 - Colour Fastness: in accordance with the applicable Standard;
 - Water Absorption: Less than 1% when tested in accordance with the applicable Standard
 - Appearance: Self-coloured smooth gloss finish;
 - Method of fixing: As specified by manufacturer
 - Jointing/edge trims: matching colour, single or two part PVC-Ue trims as manufacturer's details and fixed in accordance with manufacturer's technical data sheet
- 127 PVC-Ue Fascia or Barge Board
As Clause 126 but minimum thickness 16mm
- 128 PVC-Ue Soffit Boards shall comprise:
- Profile: Flat solid board plain or shiplap profile sheet, depending upon application;
 - Composition: Low density cellular (closed cell) core and homogeneous impact resistant skin of PVC-UE. Manufactured in accordance with the applicable Standards UV stability and UV aged impact resistance requirements;
 - Dimensions: Width Variable, but not greater than 300mm;
 - Thickness: Minimum 9mm;
 - Weight: Average density 500kg/m³, Tolerance deviation of +/-12.5% per m length;
 - Tolerances Width: 151mm – 250mm +/- 1.5mm, 251mm – 350mm +/- 2.00mm;
 - Tolerances Thickness: +/- 0.5mm;
 - Tolerances Length: 5m - 10mm-00mm;
 - Flatness; Must not exceed +/- 0.6mm over 100mm;
 - Thermal Movement: Linear thermal expansion of less than 7mm x 10.5 degree C. Tested in accordance with applicable Standard;

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- Fire Resistance: Satisfy the requirements of the applicable Standard particularly Class 1 spread of flame;
 - Colour Fastness: in accordance with the applicable Standard;
 - Water Absorption: Less than 1% when tested in accordance with the applicable Standard;
 - Appearance: Self-coloured smooth gloss finish;
 - Method of fixing: As specified by manufacturer
 - Jointing trims: matching colour, single piece PVC-Ue trims as manufacturer's details and fixed in accordance with manufacturer's technical data sheet
- 129 PVC-Ue Pre-vented Soffit Boards shall comprise;
As Clause 128 but with flat solid board pre-vented depending on application;
- 130 A ten year warranty on the performance and colourfastness of all PVC-UE fascia, barge, soffit board and wall cladding systems must be provided prior to installation.
- 131 Eaves Ventilators generally are to provide a continuous air gap of either 10mm or 25mm to the applicable Standard as required, to have BBA certification or equivalent, and to be proprietary preformed PVC-u, provided with fixing holes and with slots in ventilator being not more than 4mm to prevent entry of vermin. Eaves ventilators are to be fixed in accordance with the manufacturer's technical data sheet and are to be either:
- Proprietary behind fascia ventilation system: with soffit attachment, fixed behind fascia; or
 - Proprietary over fascia ventilation system: fixed to top of fascia board; or
 - Proprietary over fascia ventilation system; with polypropylene felt support, and fixing to top of fascia and rafters; or
 - Polypropylene twist and lock soffit ventilators, 70mm diameter, designed to exclude wind driven rain and large insects, openings not to exceed 4mm, to provide 10,000 mms/m, installed at 200mm centres, mechanically secured in accordance with manufacturer's technical data sheet;
 - Polypropylene spring fitted ventilators (10-15 degree roof); soffit attachment size 285mm x 115mm, designed to exclude wind driven rain and large insects, openings not to exceed 4mm, to provide 25,000 mms/m, installed at 480mm centres to 10-15 degree roofs, mechanically secured in accordance with manufacturer's technical data sheet.
- 132 Proprietary rafter tray ventilation system: to have BBA certification or equivalent and to provide ventilation to the applicable Standard, with corrugated rigidised PVC-u spacer sheet inserted between rafters at eaves to maintain a continuous 25mm min air path parallel with the roof slope, to prevent insulation blocking the ventilation path to eaves ventilators, and to prevent condensation forming under the underlay. Fitted to project 100mm beyond wall plates. Insulation re-inserted over wall plates but not projecting beyond the end of the spacer sheet. Fitted 800mm along roof slope 25mm deep, cut as required to fit and tacked in place between the rafters at top with galvanised tacks/thick staples.
- 133 Proprietary rafter tray fly screened ventilation system: to have BBA certification or equivalent and to provide ventilation to the applicable Standard, with corrugated rigidised PVC-u spacer sheet inserted between rafters at eaves to maintain a continuous 25mm min air path parallel with the roof slope, to prevent insulation blocking the ventilation path to eaves ventilators, and to prevent condensation forming under the underlay. Fitted to project 100mm beyond wall plates. Insulation re-inserted over wall plates but not projecting beyond the end of the spacer sheet. Fitted 800mm along roof slope 25mm deep, cut as required to fit and tacked in place between the rafters at top with galvanised tacks/thick staples.

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- 134 Proprietary rafter tray ventilation system for refurbishment, installed from underside of roof to avoid disruption of roof covering: to have BBA certification or equivalent and to provide ventilation to the applicable Standard, with corrugated rigidised PVC-u spacer sheet inserted between rafters at eaves to maintain a continuous 25mm min air path parallel with the roof slope, to prevent insulation blocking the ventilation path to eaves ventilators, and to prevent condensation forming under the underlay. Adjust to suit roof pitch, pull back existing insulation and push tray into eaves, ensuring not to project beyond the top of the rafters, Fix to wall plate as recommended by the manufacturer, relay insulation over the wall plate but not projecting beyond the end of the spacer sheet. Fitted 800mm along roof slope 25mm deep, cut as required to fit and tacked in place between the rafters at top with galvanised tacks/thick staples.

GRP Flat Roofing

- 135 GRP Flat roof specification will comprise the following activities:-
1. All existing stone chippings, felt coverings etc. are to be cleared from the roof area. Substrate, is to be stripped to expose the main roof joists.
 2. Additional timber furring pieces are to be fitted to existing joists to give a fall to the new deck.
 3. The roof is re-decked with 3/4" (20mm) exterior Grade Plywood securely anchored with 3" annular ring shank nails and /or 3" plated wood screws to the roof joists.
 4. Purpose made, pre-moulded, edging trims, wall fillets, gully mouldings are to be supplied as necessary and installed in position.
 5. Glass-fibre mat of 4oz / sq.m density is supplied and laid over the whole roof area. The glass-fibre mat is then impregnated with polyester resin onto the new deck to form a seamless GRP membrane.
 6. Once curing time has elapsed, usually between 1- 4 hours depending on ambient temperature, a polyester resin gel coat in a chosen colour will be applied to the whole roof area.
 7. Where a flat roof meets brick walls, a chase is to be cut into a chosen course approximately 1.5" deep. A glassfibre and resin flashing will be tailor made to fit into the chase. The chase is then to be re-pointed with conventional sand / cement mortar.
 8. Where a flat roof meets a tiled roof, as in the case of a dormer construction, the glass-fibre membrane is to be extended between 150 to 300mm up and under the tiled roof area

GRP Canopies

GRP PURPOSE MADE FRONT DOOR CANOPIES

- 136 GRP purpose made front door canopies are to meet the following criteria:
- Primary support structure: Existing concrete brick or block work.
 - GRP components:
 - Construction: Designed to direct water away from the main structure/dwelling;
 - Finish: Standard smooth matt finish;
 - Colour: Dark Grey;
 - Nominal size: 1600mm long x 900mm wide x 200mm deep;.
 - Fire rating:
 - Spread of flame (component external face): Class 0 (National class).
 - Spread of flame (component internal face): As external face.
 - Fixings and fasteners: Fixings to be concealed and as tested and recommended by canopy manufacturer to withstand calculated wind and snow loads;
 - Joints: Upper-side to have standing seam effect finish at 600mm centres, underside to have timber tongue and groove effect finish; and
 - Accessories/Other requirements: Drip bar to front soffit. Provide a sample canopy to the Client's Representative prior to installation.
- 137 Thermal Performance/Bridging Requirement: Complete thermal design to avoid excessive thermal bridging. Assessed to BRE Information Paper 1/06.

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- 138 Weather Resistance Requirement: Weathertight, with full allowance made for deflections and other movements.
- 139 Colour Fastness/Appearance of GRP, Colour fastness of pigments: Not less than standard 6 when measured to the applicable Standard B01C:LFS6, The Provider is to submit evidence of compliance.
- 140 Colour Fastness/ Appearance Samples are to be provided as follows:
- Weathered samples: If available, submit naturally weathered samples, otherwise submit artificially weathered samples.
 - Naturally weathered samples:
 - Pigments and resins: As proposed GRP.
 - Age: Not less than two years.
 - Action: Submit with new un-weathered control samples.
 - Artificially weathered samples:
 - Pigments, resins and gel coat: As proposed GRP.
 - Test method: Accelerated weatherometer subjecting samples to moisture and ultraviolet light.
 - Duration: Not less than 1500 hours.
 - Action: Submit with new un-weathered control samples.
- 141 Canopy Design Samples are to be provided as follows:
- GRP samples: Before general manufacture obtain approval of appearance of fully tested compliant design samples.
 - Extent: Showing proposed colour, texture and incorporating a completed section of a joint.
 - Action: Obtain approval of appearance before proceeding. Retain as production control sample.

Manufacture of GRP Canopies

- 142 Quality of Work is to conform to:
- Manufacture: Compliant with design and performance requirements.
 - Materials: Appropriate and compatible.
 - Workmanship: Appropriate and in accordance with manufacturers' recommendations.
 - Resins: Used as supplied and not adulterated.
 - Standard of finish: Appropriate to end use and position in building.
 - Prohibited blemishes: Including, but not limited to, wrinkling, spotting, striations, fibre patterning, fish eyes, blisters, crazing, cracking, dry patches and uneven or inconsistent colour.
- 143 Manufacturing Accuracy to conform to:
- Finished dimensions of completed units when erected:
 - Ambient temperature: Measurements taken at 16-18°C.
 - Maximum permissible deviations as table below:

Overall dimension involved (m)	Up to 2 m	2-3 m
Width and height:	0-2 mm	0-3 mm
Straightness of edges: deviation from intended line, any variation to be evenly distributed with no sudden bends or irregularities.	3 mm	4 mm
Squareness: taking the longer of 2 sides at any corner as a base line, the deviation of shorter side from perpendicular; dimension involved is the shorter side.	3 mm	4 mm
Twist: deviation of any corner from the plane containing the other 3 corners; dimension involved is the shorter side.	3 mm	5 mm
Flatness - deviation under a 1 m straight edge placed anywhere on a flat panel surface:	3 mm	3 mm

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- 144 Suitability of Structure:
- Provider’s survey:
 - Scope: Geometric survey of supporting structure, checking line, level and fixing points.
 - Give notice: If structure will not allow required accuracy or security of erection.
 - Setting out: Establish erection datum points, lines and levels.
- 145 Installation of Interfaces
- General: Locate flashings, closers etc. correctly with neat overlaps to form weathertight junctions.

NRFC Competent Person Scheme for roofing

- 146 The Provider or an approved subcontractor undertaking any aspect of the roofing works should be registered as a member of the NRFC Competent Person (CPS) to facilitate the self-certification of residential, industrial and commercial work that falls under the auspices of the Building Regulations 2010 Approved Document L1B (as amended 2010, 2011, 2013, 2016 and 2018).
- 147 The Provider or the approved subcontractor must submit to the relevant local authority building control department, the relevant Building Regulations Compliance Certificate within 30 calendar days of the completion of any roofing Works that are covered by Approved Document L1B, these include but are not limited to:
- Slating and tiling and all other pitched works;
 - Felt, single ply and GRP;
 - Fully supported lead, copper, zinc and standing seam aluminium;
 - Liquid applied waterproofing;
 - Mastic asphalt;
 - Reinforce bitumen membranes;
 - Sheeting;
 - Rooflights (inserted between rafters)

Client’s current manufacturers/suppliers/products

- 148 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

SCAFFOLDING AND MEANS OF ACCESS

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SCAFFOLDING AND MEANS OF ACCESS

- 001 Provide scaffolding for the Works where required by Regulatory Requirements.
- 002 Moveable towers can be used where Regulatory Requirements allow this. This is also subject to the approval of the Client's Representative for scaffolding above the equivalent of the ridge line of a two storey Property.
- 003 Only light short-term Work may be done from ladders where this is in line with the Code of Practice for Ladders.
- 004 Working platforms required at heights of 2 metres and above must be carried by a properly constructed scaffold. Scaffold may be provided at lower levels.
- 005 Obtain:
- a licence from the highways authority where scaffold is to be constructed on or over the public highway; and
 - permission from the adjoining landowner to occupy the space where scaffolding is erected over an adjoining property.
- 006 Where scaffold is to be constructed on or over the public highway the Provider must:
- consult the highways authority as to whether lighting or any other form of warning is required;
 - if so, provide this (with any electrical supply being of a maximum of 100 volts); and
 - notify the police where, when and for how long, the scaffold is to be in place.
- 007 Before erecting any scaffold to which Clause 05 applies, the Provider must provide evidence to the Client's Representative that the permissions referred to in that Paragraph have been obtained and, where applicable, the notifications under Clause 06 have been given.
- 008 Ensure that any temporary roofs are properly designed and secured and must provide calculations and drawings to the Client's Representative (for checking and approval).
- 009 Before the erection of any scaffolding to three storeys and above, the Provider must:
- submit an engineer's design of the scaffold to the Client's Representative for checking and approval;
 - when erected, supply a certificate from a Member of the Institute of Structural Engineers indicating the scaffolding is in good condition and complies in all respects with all relevant Codes of Practice; and
 - similarly certify any alteration to the scaffold.
- 010 Construct all scaffolds in accordance with:
- Work at Height Regulations 2005 (as amended);
 - Applicable Standard; and
 - either:
 - NASC Technical Guidance TG20 for tube and fitting scaffolds; or
 - the manufacturer's guidance for system scaffolds.
- 011 For all scaffolds:
- approved materials in good condition must be used;
 - all components must be inspected prior to use;
 - sole plates must carry a minimum of 2 standards and wherever possible be placed parallel to the face of the building;
 - they must be rigid and constructed on a solid foundation;
 - standards must be upright at all times;
 - ledgers must be horizontal and fixed with load bearing coupler;
 - gaps in working platforms must not exceed 25mm wide and where necessary the inside boards must be secured to achieve this. No gap is to exceed 6 square inches anywhere. Where third parties are at risk, no gaps are acceptable – nothing must be allowed to fall through or off the platform;

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- sufficient positive ties to the main walls of buildings must be fitted;
 - fans and/or working areas over entrances and exits must be fully double boarded with a continuous membrane between to stop any matter falling through;
 - where hoists are erected in scaffold, extra ties must be used to prevent vibration of the scaffold; and
 - toe boards and guard rails must be fitted to working or access platforms and to stairs where people working on them could fall 2 metres or more;
 - Materials must not be thrown, tipped or allowed to fall off the scaffolds or working platforms;
 - when partially erected or partly dismantled a notice saying "Do not use" must be displayed on the scaffold; and
 - the scaffold must be made unclimbable at all times when not in use for undertaking the Works.
- 012 Scaffold requiring protection from lightning strike in accordance with the applicable Standards or equivalent, must be certified by a qualified electrical engineer, when first erected and with regular testing and a certificate being provided at not less than monthly intervals. Copies must be provided to the Client's Representative.
- 013 Scaffold must be erected, dismantled and altered:
- by competent persons;
 - where the scaffolding is over 5m high, under the supervision of a person trained and certificated under the Construction Industry Scaffolders Registration Scheme (or equivalent approved by the Client's Representative);
 - in accordance with either:
 - NASC Guidance Document SG4 for tube and fitting scaffolds; or
 - the manufacturer's instructions for system scaffolds; and
 - so that at all times windows are openable by the occupants from the inside.
- 014 Scaffolding must be inspected by the Provider's 'competent person' at least every 7 (seven) days. The Provider must correct any faults found immediately. A record of such inspections and the Provider's report must be submitted to the Client's Representative within 1 (one) Working Day of each inspection.
- 015 Where the Client's Representative advises the Provider of this, the Provider must allow another contractor working directly for the Client to use scaffolding erected by the Provider, subject to that contractor agreeing to comply with any health and safety requirements in relation to the use of that scaffolding reasonably required by the Provider.
- 016 Scaffolding must be struck within 1 (one) week of the Client having advised the Provider that the Works have been satisfactorily completed, unless the Client requires the scaffolding to be maintained for another contractor working directly for the Client. In these circumstances:
- the scaffolding must be struck within 1 (one) week of the Client having advised the Provider that the scaffolding is no longer required; and
 - the Client must pay the Provider for the use of the scaffolding by the Client's other contractor at the rates payable for the use of scaffolding under the Price Framework (even where the payment for the scaffolding to be erected and maintained for the Works was included in the Rates).
- 017 Payment for scaffolding will be in accordance with the Schedule of Rates for Scaffolding and Means of Access.
- 018 The Rates for scaffolding are deemed to additionally include as appropriate for the following:
- .1 Basing out, preparing and levelling of ground, provision of additional support, base plates, spreaders and the like as necessary.
 - .2 Protection of the structure fabric, finishings, roof coverings and the like.
 - .3 Provision of all requisite tubes and fittings of every description, delivery, handling and removal.
 - .4 Erecting, supporting, maintaining, adapting and dismantling as required.

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- .5 Bridging across structures and all other obstructions where necessary.
- .6 Removal, temporary storage/resiting, protection and subsequent reinstatement as required of all TV, radio and telecommunication aerials, satellite dishes and the like.
- .7 Fans, gantries, hoardings, sheeting and double boarding of working platforms to afford protection around/over entrances, paths, rights of way and other forms of access or thoroughfare unless specifically instructed by the Client's Representative.
- .8 Working platforms to towers and chimney scaffolding.
- .9 Toe boards, guard-rails, handrails, safe ladder access, ladders, warning signs, taping and the like.
- .10 Ancillary plant and equipment such as tower feet/wheels, out-riggers, cross bracing, gin wheels, ropes and the like.
- .11 Lighting and/or alarming where deemed necessary or appropriate and/or as specifically directed by the Client's Representative.
- .12 Protection against lightning strike.
- .13 Fixed handholds and physical ties to the structure where necessary, subsequent removal and making good.
- .14 Provision of certified structural design calculations and erection certificates to the Client Representative where required under the Contract.
- .15 Reinstatement of ground and making good any damaged surfacing and/or paving's if necessary.
- .16 Compliance with all Regulatory Requirements including provision of all associated licences, permits and the like and the payment of all related fees and charges.
- .17 Additional lifts of scaffolding, working platforms, handrails, ladders, other access provisions and the like necessitated by structure/roof design, for example changes in roof pitches at mansards and anything similar.

CARPENTRY AND JOINERY

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CARPENTRY AND JOINERY

GENERAL

Generally

- 001 Where necessary cut out for butts/hinges when replacing door or window frames/linings or piecing in new timber.
- 002 Note that all sawn timber sizes quoted in the Schedule of Rates are nominal sizes.
- 003 Stain or prime and undercoat all prepared timber all round before fixing, as described in the "Painting and Decorating" Section.
- 004 Comply with the "Painting and Decorating" Section where Works include items being painted, decorated, stained, touched up or prepared for decoration. Match the finish and type to the existing or surrounding finish as appropriate.
- 005 Where painted skirtings and architraves are specified, at the Provider's option use an MDF equivalent where this is approved by the Client's Representative.
- 006 Match any purpose made items (when specified) to the existing items as far as possible.

MATERIALS

Timber

- 007 Use only suitable, sound, well-conditioned, properly seasoned preservative treated whitewood from a source approved by the Client's Representative that is free from any defects making it unsuitable for its intended purpose. All timber to be FSC or PEFC certified or from equivalent independently verifiable sustainable sources.
- 008 Level and pack all structural timber. Structural timber shall comply with applicable Standard. The dimensions of a timber floor, ceiling or roof member may be determined by the guidance given in applicable Standard span tables for solid timber members in floors, ceilings and roofs for dwellings published by TRADA. Timber for floors and roofs shall comply with applicable Standards. Strength classes, species, grades and species combinations referred to be as defined in the applicable Standards.
- 009 Cross sectional dimensions are to be either basic sawn or regularised sizes as defined in applicable Standard. Trussed rafter roofs are to be braced to applicable Standard. Structural timber shall be C16 or C24 grade timber to comply with loadings and spans as set out in the current Approved Document A of the Building Regulations, 2010 (amended 2013). The section sizes shall be in accordance with tolerance class 1 of the applicable Standard, or are CLS/ALS processed sizes in accordance with tolerance class 2 of the applicable Standard.
- Graded Softwood for Structural Use:
- Stress graded to applicable Standard or other national equivalent and so marked.
 - Strength class to applicable Standard.
- 010 Trussed Rafters generally are to be designed and fabricated to applicable Standard, truss members shall be 44mm (minimum) finished thickness, ceiling ties and top chord members shall have 97mm finished depth, all trussed rafters shall be nail plate connected.
- 011 Softwood for use with leadwork shall be planed, free from waness, pitch pockets, decay and insect attack except pinhole borers, with a moisture content of not more than 22% at time of covering.
- 012 Cross section dimensions of timber shown on drawings are nominal sizes unless stated otherwise. reduction to finished sizes of planed/regularized timber to be to applicable Standard.

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- 013 Moisture content of timber at time of erection to be:
- Structural timber 20% + or - 2%, kiln dried.
 - Fascias barge boards and the like 18% + or - 2%.
- 014 Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing. Store timber and components under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack. Arrange sequence of construction and cover timber as necessary during and after erection to ensure that specified moisture content is not exceeded. Keep trussed rafters vertical during handling and storage

Preservative treatment of timber

- 015 Treat softwood described as "treated" or "impregnated" before delivery to the Property with either:
- an appropriate preservative under vacuum-pressure with an average net retention of at least 4kg of dry salts per cubic metre; or
 - an organic solvent type preservative giving an overall retention of 16Kg of solution per cubic metre of timber.
 - Generally - Structural Timber, Fencing and the like:
 - Where subsequent cross-cutting or boring of the treated timber cannot be avoided all exposed surfaces shall be liberally swabbed with a proprietary end grain timber preservative to maintain the integrity of the protective system.
 - All treated timber shall show only negligible dimensional change or distortion, otherwise it will be rejected.
 - The end use of timber must be quoted by the Provider to the treatment company.
 - A certificate of treatment to cover all timbers processed shall be supplied by the treatment company to the Provider.
 - A certificate of treatment shall be supplied by the Provider for each batch of timber treated.

Fixings

- 016 Framing anchors are to be galvanised steel, fixed securely using not less than the number of nails recommended by the anchor manufacturer. Nails to be not less than 30mm x 3.75 mm galvanized or sherardized square twist unless recommended otherwise.
- 017 Truss clips are to be galvanised steel, fixed securely with 32mm x 3.5mm galvanised square twisted nails in every hole.
- 018 Anchor straps are to be galvanised steel, fixed securely to timber with three 30mm x 3.75mm galvanized nails and to masonry with four 50 mm x 8 gauge galvanised screws evenly spaced.
- 019 Lateral restraint straps are to be galvanised steel, ensure that cranked end is in tight contact with cavity face of wall inner leaf and is not pointing upwards. Fix noggings and packs beneath straps which span joists/rafters/ties running parallel to wall, noggings and packs to fit tightly and be not less than three quarters of joist/rafter/tie depth. Notch joists so that straps fit flush with surface. Do not notch rafters/ties. Fix straps to joists/rafters/ties with seven 50 mm x 1½ mm gauge galvanised countersunk screws, evenly spread.
- 020 Bolts and nuts shall be cup square with large washers and nuts, and comply with applicable Standard - Washers shall comply with applicable Standard.
- 021 Expanding bolts shall be Grade A4 stainless steel and shall be of a type to suit the purpose for which they are required, fixed security in position in accordance with manufacturers technical data sheet.
- 022 Canopy cleats are to be galvanised steel, fixed securely to timber with 50mm x 1½ mm galvanised screws.
- 023 Retaining strap to be galvanised steel, with site applied bituminous paint coating, and bedded securely in mortar.

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- 024 Expanded metal fixing strip to be galvanised expanded metal lathing to applicable Standard zinc coated and fixed securely by building into position.
- 025 Fastenings for materials and components forming part of external construction to be of corrosion resistant material or have a corrosion resistant finish.
- 026 Fastenings for materials and components, forming part of external construction but not directly exposed to the weather to be of corrosion resistant material or have a corrosion resistant finish, directly exposed to the weather to be of corrosion resistant material.
- 027 Cartridge operated fixings are not to be used without the permission of the Client’s Representative. Tools to be manufactured to applicable Standard and Kitemark certified. Fasteners, accessories and consumables to be types recommended by the tool manufacturer. Operatives to be trained and certified as competent by tool manufacturer. Ensure that operatives take full precautions against injury to themselves and others. Shot fixing is to give secure fixing at 750mm centres.

Nails, etc

- 028 Use sheradised nails for fixing joinery having an external exposed face in accordance with applicable Standard, punched in below the surface and filled with an approved filler.

Joinery Timber

- 029 Softwood planed finish joinery timber which will be exposed to view shall be European Redwood minimum density 510kg/m³, class J10 of applicable Standard.
- 030 The following defects shall not be permitted: pinholes shown on the surfaces; sloping grain exceeding one in eight; checks, splits and shakes in excess of those permitted by class J10 of applicable Standard; knots, excepting isolated sound tight knots of less than 20mm diameter or no wider than half the width of the section; any evidence of beetle attack or decay. Softwood not exposed to view will be accepted with minor defects with the exception of active beetle attack or decay.
- 031 Where hardwood is specified, use hardwood of one of the following species of the applicable Standard suitable for the purpose, un-replenish able tropical hardwoods are not to be used

Oak	North American	Density range 590-930 kg/m ³
Beech		Density range 700-900 kg/m ³
Ash	North American	Density range 650-850 kg/m ³
Maple	North American	Density range 600-750 kg/m ³
Cherry	North American	Density range 700-900 kg/m ³
Utile		Density range 650-725 kg/m ³
Mahogany	South American	Density range 500-650 kg/m ³
Mahogany	West African	Density range 500-650 kg/m ³
Dark Red Luan	Philippine	Density range 650-725 kg/m ³
Iroko		Density range 650-725 kg/m ³
Dark Red Meranti		Density range 650-725 kg/m ³

- 032 Tongued and grooved floorboarding is to comply with applicable Standard
- 033 Ensure the moisture content based products at time of installation: to be no more than:
 - internal joinery is no more than 20% (8-12% when timber is in an existing Property which is centrally heated); and
 - external joinery is no more than 18%.+ or-2%
 - structural timber 20% + or -2%, kiln dried

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Plywood, blockboard, particleboard, hardboard etc.,

- 034 Plywood panel products for structural use shall conform to applicable Standard for designs to applicable Standard plywood may be selected from those listed in applicable Standard or shall have certification from a suitable body such as the Agrément board.
- 035 Marine plywood shall comply with applicable Standard, marine plywood manufactured from selected untreated tropical hardwoods, durability class H, surface grade 11, and with sanded surface finish.
- 036 Plywood designed to applicable Standard shall be subject to the quality control procedures of one of the organisations listed in that standard, or to the controls listed by the certification body.
- 037 The specification for plywood shall state the following information where appropriate:
- type
 - Standard
 - grade
 - Species
 - nominal thickness
 - number of plies
 - finish (sanded/unsanded)
- 038 Plywood exposed to the weather shall have no open defects (e.g. checks, knots, holes, splits) on the exposed face(s) unless it is used only for a temporary application such as hoarding.
- 039 Prior to receiving a painted finish, plywood shall be adequately sanded.
- 040 All cut edges that may be subject to weather exposure shall be sealed with a suitable sealant or applied finish; typically these shall be one of the following:
- Special sealing compounds, such as pitch epoxy
 - non-setting mastic, where the plywood is set in frames.
 - timber beading bonded with suitable adhesives.
- 041 In construction the following procedures shall be observed:
- lower edges of boards shall be bevelled to promote shedding of water.
 - plywood used as infill panels shall be fully painted before installation and/or assembly.
 - cavities behind boards shall be adequately ventilated and drained to allow dispersal of moisture.
 - clearance shall be allowed at selected joints to allow free drainage of water.
 - plywood junctions with masonry shall provide adequate clearance to allow drainage, prevent capillary absorption of water and provide enough space for maintenance of edge sealing.
 - the bottom edges of boards shall stand well clear of flashings, roof coverings, sills, and the ground.
 - exposed and/or inadequately protected fixings shall be of non-ferrous metals and have adequate corrosion resistance.
- 042 WBP sanded and unsanded finished plywood is to be in accordance with applicable Standard, appearance classification E or I.
- 043 Oriented strand boards shall be in accordance with applicable Standard and supplied in accordance to use:
OSB/1 general purpose no loading boards and boards for interior fitments for use in dry conditions;
OSB/2 load-bearing boards for use in dry conditions;
OSB/3 load-bearing for use in humid conditions;
OSB/4 heavy duty load-bearing boards for use in humid conditions;
- 044 Particleboards shall be in accordance with applicable Standard Type 5, for chipboard flooring, use the appropriate waterproof moisture resistant grade suitable for the purpose.
- 045 Hardboard shall be to applicable Standard. Ensure hardboard used to form bath panels has an enamelled surface and Type TE Tempered.

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- 046 Ensure all block-board complies with the applicable Standard and to be to a standard and quality approved by the Client's Representative, lamin-board used is five-ply and veneer is of the specified species of timber (but where none is specified, it is an appropriate species of timber).

Priming

- 047 Prime timber in accordance with the finish coat specification. Use a primer recommended by the manufacturer of the surface coating.

Preservative treatment of timber

- 048 Treat softwood described as "treated" or "impregnated" before delivery to the Property with either:
- an appropriate preservative under vacuum-pressure with an average net retention of at least 4kg of dry salts per cubic metre; or
 - an organic solvent type preservative giving an overall retention of 16Kg of solution per cubic metre of timber.
- 049 Generally - Structural Timber, Fencing and the like, shall be treated in accordance with Clause 015.
- Where subsequent cross-cutting or boring of the treated timber cannot be avoided all exposed surfaces shall be liberally swabbed with a proprietary and grain timber preservative to maintain the integrity of the protective system. All treated timber shall show only negligible dimensional change or distortion, otherwise it will be rejected. The end use of timber must be quoted by the Provider to the treatment company.
 - A certificate of treatment to cover all timbers processed shall be supplied by the treatment company to the Provider. A certificate of treatment shall be supplied by the Provider for each batch of timber treated.
- 050 Generally - Joinery Components, Fascias and the like, shall be treated by spirit based double vacuum process and shall be machined to it's final dimensions before treatment and then assembled. All treated timber shall show only negligible dimensional change or distortion, otherwise it will be rejected.
- 051 Treat ground contact timber before delivery to the Property with an appropriate preservative under vacuum pressure with an average net retention of at least 5.4Kg dry salts per cubic metre of timber.
- 052 Cut timbers to their final dimensions before impregnation. Where this is not possible, liberally swab any sawn or cut faces or borings with an appropriate preservative from the impregnation plants.
- 053 After treatment, carefully open-stack the timber in a well ventilated covered space to enable surplus solvent in the preservative to dry out by evaporation. Ensure all treated timber is dry before incorporation in the Works.
- 054 Allow items of carpentry timber treated with an appropriate preservative a minimum of 3 weeks air drying period following treatment and before fixing. Allow joinery timbers similarly treated a minimum of 6 weeks air drying following treatment and before fixing.
- 055 Provide a copy of the relevant Preservation Treatment Certificate to the Client's Representative.

Adhesives

- 056 Ensure adhesives for:
- exterior use are synthetic resin type WBP; and
 - interior use are synthetic resin type of moisture resistant durability ("MR").

Timber fillers for rotted woods

- 057 Ensure timber fillers for rotted softwoods and hardwoods are a complete system appropriate for the type of wood.

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Storage of material

- 058 Protect joinery from the weather during transit. At all times before fixing, both before and after priming, store it under cover and clear of the ground.

Door frames and linings

- 059 Ensure external door frames without cills have 12.5mm diameter x 100mm long galvanised steel dowels housed into the bottom of each leg leaving 50mm projecting. Ensure the frames for fire resisting doors are of a type approved by the Client's Representative. Ensure frames for half hour doors have 25mm minimum stops.

Doors generally

- 060 Note that fire door ratings in the Schedule of Rates are shown in hours. Ensure the integrity of the door (including all hinges, ironmongery etc) achieves this when fitted to a frame with or without intumescent strips. Where it is necessary to use hinge packers or pads on fire rated doors, frames or door sets ensure that only intumescent types are used.
- 061 Ensure all external doors (other than flush doors) are from solid timbers. Do not use veneers or laminations.

Ledged and braced doors

- 062 Ensure ledged and braced doors consist of 3 No. 150mm x 25mm horizontal ledges with bevelled edges, 125 x 25mm, parallel braces and 100 x 19mm tongued and grooved and V-jointed matching with:
- the braces being obliquely jointed to the ledges with their lower ends adjacent to the hanging side of the door;
 - each board being nailed to the ledges and braces using at least 2 No. nails 50mm long at each ledge and one at each brace;
 - the ends of ledges being screwed back to the match boarding from inside and stopped in;
 - all timber being primed before the door is assembled; and
 - the end grain being primed with two coats of aluminium primer.

Framed, ledged and braced doors

- 063 Ensure framed, ledged and braced doors consist of 100 x 50mm stiles and top rail, 175 x 38mm middle and bottom rails, 100 x 38mm braces and 100 x 12mm tongued and grooved V-matching with:
- the top rail being haunched, morticed and tenoned to the stiles;
 - the middle and bottom rails being bare faced, morticed and tenoned to the stiles;
 - the top rails grooved to receive the tongues of the tongued and grooved V-jointed matching;
 - the braces being stub tenoned into the rails and stiles;
 - the tongued and grooved V-jointed matching being secured to the rails and braces by lost head nails hammered in from the faces;
 - all joints being jointed with WBP glue to standard and quality approved by the Client's Representative;
 - all boarding and timber faces covered being primed before assembly including all rails, grooves and matching;
 - the end grain being primed with aluminium primer;
 - the frame being securely cramped;
 - all mortice and tenon joints being secured with hardwood wedges well driven home; and
 - the whole being assembled perfectly square and free from winding.

Flush doors

- 064 Ensure 35 or 40mm thick internal flush doors consist of a skeleton or honeycomb core, lipped on two stiles with hardwood strips – each lipping should be a minimum of 6mm and to be full thickness of the door.

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- 065 Hardwood faced doors are to have selected hardwood veneered, MDF or High density chipboard of 3.2mm thickness, Veneer type: Koto, Beech, African Mahogany, Maple, Cheery, Oak or Sapele lippings to match or compliment face veneer, pre-finished factory applied clear lacquer to both faces.
- 066 Ensure 44mm thick external flush doors are faced on both sides with 6mm external quality resin bonded plywood, for painting or staining to applicable Standard on a solid core. Provide glazing apertures with a rebated, sunk and rounded Utile cover mould and Utile hardwood glazing beads with mitred angles. Ensure the glazing cover piece and beads are no less than that required by the relevant applicable Standard or equivalent for glazed apertures.
- 067 Opening for glass to be 400mm x 600mm high.

Half-glazed flush doors

- 068 Ensure the opening for glass in doors described as half-glazed:
- extends the full width between stiles; and
 - is at least 680mm high.
- 069 Ensure:
- glazing apertures are provided with a rebated, sunk and rounded Utile cover mould and Utile hardwood glazing beads with angles mitred; and
 - the glazing cover piece and beads are no less than that required by the relevant applicable Standard or equivalent for glazed apertures.

Panel doors

- 070 Ensure panel doors:
- are jointed with mortice and tenon joints and WBP glue;
 - have ply panels that are a minimum of 6mm thick external quality WBP plywood for painting or staining; and
 - have the joint between the ply, stiles and rails sealed at the time of assembly with primer.

Fire check flush doors

- 071 Ensure fire check flush doors are to the fire rating specified in the Schedule of Rates and this Specification.

Windows

- 072 Provide timber windows with guarantees as table below. Provide timber surrounds for steel windows as approved by the Client’s Representative.

Timber Frames	30 year guarantee against fungal attack
Timber Window Manufacturing Defects	10 Year guarantee
Timber Window (Factory Painted External Joinery)	10 Year guarantee (as minimum)
Timber Window (Factory Stained External Joinery)	6 Year guarantee (as minimum)
Hardware Components	10 Year guarantee (as minimum)
Double Glazed Units	15 Year guarantee (as minimum)

PVC-u doors and windows

- 073 Ensure all PVC-u windows and doors are:
- constructed from high impact modified PVC-u; and
 - manufactured from base materials guaranteed against decomposition and for colour fastness for a minimum of 25 (twenty five) years.
- 074 Guarantee the fabrication of all PVC-u frames and sashes against failure of welds, mechanical joints etc., for a minimum of 25 (twenty five) years.

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- 075 Guarantee double glazed units against failure of the unit for a minimum of 15 (fifteen) years.
- 076 Guarantee hardware components against failure of the unit for a minimum of 10 (ten) years.
- 077 Protect PVC-u items against damage during the course of fixing.
- 078 Ensure windows provided can be opened to allow a secure trickle ventilation.
- 079 Ensure the accurate measurement of the Works and correct any measurement errors. (Tolerances – the overall height and width of an assembled frame shall not differ from the work size by more than +/- 3mm when measured at (20 +/- 5) °C, with a maximum difference of 3mm at any point. For assemblies with outer frames having three or more joints per frame member, the deviation shall not be more than 4mm when similarly measured. Frame assemblies shall be such that they can be installed in a square opening with a maximum difference in the diagonal of 4mm).
- 080 Ensure all window frames show a 50mm-60mm face on the outside of the frame.
- 081 Construct doors from a profile with a minimum of 100mm width showing face.
- 082 Ensure doors:
1. are double panelled type 2XG or 2XGG;
 2. have the top panel double glazed in toughened glass;
 3. have a bottom panel similarly double glazed or PVC-u skinned/foam sandwich with PVC-u frame; and
 4. have the panels screwed and wedged.
- 083 Use door and window furniture suitable for the doors and windows approved by the Client's Representative that meets the following requirements:
5. door locks and furniture comprise:
 6. 1½ pairs of heavy duty hinges;
 7. cylinder lock;
 8. letter plate - white plastic gravity type (front doors only);
 9. 1 No. heavy duty multi-point lift lever espagnolette locking system with return lever handle action to horizontal position when locked;
 10. lever handles;
 11. numerals (front doors only);
 12. stormproof cill/threshold with integral weather seals; and
 13. rain deflector/weatherboard;
 14. turn tilt windows have:
 15. a key operated 'tilt barrier' approved by the Client's Representative;
 16. child locks, where the windows are fitted on or above the first floor level; and
 17. a switch barrier; and
 18. casement windows (outward opening) have:
 19. friction hinges with espagnolette fittings and locking furniture on all opening windows irrespective of configuration; and
 20. child locks, where the windows are on or above the first floor level.
- 084 Ensure door and window furniture is SAA or brass finished as approved by the Client's Representative or as specified on the Order.
- 085 Use only PVC-u windows/doors approved by the Client's Representative unless specified on the Order.

Sealant

- 086 For pointing around window and door frames use sealants:
- 1) to applicable Standard with fungicide;
 - 2) coloured to match existing; and
 - 3) that are suitable for sealing to timber, aluminium and PVC-u windows and doors, as applicable.

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087 Silicone sealant to applicable Standard with fungicide.

088 Repointing existing door and window frames with silicone sealant is to be undertaken by cutting away the existing mastic pointing with a sharp knife, cutting away any existing sand/cement pointing, ensuring that the surfaces to be jointed are completely dry and clean, the depth of sealant is to fill all resulting voids.

Combustion air grilles

089 When repairing or renewing items which incorporate combustion air grilles:

- use either the salvaged air grille (if it is in sound condition) or combustion air grilles as approved by the Client's Representative; and
- ensure apertures are maintained in the repair or renewed items.

Fibre cement insulating board

090 Use insulating board that is asbestos free and has a sanded finish.

Boards and panels

091 Do not use cross joints in board coverings.

PVC-u fascias/soffits/cladding and components

092 Ensure PVC-u fascias, soffits, cladding and components are:

- cellular PVC-u with a low density (closed cell) core and homogeneous skin;
- with self coloured, smooth, semi-matt finish;
- of sections and profiles approved by the Client's Representative.

Architraves, reveal linings, window boards and mouldings

093 Ensure replacement items match the existing (which may be of varying profiles and shapes). Where painted softwood skirtings and architraves are specified, at the Provider's option use an approved MDF equivalent where approved by the Client's Representative.

094 PVC-u cill board is to be bull nosed or square edged, manufactured from low density cellular (closed cell) core and homogeneous impact resistant skin of PVC-u in accordance with to applicable Standard UV stability and UV aged impact, resistance requirements.

095 Cill board to be maximum 155mm wide and minimum 9mm thick.

- Weight: Average density 500 kg/m³.
- Tolerance deviations of: +/-12.5% per m, width +/- 1.5mm, thickness +/- 0.5mm.
- Flatness: Must not exceed +/- 0.6mm over 100mm. Linear thermal expansion of less than 7mm x 10.5 dgs. C.
- Tested in accordance with applicable Standard Method 13. Fire Resistance:
- Satisfy the requirements of applicable Standard Class 1 Surface spread of flame and Index 1 = 15.4 Fire propagation. Colour Fastness: In accordance with to applicable Standard.
- Water Absorption: Less than 1.0% when tested in accordance with applicable Standard.
- Appearance: Self-coloured smooth gloss finish.
- Method of Fixing: As specified by manufacturer.
- Generally proprietary brand of adhesive or low modulus silicon.
- Edge Trims: Matching colour.
- Edge Trims: Single part PVC-u trims as per manufacturers details and fixed in accordance with manufacturers' technical data sheet.

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Polythene vapour barrier

- 096 For a polythene vapour barrier use a type of sheet approved by the Client's Representative and fixed with all joints lapped and made with double folds and taped.

Ironmongery

- 097 Carefully wrap and protect ironmongery until completion of the Works. Either replace with new or re-lacquer any defaced or damaged ironmongery as Instructed by the Client's Representative.
- 098 Use screws conforming to the applicable Standard, and of a suitable gauge and Material for the purpose and to match the article to be fixed.
- 099 Lubricate locks, etc., with graphite and leave them in perfect working order on completion of the Works. Properly label and deliver up all keys to or as Instructed by the Client's Representative.
- 100 Use black japanned tee hinges and Suffolk latches.
- 101 Ensure that letter plates comply with the Royal Mail's minimum size standards in accordance with to applicable Standard. Ensure letter plates provided in fire doors conform to the fire rating of the door.
- 102 Unless the Order states otherwise provide all ironmongery to new, renewed or replacement timber doors in accordance with the following:

for external front doors:

- 1½ pairs 100mm heavy duty satin stainless steel butt hinges to applicable Standard (to be fire rated if for fire doors);
- 1 No. cylinder security night latch with latch pull, with deadlocking arrangements;
- 1 No. 65 or 75mm 5-lever mortice deadlock and keep;
- 1 set escutcheons;
- or multipoint locking system
- 1 No. letter plate - gravity type to applicable Standard; (fire rated for fire doors)
- 1 No. security door chain;
- stormproof sill/threshold with integral weather seals;
- rain deflector/weatherboard;
- intumescent seals (fire doors only); and
- door numerals;

for external rear doors:

- 1½ pairs 100mm heavy duty satin stainless steel butt hinges to applicable Standard; (to be fire rated if for fire doors);
- 1 No. 100mm 5-lever mortice lock/latch and keep;
- 1 set lever furniture/handles;
- or multipoint locking system;
- 2 No. mortice security bolts;
- stormproof sill/threshold with integral weather seals;
- rain deflector/weatherboard; and
- Intumescent seals (fire doors only);

for internal doors:

- 1 pair 75mm medium duty mild steel with fixed pin (non removable) butt hinges (1½ pair fire rated heavy duty satin stainless steel hinges to applicable Standard for fire-check doors);
- 1 No. 65 or 75mm tubular mortice latch and keep;
- 1 set lever furniture/handles; and
- intumescent seals (fire doors only);

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for bathroom/wc doors:

- 1 pair 75mm medium duty mild steel with fixed pin (non removable) butt hinges (1½ pair fire rated heavy duty satin stainless steel hinges to applicable Standard to communal W.C's and bathrooms opening onto a means of escape);
- 1 No. 65 or 75mm mortice bathroom lock/latch and keep with reversible solid brass latch bolt to applicable Standard;
- 1 set lever bathroom furniture/handles with snib/indicator, deadbolt operated by turn button with emergency release;
- intumescent seals (fire doors only); and

for external match-boarded doors:

- 1 pair 457mm steel tee hinges;
- 1 No. rim lock and keep; and
- 1 set knob furniture.

- 103 Ensure that all door hinges, ironmongery and other hardware has a minimum fire rating to match the door, frame or door set on which it is used.
- 104 Ensure all door furniture is SAA or brass finished as approved by the Client's Representative or as specified on the Order.

Kitchen units/worktops in Repairs

- 105 Ensure kitchen units are manufactured to meet strength specification level 'H' and have fully repairable carcassing.
- 106 Ensure worktops are manufactured using laminated moisture resistant chipboard core and are consistent with existing worktops. Ensure all post-formed worktops are constructed using particleboard with minimum 'P5' classification (but if 'P5' is not obtainable construct only square edge and double post-formed worktops using particleboard with minimum 'P3' classification).
- 107 Ensure metal fittings and screws conforming to the applicable Standard, used in manufacture are plated against corrosion. Use metal corner gussets as fixing posts.
- 108 Take all necessary precautions to protect units and worktops from damage. Either make good any damage caused or replace Materials as Instructed by the Client's Representative. Ensure that, when fitted, all doors and drawers operate smoothly.
- 109 Where existing fixing holes cannot be used for hinges, use a steel cabinet strengthening plate, fixed four times to the unit and hinges fixed with self-tapping screws to the plate.

Chrome supporting leg

- 110 Ensure the worktop supporting leg is 30mm in diameter chrome plated and fixed to the worktop and floor with retaining plates and screws.
- 111 Aluminium square edge worktop end trim to applicable Standard, fixing with aluminium screws; bedding in silicone sealant.
- 112 Aluminium insert junctions to applicable Standard, bedding in silicone sealant.
- 113 Aluminium and rubber clip on cover beads to standard and quality approved by the Client's Representative, fixing with aluminium screws.
- 114 Chrome cover fillets of an approved type and manufacture, bedding and twice pointing in silicone sealant.

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Handrails etc.,

- 115 Handrail brackets are to be cast aluminium or mild steel and fixed securely to timber with appropriate screws, finish: as specified.
- 116 Fixing brackets are to be galvanised steel to comply with applicable Standard, fixed securely to timber frame with three 30mm x 1½ mm galvanised screws.
- 117 Newel brackets are to be galvanised steel, fixed securely with bolts
- 118 Aluminium angle bearers are to comply with applicable Standard, 6063tf standard, anodised finish to applicable Standard, fixed securely to floor with galvanised steel screws.

WORKMANSHIP

Generally

- 119 Ensure carpentry work is framed and put together in a substantial and workmanlike manner.
- 120 Ensure joinery work is accurately set out, framed and executed in accordance with manufacturer's drawings and finished off in a workmanlike manner.
- 121 Put together purpose made doors and other framed work immediately upon the general work being commenced, but do not glue and wedge them until the joinery is prepared in readiness for immediate fixing.
- 122 Finish off machine planning and moulding smooth by hand.
- 123 Ensure exposed faces of joinery are wrought and all arises slightly rounded.
- 124 Punch and putty nails and pins in exposed work.

Plugging

- 125 Note that in this Section 'plug', 'plugged' or 'plugging':
 - means fix to concrete, brickwork or blockwork and similar surfaces;
 - includes supplying and fixing with proprietary fixings; and
 - includes shot fired fixing.
- 126 For bolted joints, locate holes accurately and drill to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger, place washers under all bolt heads and nuts which bear directly on timber, - tighten bolts so that washers just bite the surface of the timber and at least one complete thread protrudes from the nut. Check at agreed regular intervals up to practical completion and tighten as necessary to prevent slackening of joints.
- 127 Ensure that wall plates are positioned and aligned to give the correct span and level for trusses, joists, etc. Wall plate to be fully bedded in fresh mortar in lengths of not less than 3 m with half lap joints. Wall plates shall be treated in accordance with Clause 015.
- 128 Installing joists generally, position at equal centres not exceeding designed spacing and true to level. Install bowed joists with positive camber. Bed hangers directly on and hard against supporting construction, do not use packs or bed on mortar. Cut joists to leave not more than 6 mm gap between ends of joists and back of hanger, rebate joists to lie flush with underside of hangers, fix joists to galvanised steel hangers with a nail in every hole, hanger size to suit joist, design load and crushing strength of supporting construction.
- 129 Trimming openings when not specified otherwise, trimmers and trimming joists to be not less than 25 mm wider than general joists.

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- 130 When installing trussed rafters, carefully inspect each truss before erection to ensure compliance with shop drawings and specification, including grades and sizes of members, types, sizes and positions of nail plates, - gaps between ends of members at joints, and full penetration of nails.
- Erect trusses plumb, at equal centres not exceeding designed spacing and in accordance with applicable Standard
- 131 Do not use damaged trusses and do not modify without consent of the Client's Representative. Fix securely with truss clips ensuring that rafters do not bear on wall plates. Do not fix ceiling chords to internal walls until roofing is complete and cisterns installed and filled.
- 132 Permanent bracing of trussed rafters is to be set out as shown on drawings. Fix bracing and binders to every rafter, strut or tie with not less than two 75mm x 3.35 mm galvanized round wire nails. Any lap joints must be side by side extending over and nailed to at least two truss members. Where a binder crosses a brace, interrupt and plate the binder.

Repairs to Redwood Sills of Timber Windows

- 133 Cut out decayed timber and carry out repair using 'Dry Flex System' or other equal and approved. All in accordance with 'Window Care Systems' recommendations, approved method of working using correct tools. Maximum dimension of each resin repair as opposed to timber splice to be agreed with the Client's Representative prior to works commencing.

Repairs to Hardwood Sills of Timber Windows:

- 134 Cut out decayed timber and carry out repair using 'a proprietary timber repair system approved by the Client's Representative. All in accordance with 'Window Care Systems' recommendations, approved method of working using correct tools. Maximum dimension of each resin repair as opposed to timber splice to be agreed with the Client's Representative prior to works commencing.

Repairs to Timber Internal Door Frames:

- 135 Cut out decayed timber along the grain for a distance of 300mm (min) beyond the last visible sign of attack. The joint of new and existing timber shall be formed by means of 45° - 60° splice. New timber to be jointed to existing by means of galvanised screws or nails and adhesive and plugged and screwed to wall. New timber members shall match profile of existing. "Dry Flex System" or other equal and approved may be used as a viable alternative to new timber section. Maximum dimension of each resin repair as opposed to timber splice to be agreed with the Client's Representative prior to works commencing. Dispose of defective timber immediately.

Repairs to Timber External Door and Window Frames:

- 136 Cut out decayed timber along the grain for a distance of 300mm (min) beyond the last visible sign of attack. The joint of new and existing timber shall be formed by means of 45° - 60° splice. The new timber shall be redwood to applicable Standard Classes 2 and 3 or hardwood to applicable Standard, double vacuum treated in accordance with applicable Standard and all cut ends shall be dipped in similar preservative fluid before fixing in position. New timber to be jointed to existing by means of galvanised screws or nails and adhesive and plugged and screwed to wall. New timber members shall match profile of existing. "Dry Flex System" or other equal and approved may also be used as a viable alternative to new timber section. Maximum dimension of each resin repair as opposed to timber splice to be agreed with the Client's Representative prior to works commencing. Dispose of defective timber immediately.

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Repairs to Hardwood Sills of Timber Windows:

- 137 Cut out decayed timber along the grain for a distance of 300mm (min) beyond the last visible sign of attack. The joint of new and existing timber shall be formed by means of 45° - 60° splice. The new timber shall be hardwood to applicable Standard, Class 1 and all cut ends shall be dipped in similar preservative fluid before fixing in position. New timber to be jointed to existing by means of galvanised screws or nails and plugged and screwed to wall. New timber members shall match profile of existing. "Dry Flex System" or other equal and approved may be used as a viable alternative to new timber section. Maximum dimension of each resin repair as opposed to timber splice to be agreed with the Client's Representative prior to works commencing. Dispose of defective timber immediately.

Replacing Structural Members:

- 138 Cut out decayed/infested timber along the grain for a distance of one metre beyond the last sign of attack. The joint of new and existing timber shall be formed by means of a half lapped joint at least twice the length of the member in depth; the new timbers should make-up the bottom section of the joint if timbers are horizontally placed. For the new timber, use a preservative treated whitewood from a source approved by the Client's Representative. Existing timbers ends exposed by cutting/jointing must be treated with preservative. New timber shall be jointed to existing by means of bolts. Connection to be affected with at least 4 number 12.5mm diameter mild steel bolts with locking nuts and dog washers. New timber members shall match profile of existing. Dispose of defective timber immediately.

Replacing Preservative Treated Structural Members:

- 139 Cut out decayed/infested timber along the grain for a distance of one metre beyond the last sign of attack. The joint of new and existing timber shall be formed by means of a lapped joint at least twice the depth of the member in length. New timber shall be jointed to existing by means of galvanised bolts. Connection to be effected with at least 4 number 12.5mm diameter mild steel bolts with locking nuts and dog washers. New timber members shall match profile of existing. Dispose of defective timber immediately.

Replacing Treads and Risers:

- 140 Remove any plasterboard and trimmings as necessary to underside of staircase. Defective treads and risers to staircase are to be removed. Replacement whitewood treads and plywood risers to profile of previous to be housed into string. Wedges and blocks to be adhesive fixed in position. Internal Grade 1-1 plywood risers to be adhesive fixed and screwed to back of treads. All work to be executed from underside. Dispose of defective timber immediately.

Softwood flooring/board flooring

- 141 Renew floorboards carefully so as to avoid damaging the ceiling below the floor. Remove tongued and grooved boards by carefully sawing through the tongues and forming a heading joint adjacent to a joist. When replacing the boards, provide additional support at the heading joint using timber 50 x 25mm secured to the joist.
- 142 Where a number of floorboards require renewal, well clamp up the new boards to form tight joints and nail them up with two lost head nails punched and putted per board, per joint. Fix access traps with screws. Take care when fixing the floorboards not to puncture or damage any existing services.
- 143 Provide all additional support battens, noggins etc., required to support the boards.

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Timber door frames and door linings

- 144 For new door frames and linings, use a minimum of three sets of fixings to each leg, each set comprising two fixings (either timber plugs and nails or proprietary plastic plugs and screws as appropriate to the quality of the fixing background). Where external door frames do not have timber cills, provide galvanised steel dowels in the legs, grouted into the building structure with cement mortar (1:3).
- 145 Fix existing door frames or linings which have become loose through the frame using proprietary sleeved screw fixing devices approved by the Client's Representative.
- 146 Sink the heads of fixings below the surface of the frame and the recess and fill them with an approved filler.

Softwood window frames

- 147 Fix softwood windows and softwood window surrounds in the same way as for fixing door frames and lining legs.

Metal window frames

- 148 Bed metal windows in a butyl rubber sealant and fix them to wood window surrounds which have been treated to applicable Standard with galvanised or cadmium plated screws or alternatively by stainless steel fixing clamps or brackets and proprietary plastic plugs and approved rust proof screws.

Window/door replacement

- 149 All replacement windows and doors in repairs and ad-hoc renewals are to be to applicable Standard. Undertake window/door replacements that involve removal of the primary frame from the building and associated glazing in accordance with the current Building Regulations, Approved Document L.

Fire rated doors/frames/door-sets – repair, replacement and installation

- 150 Ensure that the repair, replacement and/or installation of internal/external fire rated doors, door frames, door-sets and any associated components such as stops, architraves, thresholds, trims, seals, ironmongery and the like is undertaken only by persons that are properly accredited to do so by having been certified by BMtrada, or other approved equivalent organisation.

Sealant

- 151 Before pointing around existing window and door frames, pick out all loose materials and insert a cellular backing appropriate to the type of sealant in the joint between the frame and wall. Use a sealant as specified, inserted by pressure gun to form a neat uniform beaded finish.

Stud partitions

- 152 For stud partitions use suitably sized softwood head and sole plates with studs at 400mm centres horizontally and noggins at 1200mm centres vertically. Butt joint quilts and fill the entire void.

Kitchen units

- 153 All kitchen units in repairs and ad-hoc renewals are to be to applicable Standard. Fix base units with proprietary metal or plastic fixing brackets, plastic plugs and screws and the joint between the worktop and wall pointed with a neat bead of anti-mould white silicone sealant.
- 154 Fix wall units with proprietary metal or plastic fixing brackets, plastic plugs and screws and also support them on full length softwood cleats of not less than 50 x 25mm.

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Worktops

- 155 All worktops in repairs and ad-hoc renewals are to be to applicable Standard. Fix worktops to base units on metal or plastic brackets with self-tapping screws. Support worktops with a void under by 50 x 25mm softwood cleats securely fixed to any background on at least three sides. If this cannot be achieved, support the sides affected on a flanged tubular steel support fixed to the floor with proprietary plastic plugs and screws and to the worktop with appropriate self-tapping screws. Seal/treat all cut edges to prevent the ingress of moisture, square cut with matching veneer to exposed ends.

Fixing PVC-u doors and windows

- 156 PVC-u windows and doors in repairs and ad-hoc renewals are to be to applicable Standard and manufactured to applicable Standard. Take out the existing door/window and hack off render/plaster as far as necessary to accommodate the window fixing cramps in window reveals. Supply and install support lintels over the new window/door opening. Where the original brickwork is carried over the window/door i.e. soldier course, make good the brickwork as necessary. Remove all rubbish and leave the window/door opening ready to receive the new window/door. Lintels to be in accordance with current Building Regulations, Approved Document A.
- 157 Fix the PVC-u double glazed window/door with or without a cill directly into the prepared brick reveals using galvanised twist-in-lugs, approved by the Client's Representative, screwed to the reveals using galvanised screws. Seal the windows to the masonry openings with silicone sealant approved by the Client's Representative. Protect the windows during the course of the Works. Fix all windows directly to the inside face of the vertical DPC. Remove all old mastic from the brick face.
- 158 Where appropriate supply and fix an approved PVC-u cellular core window board, fixed with screw on lugs, fixed to the wall, together with 19mm PVC-u quadrant beading, glued to the window boards and window frame using an appropriate adhesive.
- 159 Make good to all internal window reveals with backing and finished plaster and leave ready for redecoration.
- 160 Replace the windows/doors that have been removed with new windows/doors and make them weather-tight before the Staff leave the Property at the end of each Working Day.

Fixings/Adhesives

- 161 Fixing generally: Use fixing and jointing methods and types, sizes, quantities and spacings of fastenings which are suitable having regard to nature of and compatibility with product/material being fixed and fixed to recommendations of manufacturers of fastenings and manufacturers of components, products or materials being fixed and fixed to materials and loads to be supported. Provide additional noggings/grounds/bearers as necessary to provide adequate fixing and support.
- 162 Adhesive types: As specified in the relevant section. Surfaces to receive adhesive to be sound, unfrozen, free from dust, grease and any other contamination likely to affect bond. Where necessary, clean surfaces using methods and materials recommended by adhesive manufacturer.
- 163 Ensure surfaces to be of sufficient smoothness and evenness to suit gap filling and bonding characteristics of adhesive. Adjust as necessary, ensure that operatives observe manufacturer's and statutory requirements for storage and safe usage of adhesives. Do not use adhesives in unsuitable environmental conditions or beyond the manufacturer's recommended time period. Apply adhesives using recommended spreaders/applicators to ensure correct coverage. Bring surfaces together within recommended time period and apply pressure evenly over full area of contact surfaces to ensure full bonding. Remove surplus adhesive using methods and materials recommended by adhesive manufacturer and without damage to affected surfaces.

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- 164 Fixing Through Finishes: ensure that fastenings and plugs (if used) have ample penetration into the backing.
- 165 Pelleting: Countersink screw heads 6 mm below timber surface and glue in grain-matched pellets not less than 6 mm thick, cut from matching timber. Finish off flush with face.

Expanding Polyurethane Foam

- 166 Expanding polyurethane foam must be of an approved fire resistant type complying with applicable Standard and be of the correct fire performance rating for its intended use or application to ensure Building Regulations compliance.

Sun Pipes

- 167 Proprietary Rigid Sun Pipe to Pitched Roof

Generally will supplied and installed to the following specification:

- Pipe material: Rigid aluminium.
- Diameter: 240 – 360 mm
- Tunnel length: Up to 6 m maximum.
- Tunnel reflectance: Greater than 97%.
- Roof terminal: Proprietary polycarbonate dome (opal / UV protected) or 4 mm toughened glass in polyurethane frame.
- Ceiling terminal: Double glazed diffuser.
- Accessories: 30° – 45° proprietary bends as required. (Total number of bends to be kept to a minimum).
- Proprietary extension sections as required.
- Flashing: To suit interlocking concrete roof tiling.
- Installation: In accordance with manufacturers' technical data sheet

- 168 Proprietary Flexible Sun Pipe to Pitched Roof

Generally will supplied and installed to the following specification:

- Pipe material: Flexible metallized polyester.
- Diameter: 350 – 360 mm
- Tunnel length: Up to 1.5 m maximum.
- Roof terminal: Polycarbonate dome (opal / UV protected).
- Ceiling terminal: Double glazed diffuser.
- Flashing: To suit interlocking concrete roof tiling.
- Installation: In accordance with manufacturers' technical data sheet.

- 169 Proprietary Rigid Sun Pipe to Flat Roof

Generally will supplied and installed to the following specification:

- Pipe material: Rigid aluminium.
- Diameter: 240 – 360 mm
- Tunnel length: Up to 6 m maximum.
- Tunnel reflectance: Greater than 97%.
- Roof terminal: Proprietary polycarbonate dome (opal / UV protected).
- Ceiling terminal: Double glazed diffuser.
- Accessories: 30° – 45° proprietary bends as required. (Total number of bends to be kept to a minimum).
- Proprietary extension sections as required.
- Flashing: To suit flat roof construction.
- Installation: In accordance with manufacturers' technical data sheet.

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170 Proprietary Flexible Sun Pipe to Flat Roof

Generally will supplied and installed to the following specification:

- Pipe material: Flexible metallized polyester.
- Diameter: 350 – 360 mm
- Tunnel length: Up to 0.9 m maximum.
- Roof terminal: Proprietary polycarbonate dome (opal / UV protected).
- Ceiling terminal: Double glazed diffuser.
- Flashing: To suit flat roof construction.
- Installation: In accordance with manufacturers' technical data sheet

Servicing of Timber Window Frames

171 **General servicing requirements for timber window frames**

The degree of servicing required to timber window frames will be decided by the Client's Representative. The servicing should fall into one or other of the following categories.

172 **Condition of the frame and sash**

- The simplest form of servicing would be to ease and adjust the opening sash.
- Severely damaged opening sashes should be replaced as original.
- The fixed frame presents greater problems to repair but 'Window Care Dry Flex System' should be considered as a viable alternative to replacement.
- On completion the bare timber must be coated as original.

173 **Conditions of surface coating**

- Touching up is generally discouraged as weather conditions have an adverse effect on all surface coatings.
- The preferred option is to re-coat all window surfaces as original with light sanding between each coat.

174 **Condition of ironmongery**

- Damaged ironmongery should be replaced with matching or product similar to existing ironmongery and fitted as per manufacturer's technical data sheet
- Back flap or cranked hinges seldom require servicing, however service with light oiling with release oil/lubricant spray
- Friction hinges require light oiling with release oil/lubricant spray during servicing
- Replace all defective hinges as recommended by manufacture.
- Loose casement stays and handles should be re-fixed either by using longer screws or reuse the original screws by plugging the original screw hole.
- Tilt/turn and fully reversible gearing systems should be serviced by a qualified service engineer.
- Trickle vents should be cleaned of all paint, dirt, dust etc. and left in an operational state. Replace parts as necessary.
- Condensation holes/channels were present should be cleaned of all paint, dirt, dust etc. and left in an operational state.
- All existing safety restrictors to be checked for correct operation. Where correct operation is not being achieved, adjustments should be made. If adjustments do not prove adequate replace the restrictor. On finishing the dwelling/property, all opening sashes are to be fitted with a safety restrictor. Each dwelling should be fitted with similar restrictors throughout – thus removing possible confusion in the event of a fire.

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175 Condition of glass and glazing

- All damaged glass should be carefully removed before the removal of glazing slips or facing putty.
- Cracked glass should be taped to prevent accidents.
- When all glass is removed the rebates should be cleaned and primed with the appropriate primer before re-glazing.
- When slip glazing is used the bottom slip must be bedded in 'Dry Seal Elastic Glazing Sealant' to prevent ingress of water.
- Linseed oil putty must NOT be used.

176 Glazing medium

'Elastic Glazing Sealant' is the only option for face pointing. Linseed oil putty must NOT be used.

177 Draught Proofing

Draught proofing to existing window frames can usually be effected by using one of five different methods:

- Appropriately sized extruded foam with one side self adhesive; this if fitted to the frame rebate/inside face of sash.
- A co-extruded flexible seal with the rigid section nailed to the sash and the flap touching the sash. This component may have a metal rigid section.
- A bulbous extruded seal, again with the flat section nailed to the inside rebate of the frame and the bulbous section touching the sash.
- Replacement neoprene seals (if fitted) to match existing profile and colour.
- Silicon sealing. This method of draught proofing should be avoided and only undertaken after written advice and clarification is received from Policy and Standards.

In all cases some slight difficulty may be experienced when closing the sash and generally adjustment of ironmongery may be necessary.

Servicing of PVC-u Window Frames

General servicing requirements for PVC-U window frames

178 Ventilation and drainage:

All:

- Trickle vents (either in-frame, in-glazing or other)
- Condensation holes/channels (were present)

should be cleaned of all paint, dirt, dust etc. and left in an operational state. Replace parts as necessary.

179 Seals and gaskets:

- Check neoprene seals and gaskets for wear/failure and replace seals/gaskets as necessary. Replacement seals to match existing profile and colour.
- Clean of all paint, dirt, dust etc. from seals/gaskets and apply a spray coat of silicate lubricant (remove access lubricant).

180 Ironmongery:

- Damaged ironmongery should be replaced with matching or product similar to existing ironmongery and fitted as per manufactures instructions.

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181 Hinges:

Hinges should be cleaned of all paint, dirt, dust etc. and left in an operational state. Hinge oil/lubricant is to be applied and hinge restraint screws adjusted accordingly. Replace parts as necessary.

182 Safety restrictors:

All existing safety restrictors to be checked for correct operation. Where correct operation is not being achieved, adjustments should be made. If adjustments do not prove adequate replace the restrictor.

183 On finishing the Property, all opening sashes are to be fitted with a safety restrictor. Each Property should be fitted with similar restrictors throughout – thus removing possible confusion in the event of a fire.

Cleaning PVC-u window frames

184 Sash frames and window frames are to be fully cleaned of all paint, dirt, dust etc. and left in an operational state.

185 Dirty marks on frames can be easily removed by using cleaning materials as indicated on the following table.

186 Cleaning cloths should be unbleached cotton. Do not use cloths containing synthetic fibres.

187 Heavy stains and deep scratching can be removed from white profiles only by sanding with a 320/400 grit sanding disc and by polishing using a sisal rotary brush to restore surface finish.

188 On wood grain surfaces care must be taken when cleaning. Seek manufacturer's advice on damaged wood grain surfaces.

Condition of glass and glazing

189 Check condition of glass;

- All damaged glass should be carefully removed before the removal of glazing slips.
- Cracked glass should be taped to prevent accidents.
- When all glass is removed the rebates should be cleaned

Typical problems and remedial action

190 Incorrect glazing and fixing of frames to masonry are the cause of most maintenance problems.

The following is an indication of typical problems and remedial action.

191 Opening sashes that have dropped during use:

- Check hinges for wear/adjustment remove wedge gaskets.
- Remove glazing beads internal or external.
- Repack glass to manufacturers recommendations.
- Refit glazing slips and gaskets.

192 Bowed cills/stiles:

- Incorrect packing generally the case.
- Re-glaze as Clause 175 and secure packers to prevent further movement.
- Taking care not to block drainage/air circulation channels and/or slots.

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193 Sashes not sealing properly or engaging keepers:

- Check adjustment hinges and keepers.
- Check that the glass is packed at locking points, if not packed carry out work as manufacturer's technical data sheet.
- Check also that the glass is packed at the position of frame fixings.
- Check gaskets for wear/failure.

194 Broken/cracked glass:

- Remove if possible pieces of broken glass before removing glazing beads.
- Cracked glass should be taped to avoid accidents, before removing gaskets or glazing beads. Remove gaskets, remove glazing beads.
- Carefully remove damaged unit or sheet glass.
- Replace and re-glaze as per manufacturer's instruction, taking care to fit packers as recommended.

195 Opening sash adjustment.

All necessary adjustment should be completed after glazing. All hinges should be lightly oiled at periodic intervals. If glazing is completed as per manufacturer's instruction, little or no adjustment will be necessary. However, should adjustment be necessary the following steps should be taken:-

- Check margin of sash to frame.
- Remove centre screw on friction arm.
- Release two outer screws and then reposition the sash.
- Check that the overlap sash to frame is sufficient (5 mm min).
- Retighten the outer screws; replace the centre screw to ensure no further movement of the sash. The friction on the friction stay can be adjusted using the screw on the friction stay fixed member.
- Where adjustable espagnolettes have been fitted the rollers can be adjusted to gain compression of the weather gasket with the use of an Allen key by turning the rollers about their eccentric cams.

196 Should problems still exist when the sash is closed and the overlap to frame is equal refer to the below table for possible cause.

Upgrading

197 When upgrading from single to double glazing units, consider the strength of the existing hinges with regard to the additional weight of the double glazed unit and replace if required.

198 NOTE: It is recommended that all servicing work is carried out by a specialist service engineer

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CHECK LIST A

PROBLEM	CAUSE	ACTION
Sash hits keeper	- Frame bowed opening to rear	Re-glaze Reposition hinge
Cam hits striker	- Striker in wrong place	Reposition
Handle operation stiff	- Cams not adjusted - Keepers out of line	- Adjust cam - Realign and oil
Draughts	- Bowing members	- Re-glaze - Fit cavity block
	- Overlap incorrect - Both overlaps incorrect	- Reposition - Remake sash
	- Gasket problem	- Repair or replace
Sash moves too easily	Friction screw set incorrectly	Tighten Friction screw
Sash binding	Friction screw set incorrectly Outer frame bowed	Loosen friction screw Repack outer frame

CHECK LIST B

COMTAMINATION	CLEANING METHOD			
	Scrape off and Polish with Dry Cloth	Clean with water and mild detergent	Clean Off with non-abrasive detergent and water	Manufacturers specified cleaning agent
Bitumen			✓	
Pencil		✓		
Emulsion Paint	✓			
Felt Pen		✓		
Inorganic Grease			✓	
Plaster	✓			
Wood stain		✓		
Ball Pen		✓		
Cellulose Paint				✓
Rust				✓
Soot			✓	
Cement Mortar	✓			
Wax Pen			✓	

199 Manufacturers specified cleaning agents should only be used by authorised service providers and with extreme care.

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Loft Insulation

- 200 Mineral Fibre Loft Insulation laid between ceiling ties/joist or over existing quilt shall comprise:
- Mineral fibre insulation to applicable Standard, manufactured in accordance with applicable Standard as certified under BSI kite marked or other certification scheme acceptable to the Client's Representative;
 - Installed in accordance with all the provisions of applicable Standard. The Provider should pay particular attention of the applicable Standard provisions for ventilation to roof space and; avoidance of overheating of electric cables.
 - Thermal conductivity of insulation no more than 0.040 W/mK;
 - Debris to be removed and any sealing of holes for pipes, lighting drops etc., completed before the installation of the insulation; Insulation to be fitted tightly with closely butted joints, leaving no gaps and extending over wall plates;
 - Ensure that eaves ventilation is unobstructed and electric cables are not covered;
 - Do not lay insulation directly below water cistern platform(s) – platforms should be elevated above ceiling joist/trusses
 - Lay insulation in two layers where necessary;
 - Install 800mm long plastic spacers to maintain a continuous 25mm minimum airspace above the insulation at the eaves. These are to be secured by tacked to rafters at both sides with galvanised thick staples or tacks, projecting 100mm (measured horizontally) beyond the wallplates. Insulation should cover the wallplates but shall not to project beyond the end of the spacer (described above)
- 201 Glass Fibre Loft Insulation laid between ceiling ties/joist or over existing quilt shall comprise:
- Glass fibre insulation to applicable Standard, manufactured in accordance with applicable Standard as certified under BSI kite marked or other certification scheme acceptable to the Client's Representative;
 - Installed in accordance with all the provisions of applicable Standard. The Provider should pay particular attention of the applicable Standard's provisions for ventilation to roof space and; avoidance of overheating of electric cables.
 - Thermal conductivity of insulation no more than 0.040 W/mK;
 - Debris to be removed and any sealing of holes for pipes, lighting drops etc., completed before the installation of the insulation; Insulation to be fitted tightly with closely butted joints, leaving no gaps and extending over wall plates;
 - Ensure that eaves ventilation is unobstructed and electric cables are not covered;
 - Do not lay insulation directly below water cistern platform(s) – platforms should be elevated above ceiling joist/trusses
 - Lay insulation in two layers where necessary;
 - Install 800mm long plastic spacers to maintain a continuous 25mm minimum airspace above the insulation at the eaves. These are to be secured by tacked to rafters at both sides with galvanised thick staples or tacks, projecting 100mm (measured horizontally) beyond the wallplates. Insulation should cover the wallplates but shall not to project beyond the end of the spacer (described above)
- 202 Loose mineral fibre loft insulation suitable for blowing only to applicable Standard, used to manually fill gaps;
- 203 Insulated loft access boards shall be supplied and installed as additional loft access boards for inspection/access situated above walls where possible. Boards to be 1210mm x 475mm (minimum) x 18mm OSB Structural/Flooring grade bonded to 70mm high density insulation, strength 150 kPa at 10% compression, conductivity less than 0.041 W/mK fixed with 4 no long galvanised screws at least 20mm into ceiling joists. Generally allow 2 boards per dwelling. Leave existing loft boards in position, insulating underneath where possible.

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204 Loft Hatch /Door Insulation and Sealing shall comprise:

- Mineral fibre loft access hatch insulation to applicable Standard, conductivity less than 0.04W/mK, 200mm thick compressed to 120mm minimum held in place with woven fibreglass fabric and galvanised staples fixed to hatch lid frame, area 0.50m² nominal area, provide and install an easily compressible rubber self-adhesive 'P' seal fixed onto the timber hatch surround, refit or provide a hook and eye to prevent uplift;
- Mineral fibre loft access door insulation to applicable Standard, conductivity less than 0.04W/mK, 200mm thick compressed to 120mm minimum held in place with woven fibreglass fabric and galvanised staples fixed to door frame, area 0.70m² nominal area, provide and install an easily compressible rubber self-adhesive 'P' seal fixed onto the timber door surround, where necessary nail a 25mm x 38mm PAR softwood batten at 300mm centres round the door to provide a background for the compressible seal 3.4m maximum, refit or provide a small bright finish bolt to compress seal;
- Phenolic foam loft access hatch insulation to applicable Standard, conductivity less than 0.023W/mK, 100mm thick, strength more than 150kPa at 10% compression fixed to hatch lid frame, area 0.50m² nominal area, if the hatch is of combustible material nail 12mm plasterboard over before gluing insulation board over, provide and install an easily compressible rubber self-adhesive 'P' seal fixed onto the timber hatch surround, refit or provide a hook and eye to prevent uplift;
- Phenolic foam loft access door insulation to applicable Standard, conductivity less than 0.023W/mK, 100mm thick, strength more than 150kPa at 10% compression fixed to hatch lid frame, area 0.70m² nominal area, if the hatch is of combustible material nail 12mm plasterboard over before gluing insulation board over, provide and install an easily compressible rubber self-adhesive 'P' seal fixed onto the timber hatch surround, where necessary nail a 25mm x 38mm PAR softwood batten at 300mm centres round the door to provide a background for the compressible seal 3.4m maximum, refit or provide a small bright finish bolt to compress seal;

206 Proprietary white factory finished polypropylene insulated drop-down hinged loft access hatch to minimum opening width of 520mm, with insulation having a maximum U value of 0.25W/mK with integral draught and vapour seal in accordance with applicable Standard, and secure catch to resist wind uplift, installed in accordance with the manufacturer's technical data sheet.

Insulation Boards

207 Insulation boards shall comprise:

- Expanded white polystyrene board to applicable Standard, material to have BBA certification or equivalent, conductivity 0.035W/mK or less than, strength more than 100kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary, cut into insulation where this is needed to allow it to bend and rest directly on substrata;
- Expanded grey polystyrene board to applicable Standard, material to have BBA certification or equivalent, conductivity 0.031W/mK or less than, strength more than 100kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary, cut into insulation where this is needed to allow it to bend and rest directly on substrata;
- Foil faced polyurethane/PIR foam board to applicable Standard, material to have BBA certification or equivalent, conductivity 0.023 W/mK or less than, strength more than 100kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary, cut into insulation where this is needed to allow it to bend and rest directly on substrata;

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- Closed cell extruded polystyrene insulation board to applicable Standard, material to have BBA certification or equivalent, conductivity 0.035W/mK or less than, strength more than 100kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary, cut into insulation where this is needed to allow it to bend and rest directly on substrata. Where fixed to external walls underground, use suitable adhesive paste to fix, using lines of paste at edges and to form closed shapes no more than 250mm wide/tall, applying pressure until the adhesive sets. Finish the exposed upper edge and its junction with the wall with paste. Use 2 no additional stainless steel screws and 20mm washers and plug fixings per m² to prevent uplift with any later failure of the adhesive;
- Foam glass rigid closed cell insulation board to applicable Standard, material to have BBA certification or equivalent, conductivity 0.041W/mK or less than, strength more than 400 kPa to EN826 Annex A. Where fixed to external walls underground, use suitable adhesive paste to fix, using lines of paste at edges and to form closed shapes no more than 250mm wide/tall, applying pressure until the adhesive sets. Finish the exposed upper edge and its junction with the wall with paste. Use 2 no additional stainless steel screws and 20mm washers and plug fixings per m² to prevent uplift with any later failure of the adhesive;
- Foil faced Phenolic foam rigid sheet insulation board to applicable Standard, material to have BBA certification or equivalent, conductivity 0.023W/mK or less than, strength more than 120kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary.
- Expanded Polystyrene insulation board fixed to studs to applicable Standard, material to have BBA certification or equivalent, conductivity 0.032W/mK or less than, strength more than 100kPa at 10% compression, cut and fit neatly with tongue uppermost, leaving no gaps, fix sheets to each support at no more than 600mm centres with 12mm diameter flat head galvanised nails at least 12mm longer than thickness of insulation;
- Foil Faced polyurethane/PIR foam insulation board fixed to studs to applicable Standard faced with plasterboard, material to have BBA certification or equivalent, conductivity 0.023W/mK or less than, strength more than 120 kPa at 10% compression, cut and fit neatly leaving no gaps, fix sheets to each support at no more than 400mm centres with flat head galvanised nails at least 12mm longer than thickness of insulation, fit additional plasterboard so as not to leave vertical faces of insulation board exposed;
- Foil faced rigid sheet polyurethane/PIR foam cavity wall insulation board to applicable Standard, conductivity 0.023W/mK or less than, strength more than 120 kPa at 10% compression, neatly cut and fit with no gaps and temporarily support in position where necessary, install in compliance with any relevant BBA certificate or equivalent quality system approved by the Client's Representatives;
- Mineral fibre vertical insulation mats to applicable Standard, manufactured under applicable Standard as certified under BSI kite marked or other certification scheme acceptable to the Client's Representative, to vertical studding in un-floored loft areas, complete with galvanised mild steel 50mm mesh x 19swg gauge and used from 600mm rolls, 100mm mineral fibre insulation secured behind galvanised light wire mesh tied back to studs every 400mm horizontally and vertically, fixed with 2mm x20mm galvanised mild steel staples to applicable Standard at 400mm maximum centres, all installed in accordance with applicable Standard;
- Mineral fibre vertical insulation mats with integral metal mesh facing to applicable Standard, manufactured under applicable Standard as certified under BSI kite marked or other certification scheme acceptable to the Client's Representative, to vertical studding in un-floored loft areas, tied back to studs every 400mm horizontally and vertically, fixed with 2mm x20mm galvanised mild steel staples to applicable Standard at 400mm maximum centres, all installed in accordance with applicable Standard;

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- 50mm Foil faced Phenolic foam rigid sheet insulation board to applicable Standard, material to have BBA certification or equivalent, conductivity 0.023 W/mK or less than, strength more than 120kPa at 10% compression, to vertical studding in un-floored loft areas, nailed in position over studs;
- 25mm Minimum mineral wool insulation with aluminium foil outer layer, maximum thermal conductivity of 0.04W/mK, wrapped around ductwork in unheated roof-space, taped securely in accordance with manufacturer’s technical data sheet;

Thermal and Sound Insulation Quilts

208 Thermal Insulation quilts shall comprise:

- Mineral fibre thermal insulation mat quilt to applicable Standard, conductivity less than 0.040W/mK, compression fit, no gaps fixed between timber studs;
- Semi-rigid mineral fibre batts to applicable Standard, conductivity less than 0.040W/mK, compression fit, no gaps fixed between metal studs;

209 Sound insulation quilts shall comprise:

- 25mm minimum mineral fibre sound absorbing quilt , no facing, minimum density 10kg/m3, fixed to one side of partition, joints butted, gaps < 5mm, securely fixed in place, can be glued or wire reinforced for fixing, head fixing to with galvanised large staples or large headed nails;

Client’s current manufacturers/suppliers/products

210 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

REPLACEMENT EXTERNAL, COMMUNAL AND FIRE DOORS

**REPLACEMENT EXTERNAL DOORS - SURVEYING AND INSTALLATION
[TOP TIER]**

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REPLACEMENT EXTERNAL DOORS – SURVEYING AND INSTALLATION

General

001 It should be noted that in order to reduce possible errors/confusion due to conflicting repeat clauses etc. the Replacement External Door specification sections have been sub divided into tiers as per the table below;

Top tier	Middle Tier	Lower Tier
Replacement external doors – surveying and installation etc.	Replacement External, Communal and Flat Entrance Doors – General	GRP External Door sets and Screens
		Fire Door Sets
		Pre-finished Timber External Door sets and Screens
		Aluminium External Doors and Screens
		Replacement Undecorated Timber External Door Sets and Screens

002 In this manner each completed product will be required to meet the specification of 3 No tier documents.

003 Example; if work to be undertaken is a GRP External Door, then the 3 No tier documents to be used will be;

- Replacement external doors – surveying and installation etc.
 - Replacement External Communal and Flat Entrance Doors – General
 - GRP External Door sets and Screens

Initial Survey

004 A list of Properties will be given to the Provider with access details and the Provider is then responsible for arranging access, visiting the Properties, taking measurements and forwarding existing external door dimensions and the Provider’s proposed style of replacement door to the Client’s Representative for approval.

005 External Doors - Whether the new doors are to be GRP, aluminium or timber replacements is dependent on the condition of any existing external door (if present) and therefore matching new proposals with the existing Property and surrounding Client owned Properties.

006 The drawings are to include ‘sketch elevations’ of each door showing the position of each proposed door type and to include details of glass type for each door.

007 The proposals are to be approved by the Client’s Representative before the Provider commences manufacture.

Site Measurements

008 The Provider is responsible for ascertaining the correct dimensions and sizes of every existing external door in each Property.

009 The dimensions noted on any schedule issued by the Client’s Representative are for guidance only and are approximate measurements. The Provider is responsible for taking all site sizes and measurements for each and every external door opening, and for manufacturing doors accordingly and to the applicable Standards. (Windows and doors - Code of practice for the survey and installation of windows and external door-sets) and as recommended in the GGF (Glass & Glazing Federation) “Good Practice Guide for the Installation of Replacement Windows and Doors”.

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- 010 This procedure requires a minimum of **8 No measurements** both internally and externally to determine the difference between internal and external reveal sizes. Therefore internal access to the Property must be gained before manufacturing the doors – this will also allow for full Customer consultation and agreement of intended Works. It is the Provider's sole responsibility to obtain the Customers approval to receive the Works before manufacturing is commenced.
- 011 External doors are in the main fitted from the outside, although the nature of some reveals will permit replacement doors to be fitted from the inside.
- 012 The measurement and fitting of doors must in every case respect the existing cover/rebate to the outer frame of the doors by virtue of any "reverse brick detail" or "check reveal" that may pertain to existing Client Property.
- 013 Where a check reveal is present for weathering purposes, the door manufacturing sizes should be based on achieving a minimum frame overlap of 12 mm on the external leaf. A hole may be drilled through the existing frame jamb rebate to establish the check reveal size. A frame may also be built into the check reveal at the head by use of a rebated lintel, and again a minimum frame overlap of 12 mm should be provided where practicable. If an overlap of 12 mm cannot be achieved, this should be discussed with the Client's Representative and an agreement reached regarding the size of the overlap for particular properties. As the Client owns a large stock of Properties, which vary in construction detailing, long term standard agreements to the amount of overlap will not be made with exception to the dimension stated here.
- 014 The Provider's attention is drawn to the fact that similar external doors in similar Property types may vary in size.
- 015 The Provider is responsible for ascertaining the correct dimensions and sizes of every existing external door in each Property. Measurements for each door (and its location) must be clearly identified on any delivery schedule and each door shall have a clear labelling system to reflect this.
- 016 The use of make-up pieces (clip-on's) will not normally be permitted except with the express **written** authority of the Client's Representative. Written authority does not transfer to the entire Contract, if gained; it must be acquired for individual Property and/or phases.
- 017 Any existing external door opening which will present the Provider with a problem in compliance with the Specification, or in manufacture of a door to suit, must be brought to the attention of the Client's Representative before the door is fabricated. The Client's Representative will issue a written Instruction informing the Provider of what action is to be taken.
- 018 Obtain signed consent from the Customer before manufacture of any external door is undertaken. The Provider should be aware payment will only be made on completion of the door being installed into the Property.

Guarantees

- 019 In addition to the Client's rights under the Contract, the Provider is to provide the minimum guarantee tabled below against manufacturing defects etc., on all new GRP, aluminium and timber external doors upon completion of the Works. The guarantee is to include for all profiles, joinery, and for the double glazed units.
- 020 Manufacturers guarantees in all instances are to be for the years stated below with no exceptions attached (i.e. end user servicing expectations etc.), this will assure the Client that the manufacturer is confident of their own products durability.

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PVC-u profiles	25 Years
Timber frames	30 Years guarantee against fungal attack
Timber Door Manufacturing Defects	10 year guarantee
Timber Door (Factory Painted External Joinery)	10 Year guarantee (as minimum)
Timber Door (Factory Stained External Joinery)	6 Year guarantee (as minimum)
Hardware Components	10 Years (minimum)
Double Glazed Units	15Years (minimum)

021 Doors are to be manufactured under guidelines ISO 14001 (Environmental Management) and ISO 9001 (Quality Management Systems) with manufacturing companies holding the relevant accreditation. Manufacturers should promote and maintain an Environmental Policy and be committed to it. They should be able to demonstrate that all operations proactively comply with all applicable environmental laws and regulations.

022 The manufacturer shall provide a good practice guide relating to aftercare and maintenance of their manufactured doors etc. and its component items. The Provider shall ensure that each Customer receives a copy of this.

General Design of External Doors

Doors - Street Properties

023 Each Property case may be different and therefore approval will be required for each Property. In all cases, the proposed new style of external doors will need to comply with Building Regulations and in particular fire egress in terms of all habitable rooms.

Timber External Doors

024 The Provider is responsible for ascertaining the correct dimensions and sizes of every existing external door in each Property.

General External Door Installation

025 All sidelights are to achieve an 'A' energy rating certificated by the British Fenestration Rating Council (BFRC).

026 All replacement doors and sidelights must achieve Building Control standard of Maximum U-Value = 1.8 W/m²K for units with >50% internal face glazed.

027 U-values of external doors and sidelights glass and frames must meet the Building Regulations and must be BFRC Certified and have an "A" Rated Energy Index. Centre Pane "U Value" of 1.2W/m²K (or better). Thermal Transmittance Whole Window "U Value" of 1.4 W/m²K (or better)

028 All External Doors must pass testing undertaken to PAS 24 and be Secure by Design certified. All certification documents are to be forwarded to the Client's Representative and kept updated – this must include test certificate, report and list of tested ironmongery with product manufactures names, type etc. Evidence of compliance with PAS 24 (Specification for Enhanced security performance requirements for door-sets and windows in the UK) will be a condition of tender.

029 All new external doors and door frames are to match existing size openings in existing positions (i.e. brick reveals to be maintained externally where necessary on all occasions).

030 Before installing the new door frame, the existing structural opening should be checked to ensure its stability and existing lintels checked to ensure their condition soundness. Any large repairs should be reported to the Client's Representative.

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- 031 It is permissible to "chip back" a small area of plaster (typically 25mm) extending full height up the existing reveals and immediately adjacent to the door frame; this will both facilitate removal of existing door frame and installation of replacement door frame.
- 032 All openings should be cleaned of debris etc., and any minor making good is expected to be carried out as part of the external door replacement works.
- 033 All metal fixings should be at least as corrosion-resistant as applicable Standard Grade 3. 13.5.
- 034 Door frames shall be secured in accordance with the recognised "fixing distances" for strap / lug fixings and through-frame fixings as recommended in applicable Standard.
- 035 Sills must be properly supported and fixed to ensure there is no likelihood of water penetration.
- 036 All internal reveals should be made good and plaster or decorations made good to match existing.
- 037 External sealing should be by means of a cement/sand pointing around the new door frame to conceal larger gaps and then a low modulus white silicone sealant to applicable Standard. Only silicone sealants recommended by the manufacturer/supplier should be used and not general purpose mastics. All abutments of the door frames should have silicone sealant applied.
- 038 Prior to installation, the doors are to be supplied with adequate protection against damage caused by slippage, distortion etc. They must be stored under cover in a dry and secure position, stacked vertically, not horizontally.
- 039 The door frame dimensions must be checked with those of the opening before removal of the existing door frame.
- 040 A craft knife should be used to score around the perimeter of the existing frame in order to minimise damage to plaster/decoration.
- 041 External doors and frames to be removed and all existing mastic and debris cleaned away. The Provider is to ensure that the work is carried out in a neat and tidy manner, with all rubbish removed to a lockable skip at the end of each working day.
- 042 The damp proof course is to be checked by the Provider to ensure one is present and in good condition. Any defects present are to be brought to the attention of the Client's Representative immediately.
- 043 The new door frames must be installed in accordance with the manufacturer's requirements, taking into account the construction of the Property. Fixing methods should take into account thermal movement. The method of fixing will generally be either through frame fixing or lug fixing.
- 044 Door frames must be installed plumb and square without twisting, racking or distortion of any member in accordance with the manufacturer's installation tolerances.
- 045 The door frame must be centred in the aperture and be positioned so that it does not bridge the damp proof course. The amount by which the new door frame is set back from the outer face of the wall is determined by the requirement to set the internal face as close to the existing internal finishes as possible and by the bridging of the damp proof course.
- 046 The door frames must be secured so that the corner fixings are a minimum of 150mm and a maximum of 250mm from the corner of the frame and the intermediate fixings at centres no greater than 600mm.
- 047 Should the manufacturer require more onerous fixing requirements than these must be adhered to. Care should be taken not to overtighten bolts and that packers/shims are not allowed to fall away. Care should also be taken to ensure that water tightness is maintained where lintels have to be drilled for fixing.
- 048 All screw fixing heads which pass through the profile are to be spot sealed with appropriately coloured or clear silicone sealer or a PVC-u cap.

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- 049 Where electrical, television, telephone wires etc., enter a Property either through a hole in the existing door frame, or adjacent to it, then such services must be routed around the door frame. A split plastic tube of suitable diameter and length for entry into the Property should be slipped over the cable so that connections do not have to be disturbed on the appliances, with the ends of the tube sealed with white silicone sealant on completion of the external door installation.
- 050 Where any internal plaster work is disturbed when the existing door frames are removed, the Provider must make good the plasterwork. PVC-u cover mouldings may be used to a maximum width of 30mm.
- 051 Internally the door frame must be well caulked and the gap between the reveal finish and the frame flush pointed with a one part white emulsion acrylic painter's caulk.
- 052 Each sidelight must be permanently marked or labelled in an unobtrusive position (not visible when the opening light is closed) showing details of the manufacturer, the job number of the sidelight and the date of manufacture.
- 053 The standard for glass units is applicable Standard –part 2 (also part 3 for gas filled types)
- 054 Special care and attention must be taken to protect and avoid any damage to external doors and frames. Any damaged external door or frame must be replaced with a new external door or frame and it must be at the Client's Representative's sole discretion as to whether a repair to an external door or frame is acceptable.

Safety Laminated Glass

- 055 All glazing in doors in critical locations as defined by the Building Regulations (i.e. glazing below 1500mm height in doors with a zone of 300mm either side of the door) is to have both skins of glass units glazed with laminated low E glass – assumed to be 2 No. skins of 6.8mm laminated safety glass.
- 056 Internal and external panes in sidelights, double glazing units to be laminated glass as default. An exception may be made where a staircase ends or turns immediately inside the doorway – in this instance the internal pane may be toughened (i.e. to reduce impact pressure) – written notification must be given to the Client's Representative. External pane must always be laminated to provide security and satisfy PAS 24.
- 057 All safety glass is to be permanently marked on both panes with applicable Standard kite marks, which are to be visible after installation.
- 058 Both sheets of glass making up the sealed double glazed unit must be safety glass where required by the above descriptions.
- 059 Details of external doors in critical locations are to be stated in the Provider's proposals for each new external door when proposed drawings are forwarded to the Client's Representative for approval.

Glazing - General

- 060 External doors and sidelights must be manufactured so that glazing or re-glazing on site is possible without the need to remove the outer frame from the structure of the building.
- 061 All glass and insulated glazed units should be carefully examined for damage, especially at the edges, prior to installation. Defective items must not be used.
- 062 The two panes of glass in the double glazed unit are to be held apart with warm edge technology, spacer bars to improve thermal efficiency and reduce the possibility of condensation forming around the perimeter of the sealed double glazed unit.
- 063 The glazing of the doors or sidelights must be carried out immediately after the installation of the frames and casements.
- 064 On completion of external door installations, all glass to be cleaned internally and externally and left clean and free from blemishes.

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- 065 Any glass with scratches cracks or defects to be replaced by the Provider at no charge.
- 066 All external doors and sidelights to be **INTERNALLY GLAZED** in argon filled sealed units in low Emissivity glass, using pre-formed gaskets inserted during the profile extrusion and secured by knock-in PVC-U glazing beads with mitred corners.
- 067 All doors/sidelights will be totally dry-glazed with minimum 12mm wide x 3mm thick double-sided PVC foam closed cell high density security glazing tape on the inside frame rebates. Co-extruded EPDM corded glazing gaskets on the frame are acceptable as an alternative provided that bead security clips are used in conjunction with it.
- 068 Glass shall be at least the minimum thickness to meet wind load requirements indicated in the applicable Standards.
- 069 Glazing beads are to be able to withstand the design wind loading in accordance with applicable Standard Part 1 and the tests specified in the applicable Standard.
- 070 Fans are not permitted in sealed units.
- 071 Details of all glass types are to be stated in the Provider's proposals for each new external door or sidelight when proposed drawings are forwarded.

Fire rated doors/frames/door-sets – replacement and installation

- 072 The replacement and/or installation of internal/external fire rated doors, door frames, door-sets and any associated components such as stops, architraves, thresholds, trims, seals, ironmongery and the like must be undertaken only by persons that are properly accredited to do so by having undergone and passed an approved "Fire Door Installation Awareness Course" such as that developed by the British Woodworking Federation (BWF) with the National Open College Network (NOCN), or equivalent.

Certificate of Test Sidelight/doors

- 073 All manufacturers of sidelight/doors etc. shall be required to have a "sample" submitted for testing at an accredited testing station. These samples must be inspected against the requirements set out above. All manufacturers are required to have "third party" registration provided by BBA, BSI or equivalent recognised accredited quality licensing authority for the manufacture sidelights/doors etc.
- 074 A copy of the respective Certificate of Compliance for Secure by Design and PAS 24 must be made available at the time of submitting for inspection, which confirmations that the manufacturer can produce the product to the required standards, along with all testing data. The Provider should be aware these certificates may form part of the document handover pack and if not supplied on completion and handover of the Work, will incur a financial penalty.

Delivery to site of sidelights/doors etc.,

- 075 In each option, primary consideration must be given to current health and safety at work legislation in respect of site practices.

Option 1 – Pre-glazed

Will be valid where the external door manufacturer is commissioned on a supply only basis; the installation, therefore, being undertaken by the Provider.

Option 2 – Un-glazed

Will be valid where the external door manufacturer is commissioned on a supply and fit arrangement. This will involve the supply of insulating glass units and pre-formed glazing gaskets to be applied on site in accordance with the manufacturer's technical data sheet.

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076 Critical considerations to be observed:

- All glazing must conform to the recommendations contained in the applicable Standards. The setting and location block positions, frame to glass and bead to glass gaskets etc. with any glass or insulating glass units must be installed in accordance with the relevant manufacturer's technical data sheet and as per the recommendations in the applicable Standard;
- All insulating glass units shall be examined for damage prior to installation; defective units shall not be used;
- Insulating units with "low emissivity coatings" shall be oriented in accordance with the manufacturer's technical data sheet; and
- Where safety glazing forms part of an glazing unit, it remains a legal requirement to ensure that the marking remains visible after installation.

Protection, Transportation, Storage & Pre installation check

077 The Provider must ensure the manufacturer/supplier is responsible for ensuring that all sidelights/doors are suitably protected to avoid damage during transportation and storage.

078 Sidelights/doors/glazing units (if applicable) shall not be flat-packed, but stood vertically during transportation.

079 Sidelights/doors/glazing units in storage to be "kept apart" preferably with soft packing to reduce risk of transport/handling damage.

080 The Provider must ensure that all sidelights/doors stored on site are housed within a secure weatherproof storage facility on-site until the time of fitting. Pre-finished joinery shall not be stored in direct sunlight.

081 Prior to commencement of installation, the Provider should undertake the following checks -

- Consult survey sheets and ensure these are correct and clear;
- All survey measurements are recorded;
- The doors/sidelights supplied; are of the correct fenestration and design and in accordance with the external door schedule approved by the Client's Representative;
- The glass type and pattern are correct;
- External door and glass sizes are compatible;
- All trims, gaskets etc., are correct and fitted correctly; and
- Consult survey sheets to ensure external doors supplied are correctly marked and identified to those Properties being replaced.

Site Approval on delivered

082 Previous to the benchmark Properties being set, a sample Pre-Finished, GRP, Aluminium or Timber external door/sidelight shall be delivered to site by the preferred manufacturer/supplier for inspection and acceptance by the Client's Representative.

083 The manufacturer/supplier in providing the sample for acceptance must demonstrate full compliance with the specification requirements. Evidence of thermal efficiency standards being offered must be available to the Client's Representative for verification.

084 The sample external door/sidelight (upon acceptance) will form the "benchmark external door/sidelight" for the remainder of the project.

085 The Client's Representative shall reserve the right (at any stage) to have any external door/sidelight which is delivered to site, subsequently removed for further inspection/audit and/or independent testing to ensure that the specification requirements are being complied with.

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Remove and Install on same Day

- 086 Existing doors to be removed are most likely to be timber in nature, although a small percentage of properties may have original PVC-u external doors and frames. The Provider should make every effort to have all existing external doors and frames recycled and provide waste disposal reports to the Client's Representative.
- 087 Replacement external doors and frames must be installed on the same day that the original external doors and frames are removed in order to maintain security and weather tightness of the structure. The existing door frames should be removed with care in order to avoid damage to the Property structure and its finishes and without permitting any subsidence of the structure during or after the operation.
- 088 When providing more than one replacement external door to a single Property the Works should be undertaken on one set day to reduce the amount of disturbance to the Customer.
- 089 Any defects that become apparent in the integrity of the structure upon removal of any door frame should be reported to the Client's Representative immediately.
- 090 If there is a sub-sill or threshold, e.g. Concrete, slate, brick or tile, below the existing door frame it must be left in position unless otherwise specified.

Protection of existing fixtures etc.

- 091 Allow for protection of floor coverings, furniture and Customer's belongings throughout the duration of the Works.
- 092 The Provider is responsible for moving any furniture, fixtures, Customer's belongings and fittings that may be damaged during the installation of the external doors, prior to commencement of the replacement of any external door and repositioning such items upon completion of the installation to each Property.
- 093 The Provider will be responsible for both internal and external protection. After the removal of the existing door, frame and sidelight the Provider is to carefully cut back any internal or external flooring, finishings, cladding, wallpaper and decorations to allow for the installation of the new frames etc. The Provider is responsible for making good all structures, finishings and decorations up to 100mm from the face of the frame or sill.
- 094 The Provider must ensure that clean and sufficient dust sheets or protective coverings are used, when carrying out any Works. The Provider must ensure he has taken all adequate provisions to ensure that the soiling or damage to floor coverings and needless damage to decorations are avoided. The Provider must allow for any cleaning of floor coverings required as a consequence of the Works and this should be reflected in the tender Rates submitted.
- 095 It is recommended the Provider undertakes a Schedule of Condition and agrees this with the Customer prior to undertaking any Works. It is therefore considered prudent to take photographs of any damaged Customer's belongings within the vicinity of the Work prior to commencement and, where appropriate, to obtain a signed disclaimer.

Fixings

- 096 Screws used for fixing non-reinforced PVC-u sections will be of carbon steel with a suitable corrosion protective coating and feature a double helical thread, spoon point with a countersunk head.
- 097 Fixings must incorporate a combination square/cross recess drive to provide a non-magnetic stick fit.
- 098 All screws, nuts, bolts and other fastenings must be of corrosion resistant material, or be treated to give corrosion resistant properties. When subject to the acetic acid salt spray test specified in the applicable Standard for a period of 144 hours, the corrosion resistance of treated mild steel must be equal to or better than that of stainless steel samples subjected to the same test conditions.

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- 099 All ironmongery, fixtures and fittings must be of materials resistant to, or protected against atmospheric corrosion. Metals in contact with each other must be compatible so as to prevent galvanic corrosion of dissimilar metals by electrolytic action.
- 100 The use of expanding polyurethane foam is not acceptable as a sole method of fixing any door frame into a structural opening, nor is it acceptable to be used as bedding for the door frame.
- 101 Fixing to be as recommended by in the applicable Standard, below is a brief summary, actual fixing recommendation should be taken from the applicable Standard and its example diagrams:

Secured on all sides (where practicable);
Corner fixings – 150 – 250mm from external corner;
Minimum of 2 fixings per reveal;
If head is fixed with expanding polyurethane foam, then head fixings can be – <ul style="list-style-type: none"> • Frame width up to 1200mm – no fixings • >1200mm to <2400mm – one central fixing • >2400mm to 3600mm – two equally spaced fixings

- 102 The use of expanding polyurethane foam is permissible in terms of “foam filling” and as a useful addition to mechanical fixings. When the external door is completed and finished there should be no visual evidence of polyurethane foam either internally or externally.
- 103 Installation “packers” should be used to set the door frame onto to allow sealant/mastic to be used as a full fill bedding material. The colour should match the door frame finish.
- 104 Intumescent foam filling is to be used in all external door installations to provide a closure to possible cold bridge of gaps between the wall and the frame. It is only to be used within the depth of the door frame profile i.e. it should not be used to fill gaps to reveals etc. which are to be plastered. Form filling is only in regard to the following situations –

<p><u>1) To the head of a door frame, where the presence of pre-cast concrete or steel lintels make it impracticable or pose significant difficulties in achieving the recommended fixing distances</u></p>	<p><u>Up to 10mm maximum</u></p>
<p><u>2) To the sides of door frame to make up expansion/contraction gap left either side as a result of manufactured size of door frame</u></p>	

- 105 Foam filling must be to the full depth of the frame using only an approved fire resistant expanding polyurethane foam complying with the applicable Standards and be of the correct fire performance rating for Building Regulations compliance.
- 106 All components should be supplied by a manufacturer complying with ISO 9001 accredited quality systems. A certificate passing warranty to the Client is to be issued by the hardware manufacturer on completion of the project.
- 107 Written confirmation of compliance with all of the above should be given to the Client’s Representative in advance of commencement on site and will be a condition of the tender.

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Fire barriers

- 108 In all methods of construction it is important to ensure that the cavities between internal and external skins are protected at openings for external doors from the spread of fire. If these openings are not protected, in the event of a fire, smoke and fire can spread through the cavity, causing danger to occupants in other parts of the Property not immediately affected by the fire. This issue is of particular concern in timber and metal framed buildings. Attention is drawn to the Building Regulations in respect of the requirement for suitable fire barriers to be present in such buildings. Guidance is given in the applicable Standards, and the current Building Regulations Approved Document B.
- 109 The method of construction should be identified, and where the building is of timber or metal frame construction, the type of cavity barrier should be established. Where the barrier is a cavity sock or similar, and is likely to become dislodged or damaged by the removal of the existing frames, this should be noted on the survey sheet, and instruction given to the installation team to ensure that the cavity barrier is either repaired or replaced to maintain the original level of fire protection for the Property.
- 110 NOTE; Timber and metal frame constructions usually have a moisture barrier included in the area around openings, to resist moisture ingress into the cavity that could affect the timber sheathing or metal studwork.”

Making Good

- 111 The final covering and treatment of surfaces and their intersections are fundamental to the overall replacement of external doors.
- 112 The primary objective of making good damaged areas adjacent to the external doors is to maintain the;
- Weather-tightness; and
 - Thermal performance characteristics
- As required in and around reveals.
- 113 This protocol described below applies to all external door replacements and shall be undertaken as the primarily aim to negating the need for any redecoration during/after external door installation.
- 114 There will be a number of situations (i.e. age of the Property; thickness of plaster reveals; and to some extent “build issues” associated with system-built dwellings) that it may not be possible to observe all or part of this protocol. Therefore more damage may be required to the reveals and/or the door frame wall to undertake the required door frame replacement. This could result in the need for some redecoration. Where this is likely to occur, firstly the Provider is required to notify the Client’s Representative at Design stage. If however this is not identified until on-site stage the Provider must note the Properties affected and alert the Client’s Representative before work commences.
- 115 Where full plaster reveals are to be undertaken – i.e. Internal and external making good; this may take place on subsequent days, but the whole operation from start to finish of each door frame must not exceed 3 No. consecutive working days.
- 116 Plaster-Patching - This process will require a small degree of plaster-patching. This will include the following areas -
- All of the reveals immediately adjacent to door frame etc.;
 - Part of the reveals where strap / lug fixings have been employed.

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117 Finishing Trims are to be Cellular extruded PVC-UE trims/beads and must conform to the applicable Standards and as the below table;

	Internal Reveal (3 sides)	External Bead (3 sides)
Single bull-nosed PVC-UE trim typically 5–7mm maximum thickness	✓	
Trim width must not exceed 100mm		
Quadrant / Bead typically 12x12mm or 18x18mm maximum OR Single bull-nosed PVC-UE trim typically 5 – 7mm maximum thickness		✓
Trim width must be in range 20 – 25mm maximum		

118 Trims are not to be used to simply provide or enhance the weather tightness of the door frame or any perimeter joints. Finishing trims shall be used to neaten the interface between frames and opening, they are only to be used in conjunction with the “plaster-patching” / making good situations as stated above. All joints must be left ‘neat and tidy’ with an acceptable tolerance of +/- 2/3mm on all joints/trim abutments and sealed with sealant of matching colour.

119 Internal finishing trims shall be compatible with the Material of the door frame and must be colour-matched

120 External finishing beads/trims shall satisfy the above criteria and be of an exterior quality Material used in accordance with the manufacturer’s technical data sheet. External beading is not required where the external reveal has been re-plastered to match existing.

121 For the avoidance of doubt, door frames should be measured and fitted as described above and beads/trims should only be fitted to the opposite side of the determined cover/overlap. Only in exceptional cases where reveals are determined as flush will internal and external beads/trims be acceptable.

Fixing of Trims/Beads

122 All internal trims shall be secured in every case to a firm backing (junction of frame and reveal) with a low modulus silicon sealant (as below) and sealed all round.

123 All external beams/trims shall be secured in every case to a firm backing (junction of the frame and plaster reveal) with the low modulus silicon sealant (as below) and sealed all round.

Sealants

124 Sealants must comply with applicable Standard and be low modulus grade

125 Perimeter joints externally and internally around the “as installed” door frame shall be sealed with a low modulus silicone sealant and “smoothed” to provide a good seal.

The sealant shall be appropriate to –

- The frame surface and colour;
- Any substrate material;
- The specific joint size and configuration; and
- Potential joint movement and weather exposure.

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Implications – Customer’s Blinds etc.,

- 126 The inclusion of a finishing trim to existing reveals and sill may in certain circumstances create an issue around the re-fitting of Customer’s blinds etc. The Provider shall pay due regard to the existing sidelight dressing(s) and where finishing trims are required that a “slim-line” version (5mm or less) is used.

Repairing damaged prefinished coatings on site

- 127 Localised repairs to coatings shall be affected by brush application on site using the same coating Material and build-up as the factory application with no discernible difference upon completion. All repairs shall be carried out in accordance with the joinery manufacturer’s technical data sheet, by a competent person and to the satisfaction of the manufacturer and Client’s Representative to ensure continuance of the warranty.

Cleaning of External Doors

- 128 The protective tapes shall be removed from the as installed external doors, frames and sidelights immediately or as soon as practicable after installation and the door (frame and glazing) cleaned with a suitable cleaning agent.

Final Completion Checks

- 129 Upon final completion of each and every external door installation, the Provider is to confirm and check the following:-
- All glazing beads are adequately fitted and in good order;
 - All hardware functions and locks operate correctly and are not stiff to use;
 - All frames and glass are free from cracks, breaks and scratches etc. All frames and glass are cleaned and all internals of frames are swept clean.;
 - All openings are square and operate correctly;
 - There is no movement to the door;
 - All hinges etc. are clean and operate correctly;
 - All making good internally and externally are completed; and
 - All trims are clean and sealed;
- 130 Once all the above items are completed, the Provider is to demonstrate the operation of the external door to the Customer and provide the Customer with their own operating instructions for the external doors. In addition, the Provider is to provide a Customer Satisfaction Card (to be supplied by the Client’s Representative) which the Customer is requested to complete and return by free postage to the Client. In due course the Provider will be required to provide any means necessary to allow the Customer to sign Satisfaction Card electronically for uploading to the Client’s Asset Management software.

Photographic Evidence – Removal/Installation of Sidelights/Doors

- 131 Take digital photographs of each completed sidelight/door installation.
- 132 The photograph should clearly show the completed internal reveals and identified by address and room (i.e. this may be done by placing an address and room labelled clipboard against the external door at the time of taking the photograph – ensure clipboard does not block image of door).
- 133 The photographs should be retained electronically by the Provider and if requested provided on an individual basis to the Client i.e. in the event of any Customers making a claim against the Client.
- 134 The Provider should note that the Client’s Representative will from time to time ask for evidence of these photographs and how and where they are stored. The Provider is required to retain these images for at least 6 years after the Date of Completion (in accordance with the Client’s Retention of Documents Policy and legal timeframe for a Customer to make a claim).

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Client’s current manufacturers/suppliers/products

135 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**REPLACEMENT EXTERNAL, COMMUNAL AND FLAT ENTRANCE DOORS – GENERAL
[MIDDLE TIER]**

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REPLACEMENT EXTERNAL, COMMUNAL AND FLAT ENTRANCE DOORS - GENERAL

Secured by Design:

- 201 This section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' section, which provides details of surveying, sampling, installation, finishing etc. - generally as applicable Standard (Windows and Doors – Code of Practice for the survey and installation of windows and external door-sets).
- 202 All new external doors must meet the requirements of "Secured by Design" (SBD) certification. External Doors; PAS 24 Doors of Enhanced Security
- 203 All new external doors complete with frames and factory installed double glazing must be high performance proprietary door sets supplied by a certified SBD manufacturer. Fire doors must have additional testing certification in accordance with the applicable Standards.
- 204 These may be PVC-u, timber or timber/steel faced, composite door sets complete with a Secured by Design approved locking mechanism.
- 205 PVC-u external doors, timber composite or steel faced composite doors are suitable for areas where high security or severe exposure rating requires greater durability and a multi-point locking mechanism.
- 206 Sample doors complete with proposed locking mechanisms are to be supplied for the approval of the Client's Representative.

Door Sets

- 207 The Door sets must meet the performance standards set out in this Specification. The Provider must provide to the Client's Representative a copy of the Secure by Design certificate and PAS 24 test certificate along with the list of door components/ironmongery as supplied by a UKAS test house prior to commencement of the Contract.
- 208 The door-sets supplied must be to exactly the same specification as those tested.
- 209 All timber doors to be to the Client's schedule of standard external doors.

REF	DOOR TYPE
SE.1SG	Single, small, glazed top panel.
3P.1SG/2SP	Three panel door, top panel double glazed with safety glass, two bottom panels with solid hardwood panels
4P.2SG/2SP	Four panel door, top two panels double glazed with safety glass, two bottom panels with solid hardwood panels
5P.2SG/3SP	Five panel door, top two panels double glazed with safety glass, three bottom panels with solid hardwood panels
6P.2SG/4SP	Six panel door, top two panels double glazed with safety glass, two middle and two bottom panels with solid hardwood panels
6P.6SP	Six panel door, top two panels, two middle and two bottom panels all with solid hardwood panels
FL.1SG	Flush door with 1 single panel of double glazed safety glass
LBS	Ledged, braced and sheeted door
FLBS	Framed, ledged, braced and sheeted door

[Amend ref. nos. as appropriate]

- 210 Each door-set shall have the name of the manufacturer and date of manufacture clearly stated on one rebate by means of a discrete permanent label to aid future traceability if required.

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- 211 The fitting tolerance must be plus or minus 5mm, it is the Provider's responsibility to take all site dimensions for pricing purposes and for fitting purposes.
- 212 Door sets which are deemed to be outside the fitting tolerances must be remade at no further expenses to the Client.
- 213 Where existing door sets are removed, the new assembly must be installed and left in full working order before the end of the same day.
- 214 The manufacturer of the door sets must be stated on the Provider's tender and a guarantee must be supplied indicating the life of the components.
- 215 Door Frames are to be fitted with weather seals of low density cellular core encased in low friction liner which are capable of taking up reasonable seasonal movement in all temperatures and returning to original profile. The weather seals shall be inserted into a plough within the door frame rebate while being **fitted in one piece with lower ends extending to bottom of trapper bar.**
- 216 Door Frames to be either:
- white reinforced PVC-u to applicable Standard; or
 - hardwood complying with applicable Standard (density range 650-725 kg/m cu) with factory applied coating to match door.

Level Access Thresholds

- 217 All external door sets (main and secondary entrances including doors leading onto a patio) must have level access thresholds (max 15mm high threshold).
- 218 Weather bar should be capable of renewal in-situ i.e. without the need to remove the door frame. The weather bar unit shall have a performance rating to comply with the applicable Standard.

Door Performance Requirements

- 219 All the external doors must meet the following minimum performance criteria for weather resistance as defined in applicable Standard -Classification for Weather tightness.

Air Permeability	Test Pressure Class 300 Pa Test Method as applicable Standard
Water Tightness	Test Pressure Class 200 Pa Test Method as applicable Standard
Wind Resistance	Test Pressure 2000 Pa Test Method as applicable Standard

- 230 All doors must be completely draught free when closed. The doors are to meet the **Severe Exposure Rating** category

Side Lights to Living Room External Doors

- 231 If the glazed opening door is in a living room, the sole means of natural daylight and ventilation must not be from that door.
- 232 Additional opening side light windows with trickle ventilators and security restriction, must be provided in order to allow ventilation to the room without opening the door all year round.

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Double Glazing

- 233 All double glazing to any external doors and their associated side lights (or, within 400mm of the door lock) must be have at least one pane of laminated glass to comply with Secured by Design.
- 234 Door and side light glazing must be 24 mm hermetically sealed double glazing units manufactured with laminated glass.
- Front door to be in small panels and be obscured.
 - Front door must incorporate facilities to view callers
 - Glazing to rear doors to be clear

Door Frames

- 235 Door Frames to door handle relationship to allow for a min of 50mm from the frame edge to the lever handle. Lock back-set to accommodate this dimension.
- 236 All frames must have a factory fitted removable weather-strip to frames and weather-strip to the bottom edge of doors.
- 237 Door frame set back must be 65 mm minimum reveal to external face of wall.
- 238 New lintels to windows and external doors must be insulated galvanised steel to applicable Standard manufactured by an approved manufacturer and have an Agrément Certificate. End bearings must be a minimum of 150 mm.
- 239 All external door frames are to have mastic pointing provided all around. Such mastic pointing must be specified to be applied strictly in accordance with the manufacturer's technical data sheet and good practice. The Client has a preference for two part polysulphide mastics in areas that are vulnerable to vandalism.

Door Ironmongery

- 240 Ironmongery must be provided in full compliance with "Secured by Design". Handles and locks must be easy grip type suitable for use by disabled persons.
- 241 **The requirements of Secured by Design (SBD) and the approved and tested locking mechanism of the selected SBD Door Licence Holder may override this section.**
- 242 All external doors must be hung on 3 no stainless steel grade SS202 or coated zinc alloy patent hinges (having stainless steel) pins butt hinges.
- 243 Non-adjustable hinges to be fitted to flush doors.
- 244 Rebated door set hinges to incorporate lateral adjustment.
- 245 Fire door hinges must be CE Marked and tested to applicable Standard. Hinges shall have high corrosion resistance, greater than applicable Standard grade 4.
- 246 A minimum of 2 no hinge bolts must be fitted to all external access doors providing hinge side enhanced security to PAS 24.
- 247 Doors to have multi-point lever handle security locking mechanism meeting the applicable Standard and tested to PAS 24 and to comply with (and stamped) Secured by Design. Front doors to be provided with a security chain.

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- 248 Multi-point locking espagnolette system to be provided
- 249 Cylinder and Keys: All cylinders to be nickel plated on brass finish. Cylinders should have a large thumb turn to suit the elderly. All cylinders to be double profile and a minimum five pin tumblers, 1000 differs, anti-bump flush. Minimum of 3 keys supplied with each cylinder.
- 250 Doors generally fitted with level handles operational both sides of door.
- 251 Pull Handles and Push Plates: To be provided only where elements of communal accommodation occur.
- 252 Pull handles must be 230mm x 19mm dia. bolt through fixed and nylon or plastic coated finish. Push plates to be 300 x75 x 1.5mm drilled and countersunk fixed, finishes to match the Pull Handles.
- 253 Letter Plates: Front doors to Properties are to have a telescopic letter plate with external flap (finish to match door ironmongery) and an inward sprung flap, on the inside of the door.
- 254 Letter Plates must be draught and fire proofed internally and have a finger hood to prevent access to door locks (minimum distance from door locks 400 mm).
- 255 Intumescent Liners and Smoke Stopping must be provided to fire doors.
- 256 Internal flat entrance door off communal corridors must have a fire and acoustic rated letter plate with integral intumescent liners and a smoke stopped internal letter flap. Fire tested to satisfy the requirements of the applicable Standard. Acoustic tested to satisfy the requirements of applicable Standard to 29db/Rw.
- 257 Door numerals must be provided to the front entrance door of each Property.
- 258 Door Stops: All doors are to be provided with floor, wall or skirting mounted rubber stops on a nylon or plastic coated shoe where appropriate to prevent damage to walls or plaster.
- 259 Door Closers: Where required, all self-closing fire doors should have size 2 - 6 adjustable strength and back check function overhead closers.
- 260 Concealed door closers and hush latches may be used in individual Properties and flats if approved by Building Control.
- 261 Closers to Frail Elderly flats must be the 'swing-free' type operated by the activation of the fire alarm.
- 262 Cabling and transformers must be provided to all wheelchair Property external entrance doors for the future installation of 'power operated' door closers.
- 263 All overhead closers must carry a 10 year guarantee to applicable Standard.
- 264 Door Viewer: Front doors to Flats should have a 180 degree chrome plated door viewer fitted at:
- 1500mm above finished floor level for accessible dwellings
 - 1050mm above finished floor level for Wheelchair Units
- 265 Door Bolts: Bolts to double doors, french windows and the like, should be of brass material satin chrome or satin nickel plated. Flush bolts should be fixed in the leading edge of the second opening leaf of a pair of doors with a flat plate at the head and an easy clean socket in the floor.
- 266 Kick Plates: To be provided only where elements of communal accommodation occur.

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- 267 Provide 450mm high coloured plastic kick plates to match the ironmongery on the push side of internal doors in communal and circulation areas and to all flat entrance doors on the corridor side. Flat entrance door kick plate to achieve fire resistance of door set.
- 268 Wall Protection: For internal communal areas only
- 269 Provide flame retardant corner protection to all external wall angles to a height of 1000mm using proprietary PVC-u corner protectors.

Composite Doors -Generally

- 270 It is intended to renew main front doors and frames on all single family Property houses with composite doors installed by the PRP or Pre-finished Timber manufacturer/contractor.

Doors -Generally

- 271 Generally all front doors to be styled with upper panels double glazed with laminated safety glass sealed units.
Generally all rear doors to be panel door style with upper panel double glazed with laminated safety glass sealed units.
- 272 Customers to be given the option of cat flaps to be installed to lower panels of rear door.
- 273 Doors within Conservation Areas will be renewed with a pre-finished timber door

Composite Front Doors to Houses not within Conservation Areas

- 274 Style and choice of front doors is to be agreed with Customer and Client's Representative on each individual project. The Provider is to provide each Customer with a sheet listing and showing the style of doors available and five colours available, and the Customer is to choose and sign the list as to which door they wish, and copy of the signed sheets to be forward to Client's Representative. Door colour should be either be translucent coatings or from a manufacturer's heritage range. Due to on-site issues with expansion etc., dark coloured doors should be avoided.
- 275 All existing door bells are to be re-fixed
- 276 Where fanlights are above the doors, the fanlights and frames are to be included as part of the renewal.
- 277 All glazing doors to be double glazed laminated safety glass sealed obscure units unless otherwise Instructed.
- 278 All doors to have brass numbers on the outside and brass draught-proof letter boxes.
- 279 All doors to have brass multipoint lever handles.
- 280 All doors and locks to meet Secure by Design applicable Standard and tested to PAS 24 Standard.

Timber Front Doors to Conservation Areas

- 281 All statutory consents and permissions required to complete the Work to be obtained and/or checks to be made to ensure these are in place before ordering Materials and commencing Works.
- 282 All new timber front doors where requested are to be purpose made pre-primed minimum 44mm thick softwood doors, with hardwood painted frame.

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- 283 It is anticipated that most doors will be 4 panel with 2 No. upper panels to be double glazed laminated safety glass sealed obscure units, and 2 No. lower panels to be mouldings to match existing.
- 284 Brass numbers and brass draught-proof letter boxes are to be as Clause 060 above.
- 285 All doors to have brass mortice night latch and separate 5 lever deadlocks with finger turn snib internally.
- 286 Where fanlights are above the doors, the fanlights and frames are to be included as part of the renewal.

Installation

- 287 Undertake surveys and installation of the doors at the same time as the windows installations.
- 288 Ensure the correct installation of each door-set.
- 289 The door-set shall be placed on a concrete threshold and bedded on a low Modulus Silcon, minimum depth of bed 2mm, maximum depth of bed 4mm. All door-sets shall be installed using heavy duty galvanised perforated metal straps at 150mm from corners and maximum 600mm centres between these fixings.
- 290 Door-sets may also be fixed using through frame fixings provided that the existing reveals are sound.
- 291 Fixings shall be properly countersunk, plugged and head of plug coated to match frame. Split frames (i.e. PVC-u frames) as a result of bad fitting workmanship shall not be accepted and may result in the door-set being entirely replaced at no extra cost to the Client.
- 292 Expanding polyurethane foam must not be used as a sole method of fixing.

Timber Architraves and Sills

- 293 To every new timber door and door frame, carefully remove all existing internal architraves and replace to match existing in pre-primed ogee or similar timber, with mitred joints to architraves. All timbers to be finished in gloss paint.
- 294 All gaps to walls or gaps to joints are to be sealed prior to decorations.

Painting of Timber Sundries

- 295 To all new timber sill boards, pre-prime, architraves and sill boards before fixing, and then once installed, rub down, fill as necessary and paint 2 No. coats white undercoat and 1 No. gloss white paint, rubbing down between all coats.
- 296 Include to repaint existing external concrete sills and thresholds externally to the doors and touch up any painted stonework or render around the door frame to match existing, as disturbed during the renewal Works.

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Client’s current manufacturers/suppliers/products

297 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**GRP EXTERNAL DOOR-SETS AND SCREENS
[LOWER TIER – Client to delete if not applicable]**

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

GRP ENTRANCE DOOR-SETS AND SCREENS

General

- 301 This section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' and 'Replacement External Doors – General'.
- 302 This Specification is intended to describe the performance criteria to be obtained for the manufacture, supply and installation of inward opening GRP doors and frames and associated PVC-u windows. Provider's must ensure that their proposed system completely satisfies all the relevant standards detailed.
- 303 This Specification is applicable to ALL Properties and the Provider's price must cover the location of all Properties and doors being renewed. Generally Properties will be occupied during the course of the Works.
- 304 This Specification describes works in detail however not all items of work will be applicable to each Property, nor is work referred to exhaustive. All doors, frames, fanlights and sidelights must pass testing to PAS 24 and must be "Secured By Design" certified. All certification documents are to be forwarded to the Client's Representative and kept updated – this must include the test certificate, report and list of tested ironmongery with product manufacturer's names, types etc. Evidence of compliance with PAS 24 (Specification for Enhanced security requirements for door-sets and windows in the UK) will be a condition of acceptance of completion.
- 305 All doors must achieve Building Control standard of Maximum U-Value = 1.8W/m²K.
- 306 Only products defined herein shall be used; alternative products will not be acceptable unless agreed with Client's Representative.
- 307 Stiles and rails to be engineered timber edge bonded with 1.5mm or high strength engineered double plastic composite. Skins to be GRP transfer moulded and U.V. stable, thickness of skin is determined by the door manufacture and as a result of PAS 24 testing. Bonding agent is to be moisture cure polyurethane adhesive with core of 39mm CFC free fire resistant rigid foam insulation with the correct fire performance rating to comply with the Building Regulations.
- 308 Door glazing to be double glazed laminated glass fitted in separate glazing cassette mechanically fixed to sub-frame and internally beaded.
- 309 Arrange access with the Customer to carry out a pre-manufacture site survey as recommended by the British Plastics Federation Code of Practice for the Survey of PVC-u Window sets, current edition. This survey will include the provision of a pro-forma questionnaire offering the available options from which the Customers can choose.
- 310 The visit will include:
- consulting with the Customer about choices,
 - taking measurements sufficient to prepare scale drawings
 - scheduling Customer fittings and their condition
 - any other site condition that may affect installation

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311 Customers are to be given a choice of 5 front door types as table below.

REF	DOOR TYPE
SE.1SG	Single, small, glazed top panel
3P.1SG/2SP	Three panel door, top panel double glazed with safety glass, two bottom panels with solid panels
4P.2SG/2SP	Four panel door, top two panels double glazed with safety glass, two bottom panels with solid panels
5P.2SG/3SP	Five panel door, top two panels double glazed with safety glass, three bottom panels with solid panels
6P.2SG/4SP	Six panel door, top two panels double glazed with safety glass, two middle and two bottom panels with solid panels
6P.6SP	Six panel door, top two panels, two middle and two bottom panels all with solid panels

[Amend ref. nos. as appropriate]

312 Other choice options are to be:

Element	Location	Options
Colour	Front/Rear Door	White (RAL 9003)
		Blue (RAL 5004)
		Red (RAL 3002)
		Green (RAL 6009)
Glazing	Front	Obscure - Cotswold
	Rear	Clear only
Ironmongery	Front/Rear	Gold/brass
Surface Finish	Front/Rear	Wood grain effect

313 All screen/door styles must be in accordance with modern casement design where possible, allowing for exceptions where fire egress casements are necessary. Unusual aesthetic arrangements are to be referred to the Client's Representative for decision.

314 All component parts are to be applicable Standard "Kite marked", or BBA approved or equivalent, verification of which to be supplied on request by the Client's Representative.

315 PAS 24 certification from the Manufacturer and Provider must be provided to the Client's Representative before manufacture.

316 The sidelight/screen types are to be as existing in respect of configuration and opening lights. However, sidelight/screens in conservation areas, areas of outstanding natural beauty or historic buildings must be discussed with the Client's Representative for likely planning approval issues.

317 Design drawings are to be prepared by the Provider prior to manufacture. A copy is to be supplied to the Client's Representative before manufacture commences.

318 Carry out a pilot installation prior to full commencement of the Work, to ascertain the correct provision and detailing of the installation.

Programme and Security

319 In the case of numerous installations a programme for the Works is to be prepared by the Provider and agreed by the Client's Representative, before Work commences.

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- 320 Provide 14 days' notice, and agree the timing of the Works with each Customer. When undertaking Works they need to be carried out as quickly as possible, in order to reinstate all facilities as soon as is possible. Full security, wind and weather tightness must be provided at the end of each working day in each occupied Property to suit the Customer's/Client's needs.
- 321 The installation of a door and frame, fanlights and sidelights must be carried out in one continuous operation within the working day. The security, wind and weather tightness of the Property must not be compromised at any time.
- 322 All making good of the structure and fabric must be carried out within one working day following the installation of the door etc., Any making good will not be left outstanding over weekends without the permission of the Customers and the Client's Representative.
- 323 The Client's Representative is also to be notified of the proposed commencement and completion dates, and proposed date for completion inspection once all the Works are completely finished including any snagging by the Provider.
- 324 Agree a maximum number of Properties to be worked on at any one time before the Works programme begins (to suit number of Properties/Contract Period available).
- 325 A Property must be 100% complete prior to commencing on further Properties above the agreed maximum and each completed Property must be signed off by the Customer and the Client's Representative.

Protection

- 326 Allow for protection of floor coverings, furniture and Customers belongings throughout the duration of the Works. Include for moving furniture, Customers belongings and everything necessary in order to carry out the Works and minimise disturbance to the Customers as far as possible. On completion of the Works place all previously moved furniture and belongings in locations agreed with the Customers. Dust sheets must be used at all times during the Works to prevent any damage.
- 327 Accept responsibility for any damage to carpets or Customers belongings, undertake a schedule of condition and agree this with the Customer prior to undertaking any Works. Take photographs of any damaged Customer's belongings within the vicinity of the Work prior to commencement, and where appropriate to obtain a signed disclaimer.

Stripping Out

- 328 Carefully remove existing doors, frames, sills, fanlights, sidelights and all associated fixings and prepare existing openings to receive the new installation. Dispose of all unwanted material and recycle where possible.
- 329 Take care to carefully remove remaining Customer fixtures and store to one side for reinstalling and refix on completion.
- 330 Carefully remove coatings, panelling, tiles or sheeting of any kind from adjacent walls and ceilings generally back to the plastered surfaces. Make good, repair or replaster to receive new fittings, tiles and decoration.
- 331 After the removal of the existing door, frame, sill, fanlight and sidelight the Provider is to carefully cut back any internal or external flooring, finishing's, cladding, wallpaper and decorations to allow for the installation of the new frames etc. The Provider is responsible for making good all structures, finishing's and decorations up to 100mm from the face of the frame or sill.

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Replacement Doors - General

- 332 The Provider must ensure that all door-sets and their installation fully satisfy the relevant standards detailed.
- 333 Manufacture, fabrication and installation should be suitable in all respects for: Low Rise Domestic Structures
- 334 **Important Note:** Dimensions, if shown, are for guidance only and the Provider is responsible for taking all necessary site dimensions to ensure that door-sets are manufactured to fit accurately and properly.
- 335 No frame extensions or make up pieces are to be used to compensate for incorrectly measured openings.
- 336 Fire doors are to have been tested (at a UKAS accredited test facility) to applicable Standard. Fire doors are to have achieved fire resistance integrity in excess of 30 minutes and a door-set classification of FD30S. On completion of installation, the Client's Representative is to be furnished with 2 copies of all documents within clause 032 of the Fire Door–Sets section. Fire door to be individually referenced, marked and tagged by the fire door manufacture, whereby they are to keep records of all fire doors supplied and present monthly updates to the Client's Representative with the monthly reports.

Construction of Door and Frame

- 337 Door leafs shall be constructed with minimum 4mm high gloss through coloured external Skins, manufactured from gel coat to applicable Standard, coloured to applicable Standard, and one layer of 300gm chopped strand matt and 2 layers of 450gm chopped strand matt to applicable Standard, fully saturated with high heat distortion isophthalic / DCPD polyester resin conforming to applicable Standard type C. Skins shall fully encapsulate a jointed timber frame manufactured from prepared material kiln dried to applicable Standard, and resin laminated CFC free fire resistant rigid polyurethane foam core. The above may be over ruled/enhanced by testing to PAS24 (and fire testing, as above, in the case of fire doors).
- 338 Door frames shall be of moulded GRP manufacture generally to the same specification as the door leaf and have a non-staining EPDM compression seal gasket and secondary angled blade neoprene stop seal;
- 339 Door sills, where required for non-wheelchair required access, shall be of moulded GRP manufacture generally to the same specification as the door leaf. They shall be 50mm in height, 150mm in width and designed to accept an approved threshold.

Threshold to Front Doors

- 340 All external door sets (Main and Secondary Entrances including Doors leading onto a patio) must have level access thresholds (max 15mm high threshold) and a minimum clear opening width of 800mm between the blade and the stop, irrespective of the type of accommodation in order to meet the requirements of Lifetime Homes.
- 341 Weather bar should be capable of renewal in-situ – i.e. without the need to remove the door frame. The weather bar unit shall have a performance rating to comply with the applicable Standard.

Glazing

- 342 All glazing apertures are to be internally beaded with the double glazed units securely fixed using mechanical means.
- 343 All doors, fan lights and/or side lights shall be glazed with dual sealed double glazing units with at least one pane of laminated glass to comply with Secured by Design. Safety glass shall comply with the applicable Standards.

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Ironmongery

- 344 Ironmongery must be provided in full compliance with "Secured by Design", Handles and locks must be easy grip type suitable for use by disabled persons.
- 345 Two door viewers must be provided to all front doors at heights of 1500 and 1050 mm from finished floor level.
- 346 All external doors must be hung on 1½ pairs of heavy duty butt hinges. Fire door hinges must be CE Marked and tested to applicable Standard. Hinges shall have high corrosion resistance, greater than applicable Standard grade 4.
- 347 Multi-point locks tested to PAS 24 and to comply with (and stamped) Secured by Design. Front doors to be provided with a security chain.
- 348 All hardware, where attached to the door-set, shall be fixed with stainless steel screws fully penetrating the timber sub frame. For all installations use screws not rivets and employ maximum retention. Do not over tighten fixings.
- 349 Allow for fitting of D type handle to internal face of door where identified. Position to be agreed with manufacturer.

Installation of Door-sets

- 350 The door-sets are to be fixed strictly in accordance with the manufacturer's technical data sheet. Care shall be taken to ensure the doors are handled and stored correctly. Frames are to be packed and wedged into the correct position to ensure a square and flat fit before fixing to the reveals.
- 351 The door-set is to be fixed with a minimum of eight M10 x 140mm proprietary frame fixings, direct through frame and finished with colour coded plastic not easy removed cover caps.
- 352 Door frame should be sealed to reveal with low modulus silicone sealant, colour matched to the door frame and neatly executed. A suitable bull nosed cover trim should be used to improve the aesthetic appearance of the joint.
- 353 All protective coverings on door-sets shall be removed on installation. Removal and cleaning of the frames and doors is the responsibility of the Provider.

Sidelights and Fanlights

Profile Manufacture

- 354 All sidelights, fanlights, door frames etc., profiles are to be obtained from the same approved system manufacturer.
- 355 All manufacturers must confirm as being registered as either having applicable Standard or BBA (or equivalent) independently. Evidence to be supplied. All manufacturers will be required to have membership of either, the GGF or BPF, evidence to be supplied.
- 356 The sidelights, fanlights, door frames etc., will be manufactured in accordance with current manuals for GRP sidelights and door frames. The profile will be manufactured to applicable Standard. Cadmium based stabilisers, and re-work material used in manufacture will not be accepted. The profile will be vent profile manufactured with a euro-groove. All profiles are to be chamfered.

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Construction

- 357 All sidelights, fanlights, door frames etc., shall be of all welded construction. All corner joints, transoms and mullions are to be mitred, and fusion welded. All excess materials are to be neatly trimmed and feature grooved. Mechanically jointed transoms may be considered where there are specific design constraints, but only after approval from the Client's Representative. All feature grooves should be straight and of consistent depth throughout their length.
- 358 Each sidelight, fanlight, door frame etc., shall be permanently marked in an unobtrusive position (not visible when the opening light is closed) with applicable Standard, the weather tightness exposure category and the name or trade mark of the manufacturer.
- 359 Reinforcement is to be continuous to a minimum of 85% of the length of the frame, and within 5mm of the weld. Screw fixed to the profile at 250 mm max c/c, with a minimum of three fixings. All reinforcement to be to the profile manufacturer's current recommended parameters in either aluminium or galvanised steel.
- 360 All sidelights, fanlights, door frames etc., will be constructed with the profile manufacturer's current guide lines for pressure equalisation. Face drainage is to be provided; however drainage slots should be a minimum 30mm long and 5mm wide. Internal drainage slots should be offset by a minimum of 50mm from external slots.
- 361 The sidelights, fanlights, door frames etc., are to be internally beaded as recommended in the current profile manufacturer's manual, and be capable of accepting 24mm hermetically sealed "low emissivity" glass units.

Installation

- 362 The correct installation of GRP sidelights and door frames is critical to achieve maximum performance.
- 363 Installation shall at all times meet the requirements of BPF/GGF code of practice for the survey and installation of white high impact modified windows (Ref: COP3, parts A&B). The requirement for through frame fixing, cleat fixing and the need for frame extensions will be discussed at appropriate times. The Provider should draw these details to the Client's Representative's attention.
- 364 All sidelights etc., are to be glazed from the inside of the building. Glazing systems shall be designed so that the glass cannot be removed from the outside by the use of a thin blade or other simple tool or tools.
- 365 All fasteners used for the installation of GRP door frames, sidelights etc and doors, must meet the following specification:-
- Fastener is to be a nylon through frame type with twist proof vanes to ensure mechanical stability and prevent anchor rotation;
 - To ensure stress free attachment to the masonry structure and to prevent twisting, racking or distortion of the frame, the anchor body will expand radially along its full length during installation. Fasteners relying on a cone and expanding sleeve are not acceptable due to the increased risk of frame distortion;
 - The fastener when installed will be fully concealed within the frame to ensure that the fastener remains tamper proof and secure;
 - Maximum distances between fasteners will not be more than 600mm and the minimum distance of fasteners from frame corners, transom or mullion joints will be 150mm; and
- 366 The Provider is to ensure the final securing of fixings are screw tightened (not hammered) to avoid possible splitting of the frame. Any splitting of frames will result in the entire door set having to be removed, re-framed and replaced at the no extra expense to the Client.

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Glazing

- 367 Glazing should be to Building Regulations Approved Document N and to applicable Standard. In addition manufacturer's recommendations for positioning of glazing blocks and packers must be adhered to.
- 368 Glass to all screens and windows will be hermetically sealed double glazed low emissivity units to applicable Standards, units to be fitted in accordance with manufacturer's technical data sheet. Glass to be marked with appropriate labelling which will only be removed after handover is completed.
- 369 Double glazed units are to be manufactured to the following specification 4mm Float Glass - 20mm Argon Gas fill - 4mm low emissivity glass overall thickness 28mm. Glass thickness and type shall be selected using the recommendations given in the applicable Standard to withstand the calculated design wind pressure relative to the size of pane.
- 370 All glazing to screens and adjacent windows must have at least one pane of laminated safety glass to applicable Standard and marked accordingly. Safety glass shall be fitted where required in accordance with Building Regulations Approved Document N.
- 371 If any panels have any fixtures/fitting etc. attached, they are to contain a ply reinforcement.
- 372 Obscure glass to be Cotswold pattern or an obscure pattern of level 5 as a minimum.

Hardware Specification for Fanlights and Sidelights

- 373 Openings in the fanlights/sidelights should in the first instance be avoided, as it presents a higher risk of unauthorised door entry. However, it may be deemed necessary to provide the room/inner space with an adequate amount of ventilation (see Building Regulations). In these instances, all ironmongery must be as window specification detailed elsewhere. In addition, restrictors must be concealed and tamper-proof from outside the property.
- 374 The fanlight/sidelight hardware package must meet the requirements of PAS 24 "Enhanced security performance requirements for door-sets and windows in the UK. External door-sets and windows intended to offer a level of security suitable for dwellings and other buildings exposed to comparable risk"

Insulated Panels

- 375 On full floor to head height frames, lower panels will be coloured insulated panels to match door panelling. Therefore, the panel's overall thickness and Materials to be used will be determined by the doors PAS 24 certification. All panels will achieve a min thermal resistance equal to or better than the glazed area above.
- 376 All panels to be manufactured to meet all relevant Building Regulations and safety standards with regard to thermal performance, acoustic transmission, and fire protection

Covers, Trims and Mouldings

- 377 Unless otherwise Instructed all internal heads, jambs, and sills will be finished with a (colour as windows) single bull-nosed PVC-u trim typically 5–7mm maximum thickness of not greater width than 100mm. Scribed, mitred, securely screwed and capped and the edge glued to the frame with a PVC-u cyanoacrylate adhesive to give a neat finish and sealed on all edges using an emulsion acrylic sealant.
- 378 All PVC-U extrusions, mouldings, trims and profiles to windows will be manufactured and installed so that no colour variation exists to the detriment of the aesthetic value of the windows, doors etc. In accordance with colour fastness test methods included in the applicable Standard.

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- 379 Trims are not to be used to simply provide or enhance the weather tightness of the window or any perimeter joints. Finishing trims shall be used to neaten the interface between frames and opening, they are only to be used in conjunction with the “plaster-patching” / making good situations. As it is likely that cold bridging may occur, filling at reveals, heads and sills must be plastered prior to fitting of all trims.
- 380 The inclusion of a finishing trim to existing reveals and sill may in certain circumstances create an issue around the re-fitting of Customer’s blinds etc. The window installer shall pay due regard to the existing window dressing(s) and where finishing trims are required that a “slim-line” version (5mm or less) is used.

Sealants and Perimeter Pointing

- 381 All external sealants are to be of low modulus silicone and conform to the applicable Standard and used to seal gaps between window/door assembly and brickwork/plasterwork. Colour matched to windows and neatly executed.
- 382 Internal sealant to be a one-part flexible emulsion acrylic sealant. This sealant may be used to fill cracks or gaps around walls and ceilings, and around all finished PVC-u architraves and trims.

Ventilation

- 383 All openings to be fitted with room ventilation as per window specification detailed elsewhere.
- 384 If required the Provider is to supply and fit a ventilator, which will conform to Gas regulations and applicable Standard, for air supply to gas appliances. This applies to any room containing, or used to vent these types of appliances. Type position and quantity of ventilators to be agreed and verified with the Client’s Representative prior to work commencing.
- 385 An appropriate “**DO NOT OBSTRUCT**” label approved by the Client’s Representative indicating boiler rating, must be fitted to all gas ventilators by the manufacturer.

Completion

- 386 On completion of all Works thoroughly clean all adjacent surfaces affected by the Works.
- 387 All builders rubbish both internally and externally must be removed during and on completion of the Works.

Client’s current manufacturers/suppliers/products

- 390 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

FIRE DOOR-SETS
[LOWER TIER – Client to delete if not applicable]

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FIRE DOOR-SETS

GENERAL REQUIREMENTS ON FIRE DOOR-SETS

<u>Scheme Type</u>	<u>Door Replacement</u>	<u>Colours/Choices</u>
Internal Flat Entrance door-sets	Timber Veneer flush faced FD30s/FD60s door-set in accordance with Fire Safety Law and applicable Standards Door thickness 44mm and 54mm	Colours to be chosen by Client's Representative and Customers. *Locking system – Client's Representative will Instruct whether to retain the existing *locking system or to replace with a new locking system
Internal Communal door-sets	Timber Veneer FD30s/FD60s door-set in accordance with Fire Safety Law and applicable Standards	Colours to be chosen by Client's Representative and Customers. *Locking system – Client's Representative will Instruct whether to retain the existing *locking system or to replace with a new locking system
Internal Cupboard door-sets	Timber Veneer FD30s/FD60s door-set in accordance with Fire Safety Law and applicable Standards	Colours to be chosen by Client's Representative and Customers. <u>All new doors MUST match all other existing or proposed new doors throughout the scheme.</u> Client's Representative will Instruct whether to retain the existing *locking system or to replace with a new locking system
External Flat Entrance door-sets	Composite FD30s/FD60s door-set in accordance with Fire Safety Law and applicable Standards	Colours to be chosen by Client's Representative and Customers. *Locking system – Client's Representative will Instruct whether to retain the existing *locking system or to replace with a new locking system
Combination of Internal & External Flat door-sets	Composite FD30s/FD60s door-set in accordance with Fire Safety Law and applicable Standards	Colours to be chosen by Client's Representative and Customers. *Locking system – Client's Representative will Instruct whether to retain the existing *locking system or to replace with a new locking system

Internal Flat Entrance Door-sets

- 401 Timber veneer FD30s/FD60s door-set, set within timber or aluminium frames in accordance with Fire Safety Law and applicable Standards to provide fire resistance ratings of 30 minutes (or better) and 60 minutes (or better) when tested in accordance with the applicable Standards.
- 402 All Materials to have achieved Certifire certification to 30/60 minutes fire resistance, or to have been tested in accordance with the appropriate section of the applicable Standards and all door components must comply with Approved Document B of the Building Regulations. All to be installed in strict accordance with manufacturer's technical data sheet with certificate obtained by the Provider at practical completion.

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403 Please note: If the existing doors are glazed, the Provider must conduct a survey with the Customers to see whether they wish to retain the glazing or have replacement solid doors. Where possible, the Client would like to prevent glass from being installed due to security risks, fire safety and thermal efficiencies.

404 All doors must include the following elements (if not included with the door-set):

Combine 15 x 4mm intumescent /brush smoke seals to both side edges and top edge of door leaf Successfully tested for fire and smoke performance in accordance with the applicable Standards
Overhead door closing mechanism affixed to the external side of the door in accordance with applicable Standards.
75mm/3" Eurospec Fire rated door numerals in satin anodised aluminium finish.
Average size 285mm x 55mm fire and smoke resistant letter plate with Telescopic intumescent liner and Nylon brush seals fitted to prevent vision through the letterplate and provide draught proofing, complete with a security cowl is available to prevent vision through the letterplate when open, and to inhibit manipulation of locks and bolts. In accordance with the applicable Standard and Approved Document B of the Building Regulations.
Complete viewing angle 60 degrees fire rated door viewer with a prism system that allows viewing from up to 2m away. Fire protection is provided by intumescent strip and suitable for 35mm - 62mm thickness doors. One per door, Two to be provided for wheelchair users.
1½ pairs Eurospec Grade 13 ball bearing fire rated hinges manufactured from 304 grade stainless steel, CE marked, designed and tested for 44mm doors.
Locking assembly and door handle ironmongery – Thumb turn on the internal face.
Fire Safety Signage to comply with the applicable Standard for Fire safety signs, notices and graphic symbols and the Health and Safety (Safety Signs and Signals) Regulations 1996 and where applicable conform to applicable Standards.

Communal Internal Door-sets

405 Timber veneer FD30s/FD60s door-set with clear fire resisting glazing panels set within timber or aluminium frames in accordance with Fire Safety Law and applicable Standards to provide fire resistance ratings of 30 minutes (or better) and 60 minutes (or better) when tested in accordance with applicable Standards

406 All Materials to have achieved Certifire certification to 30/60 minutes fire resistance, or to have been tested in accordance with the the applicable Standards. All door components must comply with Approved Document B of the Building Regulations. All to be installed in strict accordance with manufacturers technical data sheet with certificate obtained by Provider at practical completion.

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407 All doors must include the following elements (if not included with the door-set):

Combine 15 x 4mm intumescent /brush smoke seals to both side edges and top edge of each door leaf Successfully tested for fire and smoke performance in accordance with the applicable Standards
Overhead door closing mechanism affixed to the external side of the door in accordance with applicable Standard.
1½ pair Eurospec Grade 13 ball bearing fire rated hinges manufactured from 304 grade stainless steel, CE marked, designed and tested for 44mm doors to each door leaf.
Fire Safety Signage to comply with applicable Standard for Fire safety signs, notices and graphic symbols and the Health and Safety (Safety Signs and Signals) Regulations 1996 and where applicable conform to applicable Standards.
Eurospec plain or Push/Pull engraved Fire door rated finger plates to each door leaf.
Eurospec D pull Handle - A versatile range of pull handles in various bar diameters and lengths to each door leaf.
<u>Eurospec kicking plate to both faces of each door leaf.</u>
<u>Electromagnetic fire door retainers</u> (hold open devices) can be used to hold a self-closing fire door in the open position with an electrically powered magnet. These devices are usually linked into a building's fire alarm system or are controlled from locally positioned smoke detectors.
Or
<u>Acoustic fire door retainers</u> fitted at the bottom of fire doors and can lock a fire door in the open position by pushing a plunger down. The acoustic fire door retainers then 'listen' for the sound of smoke alarms. Door release mechanism should conform to applicable Standard for electronically powered hold-open devices.

408 **Internal Cupboard Door-sets** (Electric cupboards, meter cupboards, boiler cupboards, storage rooms, cleaning cupboards & Lift rooms etc.).

409 Timber veneer FD30s/FD60s door-set set within timber or aluminium frames in accordance with Fire Safety Law and applicable Standards to provide fire resistance ratings of 30 minutes (or better) and 60 minutes (or better) when tested in accordance with applicable Standards.

410 All Materials to have achieved Certifire certification to 30/60 minutes fire resistance, or to have been tested in accordance with the applicable Standards. All door components must comply with Approved Document B of the Building Regulations. All to be installed in strict accordance with manufacturers technical data sheet with certificate obtained by Provider at practical completion.

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411 All doors must include the following elements (if not included with the door-set):

Combined 15 x 4mm intumescent /brush smoke seals to both side edges and top edge of door leaf Successfully tested for fire and smoke performance in accordance with applicable Standards
Cam action overhead door closing mechanism affixed to the external side of the door in accordance with applicable Standard.
1½ pair Eurospec Grade 13 ball bearing fire rated hinges manufactured from 304 grade stainless steel, CE marked, designed and tested for 44mm doors.
Locking assembly and door handle ironmongery – Thumb turn on the internal face.
Fire Safety Signage to comply with applicable Standard for Fire safety signs, notices and graphic symbols and the Health and Safety (Safety Signs and Signals) Regulations 1996 and where applicable conform to applicable Standard.

External Flat Entrance door-sets

412 Complete FD30S Composite fire door-set set within timber or aluminium frames and flush finished with a fire resistant glass reinforced plastic textured finish. Fire Resistant insulated core which has a leaf thickness of 44mm in accordance with Fire Safety Law and applicable Standards, to provide fire resistance ratings of 30 minutes (or better) when tested in accordance with applicable Standards

413 All Materials to have achieved Certifire certification to 30/60 minutes fire resistance, or to have been tested in accordance with the appropriate section of applicable Standards and all door components must comply with Approved Document B of the Building Regulations. All to be installed in strict accordance with manufacturer’s written instructions with certificate obtained by Provider at practical completion.

414 Please note: If the existing doors are glazed, the Provider must conduct a survey with the Customers to see whether they wish to retain the glazing or have replacement solid doors. Where possible, the Client would like to prevent glass from being installed due to security risks, fire safety and thermal efficiencies.

415 All doors must include the following elements (if not included with the door-set):

Combine 15 x 4mm intumescent /brush smoke seals to both side edges and top edge of door leaf Successfully tested for fire and smoke performance in accordance with applicable Standards
Cam action overhead door closing mechanism affixed to side of the door in accordance with applicable Standards
75mm/3” Eurospec Fire rated door numerals in satin anodised aluminium finish.
Average size 285mm x 55mm fire and smoke resistant letter plate with Telescopic intumescent liner and Nylon brush seals fitted to prevent vision through the letterplate and provide draught proofing, complete with a security cowl is available to prevent vision through the letterplate when open, and to inhibit manipulation of locks and bolts. In accordance with the applicable Standard and Approved Document B of the Building Regulations.
Complete viewing angle 60 degrees fire rated door viewer with a prism system that allows viewing from up to 2m away. Fire protection is provided by intumescent strip and suitable for 35mm - 62mm thickness doors. One per door, Two to be provided for wheelchair users.

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2 pair stainless steel hinges, CE marked, designed and tested for 44mm doors.
Multi-point automatic multi-point locking assembly and lever/lever configuration door handles to suit Euro profile lock cylinder with 3 keys – Thumb turn on the internal face.
Fire Safety Signage to comply with applicable Standard for Fire safety signs, notices and graphic symbols and the Health and Safety (Safety Signs and Signals) Regulations 1996 and where applicable conform to applicable Standard.
Anodised aluminium "low mobility" threshold.
Anodised aluminium weather bar.

Internal and External Flat Entrance Door-sets

- 416 Complete FD30S **Composite** fire door-set, set within timber or aluminium frames and flush finished with a fire resistant glass reinforced plastic textured finish and Fire Resistant insulated core which has a leaf thickness of 44mm in accordance with Fire Safety Regulations 2017 and the applicable Standard to provide fire resistance ratings of 30 minutes (or better) and 60 minutes (or better) when tested in accordance with the applicable Standards.
- 417 All Materials to have achieved Certifire certification to 30/60 minutes fire resistance, or to have been tested in accordance with the appropriate section of the applicable Standard. All door components must comply with Approved Document B of the Building Regulations. All to be installed in strict accordance with manufacturers technical data sheet with certificate obtained by Provider at practical completion.
- 418 Please note: If the existing doors are glazed, the Provider must conduct a survey with the Customers to see whether they wish to retain the glazing or have replacement solid doors. Where possible, the Client would like to prevent glass from being installed due to security risks, fire safety and thermal efficiencies.
- 419 All doors must include the following elements:

Combine 15 x 4mm intumescent /brush smoke seals to both side edges and top edge of door leaf Successfully tested for fire and smoke performance in accordance with applicable Standards
Cam action overhead door closing mechanism affixed to external side of the door in accordance with applicable Standard.
75mm/3" Eurospec Fire rated door numerals in satin anodised aluminium finish.
Average size 285mm x 55mm fire and smoke resistant letter plate with Telescopic intumescent liner and Nylon brush seals fitted to prevent vision through the letterplate and provide draught proofing, complete with a security cowl is available to prevent vision through the letterplate when open, and to inhibit manipulation of locks and bolts. In accordance with the applicable Standard and Approved Document B of the Building Regulations.
Complete viewing angle 60 degrees fire rated door viewer with a prism system that allows viewing from up to 2m away. Fire protection is provided by intumescent strip and suitable for 35mm - 62mm thickness doors. One per door, Two viewers are to be provided for wheelchair users.

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2 pair stainless steel hinges, CE marked, designed and tested for 44mm doors.
Multi-point automatic multi-point locking assembly and lever/lever configuration door handles to suit Euro profile lock cylinder with 3 keys – Thumb turn on the internal face.
Fire Safety Signage to comply with applicable Standard for Fire safety signs, notices and graphic symbols and the Health and Safety (Safety Signs and Signals) Regulations 1996 and where applicable conform to EN ISO 7010.
Anodised aluminium "low mobility" threshold.
Anodised aluminium weather bar.

420 Fire Door manufacturers and suppliers must provide, as a minimum, evidence of testing relating to the following:

Accreditation to and compliance with:

- UKAS Accredited Fire Testing Laboratory Detailed Report, typically known as a Global Fire Resistance Assessment
- Fire Testing in accordance with relevant applicable Standards for Fire Doors etc.,

Compliance (as far as reasonably practicable) with Statutory Requirements:

- Building Regulations
- Fire Safety and associated Technical Booklet Guidance
- the applicable Standard for Fire Safety in the Design, Management and Use of Residential Buildings – Code of Practice

421 Composite fire door-set manufacturers/suppliers, must at all times demonstrate compliance with the standard specification requirements in terms of certification (and validity of same), product compliance etc.

422 The manufacturer/supplier of fire door-sets will be required to submit the following evidence directly to the Client's Representative. This will be held solely by the Client as evidence of accredited fire performance, technical specification and particular features –

- A Global Fire Resistance Performance Assessment Report for the respective composite fire door-set arrangement from a UKAS accredited fire testing laboratory with definitive confirmation that the composite fire door-set when tested to destruction achieves well in excess of the required 30 minutes
- This to account for a series of glazing options including the addition of glazed top-lights or side-lights within prescribed dimensions. All other components such as hinges, multi-point locking devices, etc., must be fire-rated and hence part of this assessment. The manufacturer/supplier may elect to have a number of the same component, but from different suppliers tested and the outcome reflected in this report.
- A composite fire door-set Installation and Procedure Manual specific to the product. This document is for the sole use of the Provider/Installer who warrants through a Certificate of Conformity that the Fire Door-set exhibits no compromise whatsoever prior to and post its installation.
- Training is undertaken directly by the manufacturer/supplier of the composite fire door-set on their product and installation manual to the Provider in the installation of these door-sets.
- A Manufacturer/Supplier Certificate of Conformity to be issued with delivery of each manufactured fire door-set listing the unique job reference and all of the secondary components (fire-rated letter-plate, eye viewer etc.,)

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- A Manufacturer/Supplier Fire Door-set Monthly Report that records the composite fire door-sets as manufactured. This to be issued to the Client's Representative in a tabular/PDF format on a monthly basis.

Marking of Fire Door-Sets

- 423 All fire door-sets supplied to the Client should be clearly and permanently marked with their declared fire resistance at the manufacture stage. This will be in the form of a circular metallic tag. It must bear the manufacturer's name and contact details.
- 424 The door-set must, in addition, carry a unique job reference number on the upper RH edge of the door leaf, which, in turn, must relate to the specific Fire Door Certificate issued with the door-set.
- 425 Fire-resisting glass were installed as part of the fire door-sets must be identified with an appropriate designation mark. The mark on the glass must be permanent, legible and completely visible after glazing installation. Similarly, this should include as a minimum, the glass manufacturer's name and the product name.

426 The Specifying of Fire Door-Sets

Fire Door-sets are to be available in both FD30s and FD60s configurations. The specification for a fire door-set must include a full description of the elements together with the required fire resistance. Typically this should reflect critical issues such as –

- the overall size of the door-set
- the proposed mode of operation
- size and number of any glazed apertures
- details of any hardware
- frame details and material being used
- the presence of any top or side-light glazed panels
- requirement in terms of performance seals

Door Leaves and Frames

- 427 All fire door-sets must be purchased as complete door-sets. This ensures that all of the correct components are fitted and that full assembly instructions are available through the manufacturer.
- 428 Door Leaves are to be constructed from composite materials and be "single swing". The "as installed" door-sets must reflect those features contained in the manufacturers **Global Fire Resistance Assessment Report**.
- 429 Door frames can be provided (subject to above assessment reports) in hardwood, aluminium or steel. The frame of the door-set should provide support for the door leaf in a "cold state", but also provide adequate support in a fully developed fire. The minimum dimensions for the frame cross-section will be stated in the manufacturer's fire door-set assessment report.
- 430 The timber and metal (aluminium or steel) door frames in terms of their density, dimensions and material should not be less than those tested and recorded within the manufacturers **Global Fire Resistance Assessment Report**

Intumescent Fire and Smoke Seals

- 431 The intumescent fire and smoke seals used in the fire door-sets must be of the same formulation, dimensions and configuration as that stated in the manufacturers **Global Fire Resistance Assessment Report**.

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- 432 These seals must achieve their optimum performance when fitted in the frame of the single leaf, single swing Fire Door-sets. These are normally positioned by the manufacturer at the mid point of the door leaf thickness.
- 433 Fire door-sets are required under Building Regulations to restrict the flow of ambient temperature smoke – all Fire Door-sets, therefore, supplied to the Client must be identified by the suffix “s” – for example, FD30s and fitted with smoke seals.
- 434 Painting of smoke seals or combined intumescent and smoke seals is not permissible as this may inhibit the door-set from latching correctly.

Glazing Apertures

- 435 Fire door-sets as supplied to the Client may have glazed apertures. The door-sets must be designed to receive glazed apertures and fitted into the fire door-set aperture under the strict control of the manufacturer. Under no circumstances must apertures be cut on site.
- 436 The position, number and area of glazed apertures must be the same as that tested as part of the manufacturers **Global Fire Resistance Assessment Report**.
- 437 Only completely tested glazing systems must be used and the manufacturer must identify the glass product type, thickness, glazing seals and beads and any fixings. These must be fully supported by the relevant test evidence.

Fire Door-Set Hardware

- 438 Intumescent materials that have been used to achieve a particular performance in the fire test conditions, with the relevant hardware and the door leaf must be reflected in the completed Fire Door-set to maintain the stated fire performance.
- 439 It is essential that any element of hardware incorporated as part of the composite fire door-sets provides the required intumescent protection. It is recommended in most cases that the hardware is bedded in an intumescent mastic or intumescent pads to restrict heat transfer to the door edge by means of the metal hardware products.
- 440 All hardware/door-set furniture must be fitted in a manner that ensures the fire-resisting properties of the door-set are not compromised.
- 441 Intumescent and fire-rated letter plates and fire-rated eye viewers are a particular requirement of fire door-sets. These must be fitted with an intumescent liner and only fitted where they have achieved the appropriate fire resistance period when tested in-situ with the composite fire door-set.

Finish/Decoration to Fire Door-Sets

- 442 Fire door-sets are generally not required to provide a specific spread of flame classification.
- 443 All fire door leaves supplied as part of the composite fire door-set are pre- coloured GRP skins that do not require any form of decoration. Similarly those fire door-sets utilising the aluminium framing system require no form of decoration as these are “powder coated”.
- 444 Where there is a hardwood frame as part of a composite fire door-set, particular care must be taken where there may be future re-decoration. The use of heat or chemical strippers must be avoided at all costs as these are liable to damage intumescent fire and smoke seals incorporated within the frame.

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Sample Fire Door-Sets for Approval

- 445 Sample fire door-sets must be delivered to site by the Provider/manufacturer/supplier for inspection and acceptance by the Client's Representative.
- 446 The Provider/manufacturer/supplier in providing the sample for acceptance must demonstrate full compliance with the Specification requirements. Evidence of full compliance with the standard specification requirements and a copy of the relevant test data/**Global Fire Resistance Assessment Report** must be held in advance by Client.

Protection, Transportation, Storage and Pre Installation Check of Fire Door-Sets

- 447 The Provider/manufacturer/supplier of the fire door-sets shall be responsible for ensuring they are suitably protected to avoid damage during transportation and subsequent storage.
- 448 Fire door-sets shall not be flat-packed, but stood vertically during transportation.
- 449 Fire door-sets in storage to be "kept apart" with preferably soft packing.
- 449 The Provider/manufacturer/supplier of fire door-sets may choose to disengage the over-head door closer for transportation purposes. This is a critical component and part of the fire door-set and must be re-engaged by the Provider prior to any installation.
- 450 The Provider must ensure that all fire door-sets stored on site are housed within a weatherproof on-site storage facility and protected at all times from moisture and temperature extremes. This should preferably be a well ventilated facility.
- 451 Prior to commencement of installation, the Provider must undertake the following checks:
- Consult the manufacturer/supplier survey sheets and ensure these are correct and clear
 - All definitive survey measurements are recorded
 - The fire door-sets as supplied are of the correct fenestration and design
 - All hardware components are intact and engaged (where required)
- 452 All Fire Door-sets are generally measured in accordance with **the applicable Standards** and as recommended on the **GGF (Glass & Glazing Federation) Code of Practice (March 2006)**. Fire Door-sets will in the main be fitted from the inside, although the nature of some reveals will permit these to be fitted from the outside. The measurement and fitting of fire door-sets must in every case respect the existing cover/rebate to the outer frame of the fire door-sets by virtue of the "reverse brick detail" or "check reveal".

Compatibility of Fire Door-set Framing with Surrounding Structure

- 453 The type of the surrounding structure and / or the wall or partition into which the fire door-set is being installed will have been determined by the fire resistance testing and within the **Global Fire Resistance Assessment Report**. Reference must be made to the manufacturer / supplier for each common area and verified by test evidence.

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Installation of Fire Door-sets

- 454 Installation Generally
- All fire door-sets to be installed must pay due regard to the following –
 - Fire door-set manufacturer/supplier Installation technical data sheets
 - Installation of fire door-sets
 - Compatibility of door-set arrangement (and in particular, the door frame) with the surrounding structure
 - Sealing between the door-set and the surrounding structure
 - Clearance gaps
 - Under-door (threshold gaps)
- 455 Where the fire door-sets are installed by a Provider, the following protocol must operate:
- The Provider must identify “skilled Installers” to the Client’s Representative who will be employed in their installation;
 - The “skilled installers” must have undertaken certified training and be classed as an approved person meeting the requirements of the BM TRADA scheme for Q-Mark Fire Door Installation to STD052 or other equal and approved standard;
 - The Provider must similarly be registered as meeting the requirements of the BM TRADA scheme for Q-Mark Fire Door Installation to STD052 or other equal and approved standard, a copy of the certificate of registration is to be provided to the Client’s Representative before any Fire Doors or Door-sets are installed;
 - The Provider must organise with the fire door-set manufacturer/supplier, specific training on all aspects of the door-set and importantly the installation technical data sheet;
 - The manufacturer/supplier of the fire door-sets must maintain a record of all training given and must be made available for inspection by the Client’s Representative, as and when required.
 - The manufacturer/supplier of the fire door-sets will issue “all persons attending” with a bespoke certificate as proof that training in their respective product has taken place.
- 456 **Install the fire door-sets in strict accordance with the installation technical data sheets and ensure that there is adequate sealing with the surrounding structure and that damage is limited (or avoided) with any flame retardant coatings.**
- 457 Under no circumstances must the fire door-set arrangement (as supplied) be compromised in the fitting/installation process. This includes making on-site adjustments to key fire-rated components such as “building hardware” with intumescent fire protection.
- 458 In all cases the fire door-set manufacturer/supplier is at liberty to undertake random checks to ensure that their fire door-set arrangement has not been compromised in any way. Where a manufacturer/supplier is of the opinion that any of their fire door-sets have been compromised, this must be referred immediately to the Client’s Representative for action.
- 459 Installation Criteria:
- Fire door-sets must be installed plumb and square within the structural aperture, without twist, racking or distortion of any member and in accordance with the manufacturer/supplier recommended and permissible tolerances so as to operate correctly after installation;
 - It is critical that the manufacturer/suppliers correct and preferred method of installation is fully complied with to ensure that the door-set, when fixed into the wall, will achieve the required fire rating designated for the respective door opening;
 - In order to maintain the fire resistance of the compartment walling when fitted with a fire door-set arrangement, the junction between the two elements must be adequately sealed.
 - The sealing of these junctions must be in strict accordance with the manufacturer / supplier Installation technical data sheets.

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- The composite fire door leaf must be hung to give an equal gap across the heads and down both jambs. To ensure good fire performance and under fire test conditions; this may be in the order of 2 – 4mm;
- The combined intumescent fire and smoke seals (as required and fitted) must allow the door-set to operate without causing significant “frictional issues”, and the gap must remain within the “as tested” tolerances;
- The under door/threshold gaps should be pre-determined by the fire door-set manufacturer/supplier and be in accordance with their Installation technical data sheet for the particular fire door-set;
- When fitted, the fixed or threshold arrangements or the drop- down seal variant should give an “even contact” with the floor, but not create/exhibit significant “frictional issues” that could interfere with the closing action/latching of the fire door-set

Methods of Fixing for Fire Door-sets

460 Fixing Fire Door-sets Generally

- Fixings for fire door-sets must be strictly in accordance with the manufacturer/supplier Installation technical data sheets;
- Fixing methods and distances together with their respective methodology must also be strictly complied in terms of the manufacturer/supplier Installation technical data sheets;

461 Use of Expanding Polyurethane Foam

- The use of expanding polyurethane foam is not acceptable as a sole method of fixing any fire door-set into a structural opening;
- Where the installation of the fire door-set with the adjacent wall substrate may require an element of expanding polyurethane foam, this “foam filling” must be referred initially to the manufacturer/supplier for verification/approval. Where the manufacturer/supplier Installation technical data sheet permit this or make reference to its use, this must be applied strictly in accordance with that stated;
- Where expanding polyurethane foam is used, subject to manufacturer’s recommendations, it must not be used to fill gaps exceeding 10mm wide;
- Foam filling must be to the full depth of the frame using only an approved fire resistant expanding polyurethane foam complying with applicable Standards and be of 4 hour fire performance rating for Building Regulations compliance

Finishing Off and Making Good

462 The final covering and treatment of adjacent surfaces, substrates, and their intersections are key in the overall fire door-set installation process.

463 The primary objectives of making good any damaged areas adjacent to the fire door-sets is to:

- Maintain the fire resistance of a fire-resisting or compartment wall
- Ensure the junction between the two elements are adequately and appropriately sealed
- Maintain the required Surface Spread of Flame Classification (Class 0) linked to the Flame Retardant Coatings
- Plaster-Patching
 - A small degree of plaster-patching will be required from the installation process. This will in all probability relate to reveals immediately adjacent to fire door-set.
- Finishing Trims
 - In a small number of cases, the gap between the door frame and the wall frame may be masked by an architrave both internally and externally. In the main, it is expected that the door frame will be fixed directly to the substrate.
 - Where the former occurs, this should be referred initially to the fire door-set manufacturer/supplier for verification that this type of surrounding structure was determined by the fire resistance test. Additional protection can be facilitated as below.

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- Frame to Wall Junction & Adjacent Flame Retardant Paint Coatings
 - Where the surface of the adjacent walling is identified as being plastered over to back of the frame, then there is no real problem with the exception of disturbance to any applied wall applied paint applications – in many cases, these paint applications will be multiple coatings and potentially in a flame retardant paint.
 - Where there is disturbance of such surface linings, the Provider must refer to his paint suppliers for advice and sampling (if required). It is recognised that wall linings disturbed and in a fully developed fire can compromise the common area.
 - Where architraves / adjacent panels are present, these should be removed to check that no voids exist between the frame and the adjoining structure.
 - If the above scenario is found, the fire door-set manufacturer/supplier should be consulted as stated. As a form of additional protection, the void(s) should be filled with plaster, intumescent material or tightly packed rock-wool. The method of packing will depend on the size of the void – guidance on filling voids satisfactorily is stated in the applicable Standard.
 - Where fire Door-sets are installed and any damage of the adjacent wall surfaces sustained, then a visual inspection should take place and identification made of the “applied paint” – it is expected, for example, within common areas that any of the following paint applications may exist:
 - Flame Retardant Paint
 - Emulsion
 - Solvent-based Gloss
 - Solvent-based Egg-shell
 - Textured Coatings
 - If there is any element of doubt as to the above application, then referral should be made to his paint manufacturer for technical advice. This is particularly critical if the topmost paint layering is of a flame retardant paint.
 - There are fire hazards associated with multi-layer paint coatings
 - The common area paint linings and forming part of compartment walling must ultimately achieve a Class 0 Surface Spread of Flame classification. That is readily achievable normally through an “upgrade process” and specification involving flame retardant paints from the Provider’s paint manufacturer.

Fire Door-set Inspection Checklist

- 464 A **FIRE DOOR-SET INSPECTION CHECKLIST** requires to be completed where any fire door-set is installed as part of this Contract.
- 465 Each Fire Door-set **must** be individually, independently inspected by a UKAS accredited fire door installation inspector in relation to all issues listed. This information will be critical in maintaining a “level of fire resistance” within the common areas.
- 466 The Inspection Checklist is to give the Client an assurance that the door-set has been independently observed and inspected as installed and that any deficiencies based on the checklist issues have been noted and recorded. The inspector is required to record and advise the Provider of any such deficiencies.
- 467 The inspection, recording and completion of this Checklist is the responsibility and cost of the Provider. Photographs may be used where necessary as evidence of any significant deficiencies.
- 468 Ensure that any deficiencies identified are remedied without delay.
- 469 Upon completion of any remedial works must sign and issue the Provider’s Certificate of Conformity for each Fire Door-set.

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Protocol – Certification of Fire Door-Sets

Certification Generally

470 Fire Door-sets as supplied to the Client must be “certified” as fit for purpose and capable of achieving the fire resistance and integrity as stated.

471 Demonstrate compliance with this Specification.

472 Manufacturer/Supplier Certification and Compliance

- **Any Manufacturer/Supplier of Fire Door-sets are required to undertake the following:**

- Tag every Fire Door-set with a round metallic tag affixed to the door leaf with security screws; this must state “FD30s or FD60s” and the respective Manufacturer’s name and contact number.
- The upper RHS of the Fire Door leaf must bear the unique manufacture job reference assigned to the respective Flat/Maisonette address or communal location – this must relate directly to the MANUFACTURER/SUPPLIER CERTIFICATE OF CONFORMITY and also be logged to the MONTHLY FIRE DOOR-SET REPORT
- The MANUFACTURER/SUPPLIER CERTIFICATE OF CONFORMITY must be made available with every Fire Door-set and record the following details:
 - Project/Scheme name & corresponding Project No.
 - Door-set Manufacturer/Supplier details
 - Manufacturer/Supplier job reference
 - Contractor supply details
 - Completed Certificate of Conformity Statement
 - Product Supplied Address
 - Product Details
- The relevant Certificate of Conformity template is included below:
- A MANUFACTURER/SUPPLIER MONTHLY FIRE DOOR-SET REPORT format and content to be approved by the Client’s Representative must be submitted to the Client’s Representative on a monthly basis fully completed as confirmation of all fire door- set locations as supplied in the preceding month. This report must cross-reference with all of the Certificates of Conformity issued.

Installer Certification and Compliance

473 The Provider required to undertake the following:

- Undertake all remedial works/deficiencies as identified on the Fire Door-set inspector checklist, format and content to be agreed with the Client’s Representative.
- Warrant that the Fire Door-set as installed has been supplied from a fire door-set manufacturer who holds a current and valid Global Fire Resistance Assessment Report; in addition, the Provider is to warrant that the fire door-set Installation (and any identified deficiencies have been undertaken in strict compliance with the manufacturer/supplier installation technical data sheets and with the Client’s Specification and that no compromise of any fire safety component exists.

474 The relevant INSTALLER CERTIFICATE OF CONFORMITY template is to be provided by the Client to the Provider.

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Client’s current manufacturers/suppliers/products

475 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**PRE-FINISHED TIMBER EXTERNAL DOOR SETS AND SCREENS
[LOWER TIER – Client to delete if not applicable]**

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PRE-FINISHED TIMBER EXTERNAL DOOR SETS AND SCREENS

Timber Doors

- 501 This Section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' and 'Replacement External Doors – General'.
- 502 All new pre-finished timber doors shall be purpose made pre-treated timber double glazed doors, manufactured to the applicable Standard.
- 503 Where required lower panels shall be laminated safety glass or 25mm hardwood raised and fielded panels as appropriate. **Plywood panels shall not be accepted.**
- 504 Hardwood or aluminium glazing beads incorporating an integral EDPM corded lipped gasket shall be fitted to the external face. **The bead type and colour shall be agreed with the Client's Representative.**
- 505 All aluminium glazing beads shall be secured with bead retention clips as standard. Pre-finished hardwood glazing beads shall be fixed either by secret nailing using stainless steel or copper pins or by stainless steel large headed pins. When pinning with stainless steel large headed pins care shall be taken to ensure that splitting, head indentation of the glazing bead or breaking of the paint surface by the head does not occur. Bead retention clips may also be used for the securing of hardwood glazing beads.
- 506 All pre-finished door-sets shall be delivered to site totally completed including full coating system, this shall be either opaque or translucent, solvent based or water borne, fully glazed and with all furniture fitted leaving only the need to fix into the prepared opening on site. Note: Projecting furniture i.e. handles, may be supplied unfitted to avoid damage during transit.
- 507 All workmanship to be to applicable Standard.
- 508 Timber for use in all doors shall be selected hardwood and in the density range of 650kg/m cu. Doors may be flush fitting or rebated over frame.
- 509 Flush fitting doors shall have a minimum thickness of 44mm.
- 510 Rebated doors shall have a minimum thickness of 57 mm.
- 511 Timber for doorframes shall be selected hardwood and in the density range of 650kg/m cu.
- 512 All external edges shall have a radius of not less than 1.5mm and not greater than 3.00mm in accordance with Paint Manufacturers technical data sheet.
- Note: It is acceptable for this detail to 'run through' all joint lines.
- 513 Surface waves caused by machining or excessive sanding will not be accepted.
- 514 All frames, mullions, transoms etc., to be to quality standard of the applicable Standard.
- 515 Timber doors to be set in rebated hardwood frames, and 2XG style pre-primed timber doors with upper panel double glazed with laminated safety glass sealed units.
- 516 Weatherboards to doors are to be included.

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Client’s current manufacturers/suppliers/products

517 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**ALUMINIUM EXTERNAL DOORS AND SCREENS
[LOWER TIER – Client to delete if not applicable]**

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ALUMINIUM EXTERNAL DOORS AND SCREENS

Generally

- 601 This Section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' and 'Replacement External Doors – General'.
- 602 The Works comprise all the necessary Design Work for and the supply and installation of aluminium external doors and screens, with double glazed units to communal staircases and landings.

Design Standards

- 603 The door system is to comply with the following applicable Standards:
- Glass for glazing – Classification
 - Aluminium and aluminium alloys. Extruded rod/bar, tube and profiles. Mechanical properties
 - Aluminium alloy windows and doorsets Specification
 - Patent glazing and sloping glazing for buildings. Code of practice for design and installation of sloping and vertical patent glazing
 - Fire safety in the design, management and use of residential buildings. Code of practice
 - Specification for impact performance requirements for flat safety glass and safety plastics for use in buildings
 - Glazing for buildings. Code of practice for safety related to human impact
 - Performance of windows and doors. Classification for weathertightness and guidance on selection and specification
 - Performance of windows and doors. Classification for operation and strength characteristics and guidance on selection and specification
 - Specification for powder organic coatings for application and stoving to aluminium alloy extrusions, sheet and preformed sections for external architectural purposes, and for the finish on aluminium alloy extrusions, sheet and preformed sections coated with powder organic coatings
 - Corrosion tests in artificial atmospheres. Salt spray tests
 - Windows doors and rooflights. Design for safety in use and during cleaning of windows, including door-height windows and roof windows. Code of practice
 - Windows and doors. Code of practice for the survey and installation of windows and external doorsets.
 - Specification for improved security single hinged residential doorsets.
- 604 The installation is to comply with all the relevant requirements of Building Regulations Approved Documents.
- 605 All door openings are to be suitable for wheelchair access in accordance with the Building Regulations Approved Document M (Access to and use of buildings). This means that, with the door open, the clear opening width between the jamb of the frame and the hanging style of the door is to be not less than 800mm.

Materials

- 606 All framing and swing doors system must be constructed from aluminium 100% recycled and suitable for fire route exits.
- 607 Screws and internal components must be either stainless steel, A2 cadmium plated steel or other corrosion resistant material.
- 608 Glazing beads must be aluminium "snap on" type requiring no screws. Dry glazing must be with self-locking plasticised PVC-u gaskets.

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Construction

- 609 Framing assembled from pre-finished lengths of aluminium profile, which are square cut. All horizontal members are secured to verticals by screwing into four integral screw splines. All joints to be sealed against the entry of water. Mid rails into framing are to be secured with frame to rail cleats.
- 610 Door leaf assembled from finished lengths of aluminium profile, which is square cut. Door rails secured to stiles with pre-machined cleats. All joints to be sealed against entry of water. All external-glazing beads must be secured by mechanical means and tamper proof. Stiles to have double weather-stripping as standard.

Ironmongery

- 611 Fire exit doors (opening out) (to comply with applicable Standard (Building Hardware. Panic exit devices operated by a horizontal bar, for use on escape routes. Requirements and test methods.))
- 1 No. Flush Fitting Panic Latch.
 - 1 No. Pull handle in matching polyester RAL coating to outside.
 - 1 No. Door closer.
 - 1 No. Modular escape nightlatch with 70mm backset with suited lock.
 - 1 No. High Security Electric Strike faceplate
 - Minimum 3 No. finger guard silver anodised butt hinges.
- 612 Main entrance door:
- 1 No. Pull handles in matching polyester RAL coating.
 - 1 No. Flush Fitting Panic Latch.
 - 1 No. Low energy swing door operator.
 - 1 No. Modular escape nightlatch with 70mm backset with suited lock.
 - 1 No. High Security Electric Strike faceplate
 - Minimum 3 no. finger guard silver anodised butt hinges.

Screen Inserts

- 613 System screen inserts must consist of an outer frame and ventilator frame mitred and mechanically jointed using prepared extruded aluminium corner cleats and stainless steel corner chevrons. All joints must be sealed against the entry of water. Infills are secured by snap in beads internally or externally. Integral mullions/transoms are secured by driving screws into extruded screw ports. Structural coupling mullions and transoms are available to construct larger composite window units. Always refer to the System manufacturer's technical data sheets for limitations on frame and vent size.

Colour Finish

- 614 All exposed sections of aluminium extrusion are to be powder coated. Unless otherwise specified all powders must comply with the requirements of the applicable Standards and conducted under applicable Standard control conditions. Powder coating application and stoving on aluminium must be carried out in accordance with the applicable Standards.
- 615 The powder coating must have a Class 1 surface spread of flame rating to applicable Standard.
- 616 The selected coating must comply with the British Board of Agrément Certificate or equivalent. Colour to be high gloss white.
- 617 All doors are to be permanently marked in an unobtrusive position (not viable when the opening door is closed) with the name and trademark of the system supplier and fabricator.

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618 Units are to be installed by a specialist Subcontractor approved under the terms of the Contract. After installation and glazing, units are to be checked and adjusted as required.

Glass

619 Hermetically sealed 24mm double glazed units with clear glass.

Main entrance door to scheme

620 Electric swing opener to be installed by a specialist Subcontractor approved under the terms of the Contract.

621 The Provider is to liaise with his Subcontractor for the door entry/warden call system to work on door entry system with regard to the following operations:

- Disconnection system before existing door is removed; and
- Connection system after installation of new door is installed to allow Customers and central control to open the door remotely.

Proximity Swipe

622 External doors to be fitted with a proximity swipe system with capability of reading up to 70 key fobs also to be supplied.

Master Keying

623 All new locks are to pass the same key suited to the schemes master suite.

624 Copies of keys are to be issued in the first instance to the Client's Representative.

Installation

Aluminium

625 Installation of fenestration systems must be performed by a Subcontractor approved by the Client's Representative in accordance with shop drawings and pointed with a fire grade silicone/mastic sealant, all as approved by the Client's Representative. After installation and glazing the Provider must check and adjust, if required, all items furnished under this section.

Glass

626 All glazing to be carried out in accordance with the requirements of the Building Regulations. Glass to comply with applicable Standards.

627 Safety glass to comply with applicable Standard with regard to impact performance and the marking of glass to indicate type and classification, and with regard to minimum thickness' for certain pane sizes.

Protection and Cleaning

628 The Provider must be responsible for any damage to the Materials under this section of the Specification incurred by him during installation and must leave the Work in a clean condition. The Provider must be responsible for the protection of these Materials from damage by other trades and must be responsible for the final cleaning of the Work.

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Fasteners and Fixings

- 629 All aluminium units are to be installed in accordance with the manufacturer’s installation technical data sheets.
- 630 Openings should be checked against available drawings or a site survey for correctness and openings should be square and plumb.
- 631 Fixings grounds at head, sill and jamb must be capable of carrying all imposed and dead loads in a stable condition, i.e. there should be no spalling, fissures or general debris.
- 632 Expanding polyurethane foam must not be used as a sole method of fixing.

Approved Fabricators

- 633 If the Provider is not an approved powder coated door and screen manufacturer/contractor, he must sub-contract the work to a fabricator who is capable of being approved by the Client’s Representative.
- 634 When submitting his tender, the Provider must give full details of the proposed system, ironmongery, glazing method etc.

Client’s current manufacturers/suppliers/products

- 635 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**REPLACEMENT UNDECORATED TIMBER EXTERNAL DOOR SETS AND SCREENS
[LOWER TIER – Client to delete if not applicable]**

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

REPLACEMENT UNDECORATED TIMBER EXTERNAL DOOR SETS AND SCREENS

Timber Doors

- 701 This Section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' and 'Replacement External Doors – General'.
- 702 All new undecorated timber doors shall be factory primed, purpose made pre-treated timber double glazed doors, manufactured to applicable Standards.
- 703 Where required lower panels shall be laminated safety glass or 25mm hardwood raised and fielded panels as appropriate. **Plywood panels shall not be accepted.**
- 704 Hardwood or aluminium glazing beads incorporating an integral EDPM corded lipped gasket shall be fitted to the external face. **The bead type and colour shall be agreed with the Client's Representative.**
- 705 All aluminium glazing beads shall be secured with bead retention clips as standard. Factory primed hardwood glazing beads shall be fixed either by secret nailing using stainless steel or copper pins or by stainless steel large headed pins. When pinning with stainless steel large headed pins care shall be taken to ensure that splitting, head indentation of the glazing bead or breaking of the paint surface by the head does not occur. Where this does occur, the indentation shall be filled with approved filler, rubbed down smooth and touched in with approved primer. Bead retention clips may also be used for the securing of hardwood glazing beads.
- 706 All pre-finished door-sets shall be delivered to site totally completed including factory applied primer or base coat stain, this shall be either opaque or translucent, solvent based or water borne, fully glazed and with all furniture fitted leaving only the need to fix into the prepared opening on site and insitu decoration
Note: Projecting furniture i.e. handles, may be supplied unfitted to avoid damage during transit.
- 707 All workmanship to be to the requirements of the applicable Standard.
- 708 Timber for use in all doors shall be selected hardwood and in the density range of 650kg/m cu. Doors may be flush fitting or rebated over frame.
- 709 Flush fitting doors shall have a minimum thickness of 44mm.
- 710 Rebated doors shall have a minimum thickness of 57 mm.
- 711 Timber for doorframes shall be selected hardwood and in the density range of 650kg/m cu.
- 712 All external edges shall have a radius of not less than 1.5mm and not greater than 3.00mm in accordance with Paint Manufacturers technical data sheet.

Note: It is acceptable for this detail to 'run through' all joint lines.
- 713 Surface waves caused by machining or excessive sanding will not be accepted.
- 714 All frames, mullions, transoms etc., to be to quality standard required by the applicable Standards.
- 715 Timber doors to be set in rebated hardwood frames, and 2XG style pre-primed timber doors with upper panel double glazed with laminated safety glass sealed units.
- 716 Weatherboards to doors are to be included.

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Decoration of timber door sets and screens

- 717 All new timber external door sets and screens are to be built in prior to full decorations being applied.
- 718 Make good any exposed/damaged surfaces with approved filler. Rub down and leave smooth before applying 1 No. coat of approved primer on base coat stain for bare wood and filled areas.
- 719 Paint 2 No. coats of white undercoat and 1 No. coat of white gloss pain or 2 No./3 No. coats of stain top coat (as recommended by manufacturer), to all surfaces, rubbing down between all coats.

Client’s current manufacturers/suppliers/products

- 720 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

REPLACEMENT WINDOWS

**REPLACEMENT WINDOWS - SURVEYING AND INSTALLATION
[TOP TIER]**

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

REPLACEMENT WINDOWS - SURVEYING AND INSTALLATION

General

001 It should be noted that in order to reduce possible errors/confusion due to conflicting repeat clauses etc. the Replacement Window specification sections have been sub divided into tiers as per the table below;

Top tier	Middle Tier	Lower Tier
Replacement windows – surveying and installation etc.	Replacement Windows – General	Replacement PVC-u Windows
		Replacement Pre-finished Timber Windows
		Replacement Undecorated Timber WIndows

002 In this manner each completed product will be required to meet the specification of 3 No tier documents.

003 Example; if work to be undertaken is a Replacement PVC-u window, then the 3 No tier documents to be used will be;

- Replacement windows – surveying and installation etc.
 - Replacement Windows – General
 - Replacement PVC-u Windows

Initial Survey

004 A list of Properties will be given to the Provider with access details and the Provider is then responsible for arranging access, visiting the Properties, taking measurements and forwarding existing window dimensions and the Provider’s proposed style of replacement windows to the Client’s Representative for approval.

005 Windows - Whether the new windows are to be PVC-u or timber replacements is dependent on the condition of any existing double glazed window (if present) and therefore matching new proposals with the existing Property and surrounding Client owned Properties.

006 The drawings are to include ‘sketch elevations’ of each window showing the position of each proposed window type and to include details of opening casements and glass type for each window.

007 The proposals are to be approved by the Client’s Representative before the Provider commences manufacture.

Site Measurements

008 The Provider is responsible for ascertaining the correct dimensions and sizes of every existing window in each Property.

009 The dimensions noted on any schedule issued by the Client’s Representative are for guidance only and are approximate measurements. The Provider is responsible for taking all site sizes and measurements for each and every window opening, and for manufacturing windows accordingly and to the applicable Standard for Windows and doors - Code of practice for the survey and installation of windows and external door-sets and as recommended in the GGF (Glass & Glazing Federation) “Good Practice Guide for the Installation of Replacement Windows and Doors”.

010 This procedure requires a minimum of **8 No measurements** both internally and externally to determine the difference between internal and external reveal sizes. Therefore internal access to the Property must be gained before manufacturing the windows – this will also allow for full Customer consultation and agreement of intended Works. It is the Provider’s sole responsibility to obtain the Customers approval to receive the Works before manufacturing is commenced.

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- 011 Windows are in the main fitted from the inside, although the nature of some reveals will permit replacement windows to be fitted from the outside.
- 012 The measurement and fitting of windows must in every case respect the existing cover / rebate to the outer frame of the windows by virtue of any "reverse brick detail" or "check reveal" that may pertain to existing Client Property.
- 013 Where a check reveal is present for weathering purposes, the window manufacturing sizes should be based on achieving a minimum frame overlap of 12 mm on the external leaf. A hole may be drilled through the existing frame jamb rebate to establish the check reveal size. A frame may also be built into the check reveal at the head by use of a rebated lintel, and again a minimum frame overlap of 12 mm should be provided where practicable. If an overlap of 12 mm cannot be achieved, this should be discussed with the Client's Representative and an agreement reached regarding the size of the overlap for particular properties. As the Client owns a large stock of Properties, which vary in construction detailing, long term standard agreements to the amount of overlap will not be made with exception to the dimension stated here.
- 014 Attention is drawn to the fact that similar windows in similar Property types may vary in size.
- 015 The Provider is responsible for ascertaining the correct dimensions and sizes of every existing window in each Property. Measurements for each window (and its location) must be clearly identified on any delivery schedule and each window shall have a clear labelling system to reflect this.
- 016 The use of make up pieces (clip-on's) will not normally be permitted except with the express **written** authority of the Client's Representative. Written authority does not transfer to the entire Contract, if gained; it must be acquired for individual Property and/or phases.
- 017 Any existing window opening which will present the Provider with a problem in compliance with the Specification, or in manufacture of a window to suit, must be brought to the attention of the Client's Representative before the window is fabricated. The Client's Representative will issue a written Instruction informing the Provider of what action is to be taken.
- 018 Obtain signed consent from the Customer before manufacture of window is undertaken. The Provider should be aware payment will only be made on completion of the window being installed into the Property.

Guarantees

- 019 In addition to the Client's rights under the Contract, the Provider is to provide the minimum guarantee tabled below against manufacturing defects etc., on all new PVC-u and timber windows upon completion of the Works. The guarantee is to include for all profiles, joinery, and for the double glazed units.
- 020 Manufacturers guarantees in all instances are to be for the years stated below with no exceptions attached (i.e. end user servicing expectations etc.), this will assure the Client that the manufacturer is confident of their own products durability.

PVC-u profiles	25 Years
Timber frames	30 Years guarantee against fungal attack
Timber Window Manufacturing Defects	10 year guarantee
Timber Window (Factory Painted External Joinery)	10 Year guarantee (as minimum)
Timber Window (Factory Stained External Joinery)	6 Year guarantee (as minimum)
Hardware Components	10 Years (minimum)
Double Glazed Units	15Years (minimum)

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- 021 Windows are to be manufactured under guidelines ISO 14001 (Environmental Management) and ISO 9001 (Quality Management Systems) with manufacturing companies holding the relevant accreditation. Manufacturers should promote and maintain an Environmental Policy and be committed to it. They should be able to demonstrate that all operations proactively comply with all applicable environmental laws and regulations.
- 022 The manufacturer shall provide a good practice guide relating to aftercare and maintenance of their manufactured window/sidelight etc. and its component items. Ensure that each Customer receives a copy of this.

General Design of Windows

Windows - Street Properties

- 023 Generally the Design of windows to be replaced with storm-proof casements projecting top and side swing hinge (see Appendix A in Replacement Windows - General).
- 024 However, each Property case may be different and therefore approval will be required for each Property. In all cases, the proposed new style of windows will need to comply with Building Regulations and in particular fire egress in terms of all habitable rooms.

Timber Windows

- 025 The Provider is responsible for ascertaining the correct dimensions and sizes of every existing window in each Property.

Emergency Egress Windows

- 026 Every habitable room shall have at least one opening which shall comply with the Building Regulations Emergency Egress Windows, having an unobstructed openable area that is at least 0.33m² and at least 450mm high x 450mm wide with the bottom of the openable area not less than 800mm and not more than 1100mm above the floor. Egress hinges should be included, where necessary.

General Window Installation

- 027 All Windows and sidelights are to achieve an 'A' energy rating certificated by the British Fenestration Rating Council (BFRC).
- 028 All replacement sidelights must achieve Building Control standard of Maximum U-Value = 1.8 W/m²K for units with >50% internal face glazed.
- 029 U-values of windows glass and frames must meet the Building Regulations and must be BFRC Certified and have an "A" Rated Energy Index. Centre Pane "U Value" of 1.2W/m²K (or better). Thermal Transmittance Whole Window "U Value" of 1.4 W/m²K (or better)
- 030 All windows are to have "child restriction" to limit the uncontrolled opening of the window.
- 031 All windows must pass testing undertaken to PAS 24 and be Secure by Design certified. All certification documents are to be forwarded to the Client's Representative and kept updated – this must include test certificate, report and list of tested ironmongery with product manufactures names, type etc. Evidence of compliance with PAS 24 (Specification for Enhanced security performance requirements for door-sets and windows in the UK) will be a condition of tender.
- 032 All new windows are to match existing size openings in existing positions (i.e. brick reveals to be maintained externally where necessary on all occasions).

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- 033 Before installing the new window, the existing structural opening should be checked to ensure its stability and existing lintels checked to ensure their condition soundness. Any large repairs should be reported to the Client's Representative.
- 034 It is permissible to "chip back" a small area of plaster (typically 25mm) extending full height up the existing reveals and immediately adjacent to the windows; this will both facilitate removal of existing window and installation of replacement window.
- 035 All openings should be cleaned of debris etc., and any minor making good is expected to be carried out as part of the window replacement works.
- 036 All metal fixings should be at least as corrosion-resistant as applicable Standard.
- 037 Windows shall be secured in accordance with the recognised "fixing distances" for strap / lug fixings and through-frame fixings as recommended in the applicable Standard
- 038 Sills must be properly supported and fixed to ensure there is no likelihood of water penetration.
- 039 All internal reveals should be made good and plaster or decorations made good to match existing.
- 040 External sealing should be by means of a cement/sand pointing around the new window frame to conceal larger gaps and then a low modulus white silicone sealant to applicable Standard. Only silicone sealants recommended by the manufacturer/supplier should be used and not general purpose mastics. All abutments of the windows should have silicone sealant applied.
- 041 Prior to installation the windows are to be supplied with adequate protection against damage caused by slippage, distortion etc. They must be stored under cover in a dry and secure position, stacked vertically, not horizontally.
- 042 The window dimensions must be checked with those of the opening before removal of the existing window.
- 043 A craft knife should be used to score around the perimeter of the existing frame in order to minimise damage to plaster/decoration.
- 044 Windows to be removed and all existing mastic and debris cleaned away. The Provider is to ensure that the work is carried out in a neat and tidy manner, with all rubbish removed to a lockable skip at the end of each working day.
- 045 The damp proof course is to be checked by the Provider to ensure one is present and in good condition. Any defects present are to be brought to the attention of the Client's Representative immediately.
- 046 The new windows must be installed in accordance with the manufacturer's requirements, taking into account the construction of the Property. Fixing methods should take into account thermal movement. The method of fixing will generally be either through frame fixing or lug fixing.
- 047 Windows must be installed plumb and square without twisting, racking or distortion of any member in accordance with the manufacturer's installation tolerances.
- 048 The outer frame of the window must be centred in the aperture and be positioned so that it does not bridge the damp proof course. The amount by which the new window is set back from the outer face of the wall is determined by the requirement to set the internal face as close to the existing internal finishes as possible and by the bridging of the damp proof course.
- 049 The window frames must be secured so that the corner fixings are a minimum of 150mm and a maximum of 250mm from the corner of the frame and the intermediate fixings at centres no greater than 600mm.

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- 050 No fixing must be closer than 150mm to a transom or mullion centre line. Should the manufacturer require more onerous fixing requirements then these must be adhered to. Care should be taken not to overtighten bolts and that packers/shims are not allowed to fall away. Care should also be taken to ensure that water tightness is maintained where lintels have to be drilled for fixing.
- 051 All screw fixing heads which pass through the profile are to be spot sealed with appropriately coloured or clear silicone sealer or a PVC-u cap.
- 052 Where electrical, television, telephone wires etc., enter a Property either through a hole in the existing window, or adjacent to it, then such services must be routed around the PVC-u window frame. A split plastic tube of suitable diameter and length for entry into the Property should be slipped over the cable so that connections do not have to be disturbed on the appliances, with the ends of the tube sealed with white silicone sealant on completion of the window installation.
- 053 Where any internal plaster work is disturbed when the existing windows are removed, the Provider must make good the plasterwork. PVC-u cover mouldings may be used to a maximum width of 30mm.
- 054 Bathrooms/WC windows must have obscured glazed window panes internally and one clear pane externally forming the double glazed units.
- 055 Include for removing existing internal window sills and renewing with suitably sized PVC-u window sills and any extensions to window frames required to raise height of window openings to 800mm from finished floor level internally if required.
- 056 Internally the PVC-u frame must be well caulked and the gap between the reveal finish and the frame flush pointed with a one part white emulsion acrylic painter's caulk.
- 057 Provide a matching cover bead at the junction of the internal window board or tile sill and the PVC-u window frame to all windows.
- 058 Each window must be permanently marked or labelled in an unobtrusive position (not visible when the opening light is closed) showing details of the manufacturer, the job number of the window and the date of manufacture.
- 059 The standard for glass units is Part 2 of the applicable Standard and Part 3 for gas filled types.
- 060 Special care and attention must be taken to protect and avoid any damage to windows. Any damaged window must be replaced with a new window, and it must be at the Client's Representative's sole discretion as to whether a repair to a window is acceptable.

Safety Laminated Glass

- 061 All glazing in windows in critical locations as defined by the Building Regulations (i.e. glazing below 800mm internal sill heights in windows is to have both skins of glass units glazed with laminated low E glass – assumed to be 2 No. skins of 6.8mm laminated safety glass.
- 062 Internal and external panes in sidelights, double glazing units to be laminated glass as default. An exception may be made where a staircase ends or turns immediately inside the doorway – in this instance the internal pane may be toughened (i.e. to reduce impact pressure) – written notification must be given to the Client's Representative. External pane must always be laminated to provide security and satisfy PAS 24.
- 063 All safety glass is to be permanently marked on both panes with applicable Standard kite marks, which are to be visible after installation.
- 064 Both sheets of glass making up the sealed double glazed unit must be safety glass where required by the above descriptions.

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065 Details of windows in critical locations are to be stated in the Provider's proposals for each new window when proposed drawings are forwarded to the Client's Representative for approval.

Glazing - General

066 Windows must be manufactured so that glazing or re-glazing on site is possible without the need to remove the outer frame from the structure of the building.

067 All glass and insulated glazed units should be carefully examined for damage, especially at the edges, prior to installation. Defective items must not be used.

068 The two panes of glass in the double glazed unit are to be held apart with warm edge technology, spacer bars to improve thermal efficiency and reduce the possibility of condensation forming around the perimeter of the sealed double glazed unit.

069 The glazing of the windows must be carried out immediately after the installation of the frames and casements

070 On completion of window installations, all glass to be cleaned internally and externally and left clean and free from blemishes.

071 Any glass with scratches cracks or defects to be replaced by the Provider at no charge.

072 All windows to be **INTERNALLY GLAZED** in argon filled sealed units in low Emissivity glass, using pre-formed gaskets inserted during the profile extrusion and secured by knock-in PVC-U glazing beads with mitred corners

073 All windows/sidelights will be totally dry-glazed with minimum 12mm wide x 3mm thick double-sided PVC foam closed cell high density security glazing tape on the inside frame rebates. Co-extruded EPDM corded glazing gaskets on the frame are acceptable as an alternative provided that bead security clips are used in conjunction with it.

074 All glazing to be clear glass except bathrooms and WC's which are to be obscure Cotswold style glass or pattern group 5.

075 Glass shall be at least the minimum thickness to meet wind load requirements of the applicable Standards.

076 Glazing beads are to be able to withstand the design wind loading in accordance with and the tests specified in the applicable Standards.

077 Note: All timber sliding sash windows to have sash cords and lead weights to box frames to counteract the glazing weights

078 Fans are not permitted in sealed units.

079 Details of all glass types are to be stated in the Provider's proposals for each new window when proposed drawings are forwarded.

Certificate of Test Window/Sidelight

080 All manufacturers of window/sidelight etc. shall be required to have a "sample" submitted for testing at an accredited testing station. These samples must be inspected against the requirements set out above. All manufacturers are required to have "third party" registration provided by BBA, BSI or equivalent recognised accredited quality licensing authority for the manufacture windows/sidelights etc.

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081 A copy of the respective Certificate of Compliance for Secure by Design and PAS 24 must be made available at the time of submitting for inspection, which confirmations that the manufacturer can produce the product to the required standards, along with all testing data. The Provider should be aware these certificates may form part of the document handover pack and if not supplied on completion and handover of the Work, will incur a financial penalty.

Delivery to site of windows/sidelights etc.,

082 In each option, primary consideration must be given to current health and safety at work legislation in respect of site practices.

083 Option 1 – Pre-glazed
Will be valid where the window manufacturer is commissioned on a supply only basis; the installation, therefore, being undertaken by the Provider.

084 Option 2 – Un-glazed
Will be valid where the window manufacturer is commissioned on a supply and fit arrangement. This will involve the supply of insulating glass units and pre-formed glazing gaskets to be applied on site in accordance with the manufacturer's technical data sheet.

085 Critical considerations to be observed:

- All glazing must conform to the recommendations contained in the relevant parts of the applicable Standards. The setting and location block positions, frame to glass and bead to glass gaskets etc. with any glass or insulating glass units must be installed in accordance with the relevant manufacturer's technical data sheet and as per the recommendations in the applicable Standard;
- All insulating glass units shall be examined for damage prior to installation; defective units shall not be used;
- Insulating units with "low emissivity coatings" shall be oriented in accordance with the manufacturer's technical data sheet; and
- Where safety glazing forms part of an glazing unit, it remains a legal requirement to ensure that the marking remains visible after installation.

Protection, Transportation, Storage & Pre installation check

086 The Provider must ensure the manufacturer/supplier is responsible for ensuring that all windows/sidelights are suitably protected to avoid damage during transportation and storage.

087 Windows/sidelights/glazing units (if applicable) shall not be flat-packed, but stood vertically during transportation

088 Windows/sidelights/glazing units in storage to be "kept apart" preferably with soft packing to reduce risk of transport/handling damage.

089 The Provider must ensure that all windows/sidelights stored on site are housed within a secure weatherproof storage facility on-site until the time of fitting. Pre-finished joinery shall not be stored in direct sunlight.

090 Prior to commencement of installation, the Provider should undertake the following checks -

- Consult survey sheets and ensure these are correct and clear;
- All survey measurements are recorded
- The windows/doors/sidelights supplied; are of the correct fenestration and design and in accordance with the window schedule approved by the Client's Representative;
- The glass type and pattern are correct;
- Window and glass sizes are compatible;
- All trims, gaskets etc., are correct and fitted correctly; and
- Consult survey sheets to ensure windows supplied are correctly marked and identified to those Properties being replaced.

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Site Approval on delivered

- 091 Previous to the benchmark Properties being set, a sample Pre-Finished Timber window / sidelight shall be delivered to site by the preferred manufacturer/supplier for inspection and acceptance by the Client's Representative.
- 092 The manufacturer/supplier in providing the sample for acceptance must demonstrate full compliance with the specification requirements. Evidence of thermal efficiency standards being offered must be available to the Client's Representative for verification.
- 093 The sample window (upon acceptance) will form the "benchmark window" for the remainder of the project.
- 094 The Client's Representative shall reserve the right (at any stage) to have any window which is delivered to site, subsequently removed for further inspection/audit and/or independent testing to ensure that the specification requirements are being complied with.

Remove and Install on same Day

- 095 Existing doors to be removed are most likely to be timber in nature, although a small percentage of properties may have original PVC-u windows. The Provider should make every effort to have all existing windows recycled and provide waste disposal reports to the Client's Representative.
- 096 Replacement windows must be installed on the same day that the original windows are removed in order to maintain security and weather tightness of the structure. The existing windows should be removed with care in order to avoid damage to the Property structure and its finishes and without permitting any subsidence of the structure during or after the operation.
- 097 When providing numerous replacement windows to a single Property the Works should be undertaken on one set day to reduce the amount of disturbance to the Customer.
- 098 Any defects that become apparent in the integrity of the structure upon removal of any window should be reported to the Client's Representative immediately.
- 099 If there is a sub-sill or threshold, e.g. Concrete, slate, brick or tile, below the existing window frame it must be left in position unless otherwise specified.

Protection of Existing Fixtures etc.

- 100 Allow for protection of floor coverings, furniture and Customer's belongings throughout the duration of the Works.
- 101 Move any furniture, fixtures and fittings that may be damaged during the installation of the windows/doors, prior to commencement of the replacement of any window/door and repositioning such items upon completion of the installation to each Property.
- 102 The Provider will be responsible for both internal and external protection. After the removal of the existing window/sidelight the Provider is to carefully cut back any internal or external flooring, finishings, cladding, wallpaper and decorations to allow for the installation of the new frames etc. The Provider is responsible for making good all structures, finishings and decorations up to 100mm from the face of the frame or sill.
- 103 Ensure that clean and sufficient dust sheets or protective coverings are used, when carrying out any Works. The Provider must ensure he has taken all adequate provisions to ensure that the soiling or damage to floor coverings and needless damage to decorations are avoided. The Provider must allow for any cleaning of floor coverings required as a consequence of the Works and this should be reflected in the tender Rates submitted.

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104 It is recommended the Provider undertakes a Schedule of Condition and agrees this with the Customer prior to undertaking any Works. It is therefore considered prudent to take photographs of any damaged Customer’s belongings within the vicinity of the Work prior to commencement and, where appropriate, to obtain a signed disclaimer.

Fixings

105 Screws used for fixing non-reinforced PVC-u sections will be of carbon steel with a suitable corrosion protective coating and feature a double helical thread, spoon point with a countersunk head.

106 Fixings must incorporate a combination square/cross recess drive to provide a non-magnetic stick fit.

107 Fixings for friction stay applications will be supplied with a special low profile pan head to prevent fastener head interfering with the friction stay.

108 All screws, nuts, bolts and other fastenings must be of corrosion resistant material, or be treated to give corrosion resistant properties. When subject to the acetic acid salt spray test specified in the applicable Standard for a period of 144 hours, the corrosion resistance of treated mild steel must be equal to or better than that of stainless steel samples subjected to the same test conditions.

109 All ironmongery, fixtures and fittings must be of materials resistant to, or protected against atmospheric corrosion. Metals in contact with each other must be compatible so as to prevent galvanic corrosion of dissimilar metals by electrolytic action.

110 The use of expanding polyurethane foam is not acceptable as a sole method of fixing any window into a structural opening, nor is it acceptable to be used as bedding for the window.

111 Fixing to be as recommended by in the applicable Standard, below is a brief summary, actual fixing recommendation should be taken from the applicable Standard and its example diagrams:

Secured on all sides (where practicable);
Corner fixings – 150 – 250mm from external corner;
No fixings less than 150mm from centre line of a mullion or transom;
Minimum of 2 fixings per reveal;
If head is fixed with expanding polyurethane foam, then head fixings can be –
<ul style="list-style-type: none"> • Frame width up to 1200mm – no fixings • >1200mm to <2400mm – one central fixing • >2400mm to 3600mm – two equally spaced fixings

112 The use of expanding polyurethane foam is permissible in terms of “foam filling” and as a useful addition to mechanical fixings. When the window is completed and finished there should be no visual evidence of polyurethane foam either internally or externally.

113 Installation “packers” should be used to set the window frame onto to allow sealant/mastic to be used as a full fill bedding material. The colour should match the window finish.

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114 Foam filling is to be used in all windows installations to provide a closure to possible cold bridge of gaps between the wall and the frame. It is only to be used within the depth of the window frame profile i.e. it should not be used to fill gaps to reveals etc. which are to be plastered. Form filling is only in regard to the following situations –

<p><u>1) To the head of a window, where the presence of pre-cast concrete or steel lintels make it impracticable or pose significant difficulties in achieving the recommended fixing distances</u></p>	<p><u>Up to 10mm maximum</u></p>
<p><u>2) To the sides of frame to make up expansion/contraction gap left either side as a result of manufactured size of window</u></p>	

115 Foam filling must be to the full depth of the frame using only an approved fire resistant expanding polyurethane foam complying with the applicable Standards and be of the correct fire performance rating for Building Regulations compliance.

116 All components should be supplied by a manufacturer complying with ISO 9001 accredited quality systems. A certificate passing warranty to the Client is to be issued by the hardware manufacturer on completion of the project.

117 Written confirmation of compliance with all of the above should be given to the Client’s Representative in advance of commencement on site and will be a condition of the tender.

Fire barriers

118 In all methods of construction it is important to ensure that the cavities between internal and external skins are protected at openings for windows from the spread of fire. If these openings are not protected, in the event of a fire, smoke and fire can spread through the cavity, causing danger to occupants in other parts of the Property not immediately affected by the fire. This issue is of particular concern in timber and metal framed buildings. Attention is drawn to the Building Regulations in respect of the requirement for suitable fire barriers to be present in such buildings. Guidance is given in the applicable Standards, and the current Building Regulations Approved Document B.

119 The method of construction should be identified, and where the building is of timber or metal frame construction, the type of cavity barrier should be established. Where the barrier is a cavity sock or similar, and is likely to become dislodged or damaged by the removal of the existing frames, this should be noted on the survey sheet, and instruction given to the installation team to ensure that the cavity barrier is either repaired or replaced to maintain the original level of fire protection for the Property.

120 NOTE; Timber and metal frame constructions usually have a moisture barrier included in the area around openings, to resist moisture ingress into the cavity that could affect the timber sheathing or metal studwork.” (Extract from the applicable Standard)

Making Good

121 The final covering and treatment of surfaces and their intersections are fundamental to the overall replacement of windows:

122 The primary objective of making good damaged areas adjacent to the windows is to maintain the;

- Weather-tightness; and
- Thermal performance characteristics

As required in and around reveals.

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- 123 This protocol described below applies to all window replacements and shall be undertaken as the primarily aim to negating the need for any redecoration during/after window installation.
- 124 There will be a number of situations (i.e. age of the Property; thickness of plaster reveals; and to some extent “build issues” associated with system-built dwellings) that it may not be possible to observe all or part of this protocol. Therefore more damage may be required to the reveals and/or the window/wall to undertake the required window replacement. This could result in the need for some redecoration. Where this is likely to occur, firstly the Provider is required to notify the Client’s Representative at Design stage. If however this is not identified until on-site stage the Provider must note the Properties affected and alert the Client’s Representative before work commences.
- 125 Where full plaster reveals are to be undertaken – i.e. Internal and external making good; this may take place on subsequent days, but the whole operation from start to finish of each window must not exceed 3 No. consecutive working days.
- 126 Plaster-Patching - This process will require a small degree of plaster-patching. This will include the following areas -
- All of the reveals immediately adjacent to window frame etc.;
 - Part of the reveals where strap/lug fixings have been employed.
- 127 Finishing Trims are to be Cellular extruded PVC-UE trims/beads and must conform to applicable Standards and as the below table;

	Internal Reveal (3 sides)	External Bead (3 sides)	Internal Sill Board
Single bull-nosed PVC-UE trim typically 5–7mm maximum thickness	✓		
Trim width must not exceed 100mm			
Quadrant / Bead typically 12x12mm or 18x18mm maximum OR Single bull-nosed PVC-UE trim typically 5 – 7mm maximum thickness		✓	
Trim width must be in range 20 – 25mm maximum			
PVC-UE Cloaked Trim typically 10–12mm in thickness in every case over-cladding the existing timber sill			✓
Removal of existing sill boards is not permissible as substantial damage is normally inflicted on window wall within rooms			

- 128 Trims are not to be used to simply provide or enhance the weather tightness of the window or any perimeter joints. Finishing trims shall be used to neaten the interface between frames and opening, they are only to be used in conjunction with the “plaster-patching”/making good situations as stated above. All joints must be left ‘neat and tidy’ with an acceptable tolerance of +/- 2/3mm on all joints/trim abutments and sealed with sealant of matching colour.
- 129 Internal finishing trims shall be compatible with the material of the window frame and must be colour-matched.

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- 130 External finishing beads/trims shall satisfy the above criteria and be of an exterior quality material used in accordance with the manufacturer's technical data sheet. External beading is not required where the external reveal has been re-plastered to match existing.
- 131 For the avoidance of doubt, windows should be measured and fitted as described above and beads/trims should only be fitted to the opposite side of the determined cover/overlap. Only in exceptional cases where reveals are determined as flush will internal and external beads/trims be acceptable.

Fixing of Trims/Beads

- 132 All internal trims shall be secured in every case to a firm backing (junction of frame and reveal/existing sill) with a low modulus silicon sealant (as below) and sealed all round.
- 133 All external beams/trims shall be secured in every case to a firm backing (junction of the frame and plaster reveal) with the low modulus silicon sealant (as below) and sealed all round.

Sealants

- 134 Sealants must comply with the applicable Standard and be low modulus grade
- 135 Perimeter joints externally and internally around the "as installed" window shall be sealed with a low modulus silicone sealant and "smoothed" to provide a good seal.
- 136 The sealant shall be appropriate to –
- The frame surface and colour;
 - Any substrate material;
 - The specific joint size and configuration; and
 - Potential joint movement and weather exposure.

Implications – Customer's Blinds etc.,

- 137 The inclusion of a finishing trim to existing reveals and sill may in certain circumstances create an issue around the re-fitting of Customer's blinds etc. The Provider shall pay due regard to the existing window dressing(s) and where finishing trims are required that a "slim-line" version (5mm or less) is used.

Repairing damaged prefinished coatings on site

- 138 Localised repairs to coatings shall be affected by brush application on site using the same coating Material and build-up as the factory application with no discernible difference upon completion. All repairs shall be carried out in accordance with the joinery manufacturer's technical data sheet, by a competent person and to the satisfaction of the manufacturer and Client's Representative to ensure continuance of the warranty.

Cleaning of Windows

- 139 The protective tapes shall be removed from the as installed windows immediately or as soon as practicable after installation and the window (frame and glazing) cleaned with a suitable cleaning agent.

Final Completion Checks

- 140 Upon final completion of each and every window installation, the Provider is to confirm and check the following:-
- All glazing beads are adequately fitted and in good order;
 - All hardware functions and locks operate correctly and are not stiff to use;
 - All frames and glass are free from cracks, breaks and scratches etc. All frames and glass are cleaned and all internals of frames are swept clean.;
 - All openings are square and operate correctly;

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- There is no movement to the window;
- All restrictors, vents and hinges etc. are clean and operate correctly;
- All making good internally and externally is completed; and
- All trims are clean and sealed;

141 Once all the above items are completed, the Provider is to demonstrate the operation of the window to the Customer and provide the Customer with their own operating instructions for the windows. In addition, the Provider is to provide a Customer Satisfaction Card (to be supplied by the Client’s Representative) which the Customer is requested to complete and return by free postage to the Client. In due course the Provider will be required to provide any means necessary to allow the Customer to sign Satisfaction Card electronically for uploading to the Client’s Asset Management software.

Photographic Evidence – Removal/Installation of Windows/Sidelights

142 The Provider is required to take digital photographs of each completed window/sidelight installation.

The photograph should clearly show the completed internal reveals and identified by address and room (i.e. this may be done by placing an address and room labelled clipboard against the window at the time of taking the photograph – ensure clipboard does not block image of window).

143 The photographs should be retained electronically by the Provider and if requested provided on an individual basis to the Client i.e. in the event of any Customers making a claim against the Client.

144 The Provider should note that the Client’s Representative will from time to time ask for evidence of these photographs and how and where they are stored. The Provider is required to retain these images for at least 6 years after the Date of Completion (in accordance with the Client’s Retention of Documents Policy and legal timeframe for a Customer to make a claim).

Client’s current manufacturers/suppliers/products

145 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**REPLACEMENT WINDOWS – GENERAL
[MIDDLE TIER]**

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REPLACEMENT WINDOWS – GENERAL

General

- 201 This section is to be read in conjunction with the 'Replacement Windows and External doors – Surveying and Installation' section, which provides details of surveying, sampling, installation, finishing etc. – generally as per the applicable Standard - Windows and doors - Code of practice for the survey and installation of windows and external door-sets.
- 202 All Windows and sidelights to achieve an 'A' energy rating certificated by the British Fenestration Rating Council (BFRC).

Design of Windows

- 203 On door-sets with sidelight panels, the mullion should have sufficient stiffness to ensure rigidity when the door is closed against it.
- 204 Existing windows may be housed within an existing concrete surround. These concrete surrounds have virtually no insulation value, lack air-tightness and contribute significantly to "cold bridging". Some will also have spalling of the concrete which may have exposed the reinforcement bars and causing the bars to rust.
- 205 As a long term strategy where concrete surrounds are encountered the Client requires **them be removed**. In all cases this will involve provision of a new sill and repair works. Facing brick constructed Properties may require render bands around the external window reveals.
- 206 Cutting off of extruding element of concrete surround and render patching **will not be allowed** as it does not remove the cold bridging issue. This will be constituted a "structural alteration" under Building Regulations and hence will require a Building Control application.

Windows Openings

- 207 All windows to be fitted with opening restrictors and as far as practical Egress Easy Clean Hinges.
- 208 All hinge components such as bottom track, link bars and rivets to be manufactured from Grade 1 Austenitic stainless steel to applicable Standard and fitted in accordance with manufacturer's technical data sheet limitations and recommendations. All associated hardware should be approved to PAS 24 and meet applicable Standard Class 4 corrosion resistance.
- 209 The protective tapes shall be removed from the windows immediately or as soon as practicable after installation and the window cleaned with a suitable cleaning agent.
- 210 Easy clean facility to allow the window to slide along the hinge track so as to be cleaned from inside the building to the applicable Standard - Windows and doors - Code of practice for the survey and installation of windows and external door-sets. After cleaning, the hinge should allow the window to self-relocate and return to its original position and mode of operation simply by closing the casement.
- 211 All hinges should be BBA Approved or equivalent and to include a thermoplastic end point and die cast end cap with self-lubricating surface finish featuring a roof to minimise the build-up of debris.
- 212 Windows, after a considered and noted risk assessment, can be fitted with a clearly visible and intuitive to release restrictor.
- 213 The release mechanism must self-relocate in one action on closure of the vent. All components, rivets and pins should withstand a force of 600N to comply with the applicable Standard, Performance of windows and doors. Classification for operation and strength characteristics and guidance on selection and specification and the applicable Standard - Design for Safety in Use and During Cleaning of Windows.

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- 214 Restrictor to be tested to comply with the applicable Standard to withstand a force of 600N when opened at the restricted position and fitted to provide a maximum opening of 100mm in the restricted position. Restrictor to be manufactured from stainless steel to the applicable Standard Grade 1.4301 tested to meet the requirements of the applicable Standards and to meet the applicable Standard Class 4 corrosion resistance.
- 215 Written confirmation of compliance with all of the above should be given to the Client's Representative in advance of commencement on site.

Weather Performance and Seals

- 216 All new windows must be approved to the applicable Standard - Performance of windows and doors. Classification for weather tightness and guidance on selection and specification) to the below levels and will achieve a Class A for mechanical testing to the applicable Standard - Performance of windows and doors. Classification for operation and strength characteristics and guidance on selection and specification:-
- (a) Air permeability – 600 Pascals minimum
 - (b) Water tightness – 300 Pascals minimum
 - (c) Wind resistance according to the design wind loading but not less than 2400 pascals.
- 217 All framing including mullions, transoms and couplers shall be capable of withstanding the design wind loadings calculated in accordance with the applicable Standard:
- 218 Weather stripping and glazing gasket Material must not have a detrimental effect on the plastic profile.
- 219 Weather strips for PVC-u windows to be co-extruded weldable seals and white gaskets approved to the applicable Standards to increase the weather tightness of the windows.
- 220 The weather-stripping must be capable of being renewed without disturbing the glazing system and without removing the outer frame from the structure.
- 221 The weather-stripping must be continuous around the frame.
- 222 Weather strip seals and draught excluders between all timber sashes to be included for all windows.
- 223 Glazing gaskets must be thermoplastic elastomer (TPE) and must be pre- inserted into the profiles.

Window Ventilation

- 2241 All window units are to be provided with trickle ventilators to provide 8000mm² areas to each habitable room and 4000mm² areas to kitchen, bathroom, WC and utility rooms.
- 225 The ventilator is to be fitted with an insect mesh in accordance with the requirements of the applicable Standards. Trickle ventilators must be manufactured from either aluminium section with powder coated finish to match window colour, or high impact modified PVC-u.
- 226 All ventilators are required to have their 'equivalent areas' from testing clearly marked on the device. The fitting of cording or rod devices to ventilators, ensuring ease of use by the Customer, to be in accordance with the latest guidance in the Building Regulations Approved Documents. For new build applications ventilation requirements must be calculated from the tables in the Building Regulations Approved Documents.
- 227 The Provider is to ensure that all window Designs to habitable rooms have a window opening area of no less than 5% of the floor area. The Provider must bring to the attention of the Client's Representative any window Designs included in this Specification that he believes does not meet this criterion, before the manufacture of any windows.

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- 228 The type of trickle ventilator to be fitted is to be “glazed in”. Due to the Client’s requirement that all PVC-u window frames must be fully reinforced (i.e. metal inserted into all profile members) “through frame” design is not permitted on PVC-u windows.
- 229 Front timber windows in Conservation Areas will not normally require trickle ventilators to be installed as this would be against planning policies.

Child Restrictors

- 230 Child restrictors are to be fitted to all windows with openings on all floors. The restrictors must not allow opening the window more than 100mm without using the restrictor switch.
- 231 Type of restrictors to the PVC-u windows are to be integral/in-built to hinge or push type fitted within frames on all casements outward openings and the PVC-u switch built into the top sashes on PVC-u sliding sash windows.
- 232 Types of restrictors for timber windows are to be agreed between Provider and Client’s Representative prior to installation of windows – examples of types required would be Sash Stop and Limiter to sliding sash windows, and integral/in-built to hinge or button restrictor within the window frame to outward opening casements.

Window Furniture

- 233 Window furniture to openable sashes to be positioned in the centre line of the frame unless indicated otherwise.
- 234 Push button handles to be fitted to all window openings. As all windows are to be egress, key operated locks are NOT to be fitted
- 235 Details of window furniture are to be provided by Provider and approved by Client’s Representative.
- 236 All handles to casement windows to be lever handles operating a multi-point espagnolette shoot bolt locking system with auto lock button cylinder lock. PVC-u window handles to be white powder coated aluminium and timber windows to be brass effect.
- 237 All side hung casement windows to be fitted with egress hinges with the lower hinge being integral push button restrictor mechanism for two handed full opening operation.
- 238 Top hung casements to be easy clean hinges of sufficient size to allow easy cleaning from the inside and integral push button restrictor mechanism.
- 239 There must be a correct correlation of hinge/friction stay capability with maximum vent weight and vent sizes i.e. sash sizes must be no larger than the hinge manufactures product table recommendations.
- 240 All timber sliding sash windows to be fitted with the following furniture:
- Brass Brighton Type fasteners to each window
 - 2 No. D brass sash pulls to each upper sash and 2 No. sash lifts to each lower sash
 - Brass sash stop and limiter window locks both sides of each window, to allow window ventilation opening of 100mm with security
 - Brass dual locking screws to meeting rails of sashes
- 241 Hardware with provision for adjustment must be accessible for adjustment after the window has been installed. Hardware used to open/close the window must be replaceable without removing the outer frame from the structure.
- 242 All components should be supplied by a manufacturer complying with ISO 9001 accredited quality system.

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- 243 Ironmongery product manufactures limitations must be strictly observed within the terms of their conditions of supply. It is the responsibility of the fabricator/purchaser to ensure that the performance of the window complies with the relevant standards and specification requirements for the particular window and that the correct product is chosen for the weight and design of each window system. The Ironmongery manufactures product information to be provided to the Client's Representative as required.
- 244 Window hardware wherever applicable must be supplied from a manufacturer holding a product licence under the auspices of the Home Office "Secured By Design" initiative with the aim of fulfilling the obligations placed on the housing provider to ensure a reasonable level of security to the occupants as outlined in Section 17 of the Crime and Disorder Act 1998.
- 245 Written confirmation of compliance with all of the above should be given to the Client's Representative in advance of commencement on site.

Locking Mechanism

- 246 All windows to be fitted with a Locking Mechanism that must be BBA accredited or equivalent and have been tested to the equivalent of PAS 24 security test or a Secured by Design Licensed Product
- 247 Locking mechanism to have an enhanced grade zinc alloy gearbox and mushroom-headed cams and shoot bolts. Where twin cam type is used, shoot bolts are not required. Minimum corrosion resistance: the applicable Standard Class 3. Fully adjustable "Twin Cam" high performance "no crop" security locking system. Operate with up to four pairs of mushroom cams travelling towards each other locking into a double-sided security keep. Fully adjustable cams \pm 1mm. keeps with a night latch locking facility.
- 248 All window hardware should meet the applicable Standard Class 4 corrosion resistance.
- 249 All components should be capable of sustaining a minimum of 25,000 opening cycles and 1,000 full reversible under 50kg operational load without demonstrating any significant deterioration or deformation that would inhibit its function and have a Mechanical Guarantee/Warranty required (as a minimum) - 10 years.

Implications – Customer's Blinds etc

- 250 The inclusion of a finishing trim to existing reveals and sill may in certain circumstances create an issue around the re-fitting of Customer's blinds etc. The window manufacture shall pay due regard to the existing window dressing(s) taking note of where finishing trims are required that a "slim-line" version (5mm or less) is used for sizing of window and ensuring correct allowances to ensure sash opening.

Cleanability of Window

- 251 All windows must be cleanable from the inside and the design of openings and fixed units is to meet the access standards recommended in the applicable Standard and Code of Practice 154.
- 252 New PVC-u sliding sash windows must be capable of tilt inwards to allow for cleaning and to have secure brackets fitted within the frames to hold each sash in position when tilted inwards for cleaning.

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Client’s current manufacturers/suppliers/products

253 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

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Appendix A

Choosing window type to applicable Stock

Table 1 Choosing window type to applicable Stock

STOCK APPLICABLE TO:		<u>STORM-PROOF CASEMENTS</u> Projecting Top & Side Swing Hinge	<u>FLUSH CASEMENTS</u> Projecting Top & Side Swing Hinge	<u>FULLY REVERSIBLE WINDOWS*</u> Hotel Hinge – Top Swing	<u>FULLY REVERSIBLE WINDOWS</u> Fully Reversible Hinge
	<u>No of storeys</u>	<u>Property Type</u>			
<u>LOW RISE STOCK (1 – 3 Storey)</u>	1	Bungalows	✓	✓	
	2	Houses	✓	✓	
	2	Flats	✓	✓	
	3	Houses	✓	✓	
<u>MEDIUM RISE STOCK (3 – 5 Storeys)</u>	3	Flat Blocks		✓	✓*
	3	Flat over Maisonette		✓	✓*
	3	Maisonette over Flat		✓	✓*
	4	Flat Blocks			✓*
	4	Flat over Maisonette Blocks			✓*
	4	Maisonette over Maisonette			✓*
	5	Flat Blocks			✓*
<u>HIGH RISE STOCK (6 – 20 Storeys)</u>	6-20	Multi-Storey Flat Blocks			✓

* Floors 1 & 2 will be FLUSH CASEMENTS to reflect the same “fenestration” as the Fully Reversible Window
- Floors 3 - 5 will be FULLY REVERSIBLE (Hotel Hinge)

REPLACEMENT PVC-u WINDOWS
[LOWER TIER – Client to delete if not applicable]

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REPLACEMENT PVC-U WINDOWS

MATERIALS AND MANUFACTURE

PVC-u Windows

- 301 This section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Surveying and Installation' and 'Replacement Windows – General'.
- 302 All new PVC-u windows shall be purpose made BBA approved or equivalent, fully welded and fully reinforced PVC-u to the applicable Standards, PAS 24 and Secured by Design certified.
- 303 The windows fabricator/contractor is to be a licensed kite marked manufacturer to the applicable Standard, and all products to be covered by ISO 9001 and an 'A' energy rating certificated by the British Fenestration Rating Council (BFRC).

PVC-u Window Installations Specific

- 304 To all windows where timber sliding sash windows are to be removed and replaced with PVC-u windows, the Provider is to include for new windows to have pressure treated timbers around the windows wrapped in damp proof course to infill the old window sash boxes. The timber packers to then be covered with PVC-u clip on liners, and small gaps (up to 10mm) filled with fire resistant expanding polyurethane in-situ foam with closed cell structure between 65% and 75% complying with the applicable Standards, the applicable Standards and be of the correct fire performance rating for Building Regulations compliance.
- 305 Under no circumstances are the old box frame cavities to be filled with expanding polyurethane foam only. Plaster is then to be made good and new plaster covered with wider PVC-u architraves to reduce damage to wall decorations.
- 306 The use of 'make-up' pieces (clip on's) as means of standardising manufacturing sizes should not be used under any circumstances without the prior approval of the Client's Representative. In only special circumstances will approval be given, and then the make-up size should not exceed 15mm either side or head.

PVC-u Windows Section Profiles and Reinforcement

- 307 Extruded window profiles shall only be those itemised on the window manufacturer/contractor's kite marked licence and the type testing carried out by a third party testing house to the applicable Standard.
- 308 The Material from which the extruded four chambers profile sections are made shall consist of white high impact modified un-plasticised poly vinyl chloride with a class 1 surface spread of flame resistance to the requirement of the applicable Standard.
- 309 Manufactured and extruded hollow PVC-u profiles to the applicable Standard. PVC-U Material shall have a multi-chambered design (5 chambers minimum) for enhanced thermal efficiency.
- 310 All joints to be welded joints with a grooved finish.
- 311 Reinforcement to be installed to all casement and frame members.
- 312 Reinforcement is to be fixed with self-tapping stainless steel screws to the applicable Standard or, sheradised coated steel screws at 300mm centres so that the reinforcement does not move or rattle when the window is in use.

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- 313 Reinforcement must be made of hot dipped coated steel reinforcement to comply with the applicable Standard or Aluminium reinforcement to comply with the applicable Standards or hot dipped prime galvanised steel complying with the applicable Standards.
- 314 The profile must be extruded from un-plasticised polyvinyl chloride (PVC-u) therefore recyclable at the end of its life. Only those additives and pigments may be used that are needed for the manufacture of the compound and its subsequent conversion into sound, durable extrusions of good surface finish and mechanical strength, as assessed by the requirements of this specification.
- 315 The PVC-u Material frame, that the profiles are to be made from, must conform to the specification given in Table 1. The tests must be carried out on pressed plaques prepared from milled sheet*, under standard conditions as specified in the applicable Standard. (* with the exception of the impact tests which are carried out on samples cut from the face sides of extruded profile.)
- 316 Profile wall thickness to be classified in accordance with the requirements of the applicable Standard - Unplasticised polyvinylchloride (PVC-u) profiles for the fabrication of windows and doors. Classification, requirements and test methods.
- 317 The colour of the profile must be uniform and the colour of the profiles in a system must be uniform. The finish of the windows is to be white to 40% Gloss (RAL 9003 equivalent). The profile must be free from foreign bodies, cracks or sink marks when viewed by normal corrected vision at 90 degrees to the surface and at a distance of 1 metre in normal diffused north light.
- 318 The profiles must be straight such that the longitudinal axis of the profile as measured on the face surfaces may deviate from the straight line by no more than 1mm/metre.
- 319 Tolerances on external dimensions (from the applicable Standard)

External dimension	Tolerance
Depth (D) ≤ 80	+/- 0.3
> 80	+/- 0.5
Overall width (W)	+/- 0.5

- 320 No rework/regrind material is to be used in any section, which will be subjected to any weathering. Rework/regrind material will only be allowed in internal glazing bead extrusions.

Construction

- 321 All corners and intersection joints between frames, mullions and transoms must be welded.
- 322 The excess material created by the welding process must be removed by a grooving or flush surface method. In either case, the method used must not weaken the profile or the joint, and must retain sufficient wall thickness.
- 323 Only where Instructed by the Client’s Representative must windows be provided with external projecting PVC-u sills. The sill must be from the same manufacturer as the PVC-u windows.
- 324 These sills must be properly supported, and hollow sill sections must have end caps to ensure that no water penetration occurs at the end of the sills. The sill and window frame must be jointed in accordance with the manufacturer’s technical data sheet to ensure water and weather tight joint.
- 325 Insulated infill panels to window frames must be provided where Instructed by the Client’s Representative and fixed with internal glazing beads.

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326 The panels must consist of an inner core of high density thermal insulation (min 0.033W/m²K) and outer layers of coloured plastic coated steel skins (skins to be a min of 0.5mm thick). The colour of the panels, must be approved by the Client's Representative, prior to the Provider ordering the panels.

327 The finished window must be free from all sharp edges, burrs and the like that might be a hazard to the user.

Performance Requirements

328 All windows are to comply with the applicable Standards.

329 Provide test reports prepared by a UKAS accredited testing house to confirm that the windows meet the criteria. The Client's Representative reserves the right to have any window provided for the Contract tested to check its compliance with these performance requirements.

330 The new applicable Standard test methods are more demanding than the old. One major factor is the introduction of a final 'safety test' on windows. A 2000 Pa exposure rated window would have to withstand a 'safety' test where gusts of 3000 Pa are applied (both positive and negative pressure)

Architraves and sills

331 To every new PVC-u window and door, carefully remove all existing internal architraves and sill boards and replace to match existing in white PVC-u **with mitred joints** to architraves.

332 All trims are to be sealed with white silicon to the window frame and sealed to decorations.

333 Sill boards to have rounded nosing finish and sealed to undersides with white silicon and provided with end caps.

334 Include for PVC-u quadrant piece around casement windows to internal recesses.

335 To all windows where timber sliding sash windows are to be removed and replaced with PVC-u windows, the Provider is to include for PVC-u liners to inner reveals to form square reveals for new PVC-u windows and cover with wider 150mm PVC-u architraves to minimise disturbance.

Drainage

336 The windows must include a self-drainage system by means of slots/ holes which must under no circumstances drain through chambers incorporating reinforcement. All drainage slots/ holes must be neatly cut out with no lips to allow free drainage of water from the frames to the outside of the building.

337 Matching PVC-u caps must be provided to cover all visible external drainage slots. Care must be taken to ensure that glazing blocks or spacers do not obstruct drainage from the glazing rebate.

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Client’s current manufacturers/suppliers/products

338 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

TABLE1 MINIMUM PROPERTIES OF PVC-u MATERIAL TO BE USED FOR FABRICATION OF WINDOW		
MATERIAL PROPERTY	TEST METHOD	REQUIREMENT
Vicat Softening Point	the applicable Standard Method 120B	78°C ± 2°C
Apparent modulus of Elasticity (flexural)	the applicable Standard Method 335A. Rate 5mm/min	2500 MPa
Impact Strength	the applicable Standard: Method 359	20KJ/m ² minimum
% change impact strength after accelerated ageing		70% minimum
Notch impact strength	the applicable Standard: Method 359A	12KJ/m ² minimum
Low temperature impact	A 300mm profile sample supported at 200mm centres. Condition at one hour – 10°C. Strike flat surface with rounded 1kg weight from 1 metre.	
Colour retention after artificial accelerated weathering	the applicable Standard Part 5: Method 540D and Method 540G. Sample to be exposed to total irradiation of 8GJ/m ² in wet/dry cycle.	
Colour retention after natural weathering for a period of 60 months	DIN 3386	Maximum colour change allowed is that rated 3, using the applicable Standard Part A03
Heat reversion	200mm of profile tested. Mark profile 1cm from each end and age at 100°C for one hour. Cool and re-measure distance between marks. Compare before and after ageing and express as % change.	No visible signs of deterioration Maximum reversion allowed – 2%
Profile delamination post heat ageing	200mm of profile tested. Subject sample to 30 minutes at 150°C. Visually inspect	No bubbles, cracks or delamination should be found
Heat Stability	the applicable Standard: Method 130A	Not less than 85 minutes
Flame Resistance	the applicable Standard	Class 1
Weld factor	Samples of profile are butt welded together at 180 degrees. Cut sample from joined faces according to requirements of the now withdrawn Standard: Method 320C so that weld line is in centre. Five samples are tensile tested to the requirements of the now withdrawn Standard: Method 320 at a rate of 5mm/min. Five samples of un-welded section are tested in comparison. Sample condition at 20°C for 1 hour Weld factor – Maximum stress valve welded. Maximum stress control sample. Profile cut at 45 degrees and welded to give 90 degree corner. Condition at 20°C for 1 hour. Load applied to deform on leg of corner piece.	
Corner Weld Strength	the applicable Standard – Shore hardness Table D	Deformation of horizontal member should be minimum 5mm with no breakage of the corner weld line.
Hardness		77-79

Notes on tables above Please refer to the applicable Standard for details of test methods and standards currently adopted.

**REPLACEMENT PRE-FINISHED TIMBER WINDOWS
[LOWER TIER – Client to delete if not applicable]**

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REPLACEMENT PRE-FINISHED TIMBER WINDOWS

Timber Windows

- 401 This section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Survey and Installation' and 'Replacement Windows – General'.
- 402 All new pre-finished timber windows shall be purpose made pre-treated timber double glazed windows manufactured to the applicable Standard and PAS 24.
- 403 All Timber Window manufacturers shall produce timber windows and the ranges required to the highest standards, all of which have been approved by the British Woodworking Federation's (BWF) Timber Window Accreditation Scheme (TWAS) and hold a "third party" registration by BBA or equivalent.
- 404 All timber for constructing windows should be in accordance with the applicable Standard (Timber in Joinery) and sustainably obtained as per European Union Timber Regulation (EUTR).
- 405 All softwood joinery to be subject to preservation treatment by spirit based double vacuum pressure impregnation in compliance with the applicable Standard (Preservation of wood). The moisture content of the timber sections shall be in the range of 14 – 16% before assembly and the application of any preservative treatment or coatings

Timber Window Installations Specific

- 406 Where no 'check' reveal is present install the new window frame wrapped in an approved damp proof course. Where 'checked' reveal is present the window is to be placed directly behind the DPC located behind the external skin.
- 407 The "as installed" windows shall in every case operate correctly.
- 408 Avoid (as far as reasonably practicable) unnecessary damage to the internal plastered reveals irrespective of how they may be finished (i.e. paint/wallpaper/ tiling etc.,). fixing methods will be directly affected by the condition of any cavity closer.
- 409 The new frame shall maintain the recommended movement gap (typically 5mm) each side; once the frame is fixed, this gap (up to maximum 10mm) can be "foam filled" to the full depth of the frame using an approved fire resistant expanding polyurethane foam complying with the applicable Standards and be of the correct fire performance rating for Building Regulations compliance. Fixings should be at least as corrosion-resistant as the applicable Standard Grade 3. Windows shall be secured in accordance with the recognised "fixing distances" for strap / lug fixings and through-frame fixings as recommended in the applicable Standard;

Timber Window Styles

Dwelling Type	Window Type
Low rise stock (1-3) storeys- Bungalows, houses, flats	Storm proof casement (projecting top and side hung hinge) Flush casement. (projecting top and side swing hinge)
Medium rise stock (3-5) storeys- Flats block, flats over maisonettes (opposite), maisonettes. Over maisonettes	Flush casement. (Projecting top & side swing hinge) Fully reversible windows- (hotel hinge top swing) Floors 1 & 2 will be FLUSH CASEMENTS to reflect the same "fenestration" as the fully reversible window Floors 3-5 will be FULLY REVERSABLE (Hotel Hinge)
High rise stock (6-20) storeys- Multi storey flats	Fully reversible hinge.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

- 410 All new timber windows are to be purpose made pre-treated.
- 411 All new windows to be double-glazed and must have features to match existing, e.g. vertical beadings, curved sashes, cover mouldings and horn details etc.
- 412 All new windows to be pre-finished prior to delivery and installation on site.
- 413 All external sills to new windows to be pre-approved by the Client's Representative.

Timber Windows Architraves and Sills

- 414 To every new timber window, carefully remove all existing internal architraves and sill boards and replace to match existing surrounds, with mitred joints to architraves.
- 415 All gaps to walls or gaps to joints are to be sealed prior to decorations.
- 416 Sill boards to have rounded bull nose timber finish.

Painting of Timber Windows

- 417 All new timber windows/sidelights etc., shall be delivered to site with the full coating system. All external edges of timber windows shall have a radius of not less than 1.5mm and not greater than 3.0mm in accordance with any Paint Manufacturer's Technical data sheet. This detail is acceptable through all joint lines.
- 418 Where required, pre-prime and paint all new architraves before fixing, and then once installed, rub down, fill as necessary and paint 2 No. coats white undercoat and 1 No. gloss white paint, rubbing down between all coats.
- 419 The Tendered rates include to repaint existing external concrete sills externally to the windows and touch up any painted stonework or render around the windows to match existing, as disturbed during the window renewal works.

Drainage

- 420 The windows must include a self-drainage system by means of slots/ holes which must under no circumstances drain through chambers incorporating reinforcement. All drainage slots/ holes must be neatly cut out with no lips to allow free drainage of water from the frames to the outside of the building.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Client’s current manufacturers/suppliers/products

421 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

**REPLACEMENT UNDECORATED TIMBER WINDOWS
[LOWER TIER – Client to delete if not applicable]**

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

REPLACEMENT UNDECORATED TIMBER WINDOWS

Timber Windows

- 501 This section is to be read in conjunction with the general specification for 'Replacement Windows and External Doors – Survey and Installation' and 'Replacement Windows – General'.
- 502 All new undecorated timber windows shall be factory primed, purpose made pre-treated timber double glazed windows manufactured to the applicable Standard and PAS 24.
- 503 All Timber Window manufacturers shall produce timber windows and the ranges required to the highest standards, all of which have been approved by the British Woodworking Federation's (BWF) Timber Window Accreditation Scheme (TWAS) and hold a "third party" registration by BBA or equivalent.
- 504 All timber for constructing windows should be in accordance with the applicable Standard Timber in Joinery and sustainably obtained as per European Union Timber Regulation (EUTR).
- 505 All softwood joinery to be subject to preservation treatment by spirit based double vacuum pressure impregnation in compliance with the applicable Standard (Preservation of Wood). The moisture content of the timber sections shall be in the range of 14 – 16% before assembly and the application of any preservative treatment or coatings.

Timber Window Installations Specific

- 506 Where no 'check' reveal is present install the new window frame wrapped in an approved damp proof course. Where 'checked' reveal is present the window is to be placed directly behind the DPC located behind the external skin.
- 507 The "as installed" windows shall in every case operate correctly.
- 508 Avoid (as far as reasonably practicable) unnecessary damage to the internal plastered reveals irrespective of how they may be finished (i.e. paint/wallpaper/tiling etc.,). fixing methods will be directly affected by the condition of any cavity closer.
- 509 The new frame shall maintain the recommended movement gap (typically 5mm) each side; once the frame is fixed, this gap (up to maximum 10mm) can be "foam filled" to the full depth of the frame using an approved fire resistant expanding polyurethane foam complying with the applicable Standards and be of the correct fire performance rating for Building Regulations compliance. Fixings should be at least as corrosion-resistant as the applicable Standard Grade 3. Windows shall be secured in accordance with the recognised "fixing distances" for strap / lug fixings and through-frame fixings as recommended in the applicable Standard;

Timber Window Styles

Dwelling Type	Window Type
Low rise stock (1-3) storeys- Bungalows, houses, flats	Storm proof casement (projecting top and side hung hinge) Flush casement. (projecting top and side swing hinge)
Medium rise stock (3-5) storeys- Flats block, flats over maisonettes (opposite), maisonettes. Over maisonettes	Flush casement. (Projecting top & side swing hinge) Fully reversible windows- (hotel hinge top swing) Floors 1 & 2 will be FLUSH CASEMENTS to reflect the same "fenestration" as the fully reversible window Floors 3-5 will be FULLY REVERSABLE (Hotel Hinge)
High rise stock (6-20) storeys- Multi storey flats	Fully reversible hinge.

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- 510 All new timber windows are to be purpose made pre-treated.
- 511 All new windows to be double-glazed and must have features to match existing, e.g. vertical beadings, curved sashes, cover mouldings and horn details etc.
- 512 All new windows to be factory pre-primed prior to delivery and installation on site.
- 513 All external sills to new windows to be pre-approved by the Client's Representative.

Timber Windows Architraves and Sills

- 514 To every new timber window, carefully remove all existing internal architraves and Sill boards and replace to match existing surrounds, with mitred joints to architraves.
- 515 All gaps to walls or gaps to joints are to be sealed prior to decorations.
- 516 Sill boards to have rounded bull nose timber finish.

Painting of Timber Windows

- 517 All new timber windows/sidelights etc., shall be delivered to site factory primed. All external edges of timber windows shall have a radius of not less than 1.5mm and not greater than 3.0mm in accordance with any Paint Manufacturer's Technical data sheet. This detail is acceptable through all joint lines.
- 518 All new timber windows/sidelights etc. are to be built in prior to full decoration being applied. Make good any exposed/damaged surfaces with approved wood filler. Rub down and leave smooth before applying 1 No. coat of approved primer to bare wood and filled areas. Paint 2 No. coats of white undercoat and 1 No. coat of white gloss paint to all surfaces, rubbing down between all coats.
- 519 Where required, pre-prime and paint all new architraves before fixing, and then once installed, rub down, fill as necessary and paint 2 No. coats white undercoat and 1 No. gloss white paint, rubbing down between all coats.
- 520 The Tendered rates include to repaint existing external concrete sills externally to the windows and touch up any painted stonework or render around the windows to match existing, as disturbed during the window renewal works.

Drainage

- 521 The windows must include a self-drainage system by means of slots/ holes which must under no circumstances drain through chambers incorporating reinforcement. All drainage slots/ holes must be neatly cut out with no lips to allow free drainage of water from the frames to the outside of the building.

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Client’s current manufacturers/suppliers/products

522 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

KITCHEN RENEWALS

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

KITCHEN RENEWALS

GENERALLY

001 Applicable to ALL Properties and must be priced, all kitchens in the Contract must be priced to reflect this. Generally, properties will be occupied during the course of the Works.

Kitchen Generally

002 Provide 14 days' notice, and agree programme with the Customer, when replacing the kitchen units or working in the kitchen. Ensure that there is running water at the end of each working day. Where the kitchen will be out of action over night, provide temporary cooking facilities for the Customers. When undertaking works in the kitchen they need to be fully programmed, and carried out as quickly as possible, in order to reinstate all facilities as soon as is possible. A functional kitchen must be provided at the end of each working day in each occupied Property to suit the Customer's needs.

003 Undertake the kitchen Design, which should suit existing requirements in regards to incorporating white goods and appliances etc.

004 Arrange access with the Customer for a measured survey of the kitchen. The Provider in attendance with the kitchen unit manufacturer's representative should agree the design with the Customer. The visit will include:

- consulting with the Customer about material choices,
- taking measurements sufficient to prepare scale drawings
- scheduling Customer appliances
- establishing existing meter and services positions
- any other site condition that may affect installation

005 CAD (computer aided design) drawings should include the entire Property on all floors (with dimensioned plan drawings and 3 dimensional views of the kitchen) to be fully detailed sufficient for installation are to be produced from the site survey information. As built drawings are to be provided to the Client's Representative and uploaded onto the Client's Asset Management IT system. (both original CAD drawing file and drawings converted to PDF format. Hand drawn drawings will not be acceptable).

006 Any deviations from or variations to the Specification, are to be agreed with the Client's Representative. The general objective is to standardise rather than customise kitchen Designs and installations in order to streamline future maintenance.

007 Ascertain whether any of the external works of the kitchen are constructed from solid masonry, prefabricated aluminium, no-fines concrete or PRC concrete. If found to be of solid masonry, prefabricated aluminium, no-fines concrete or PRC concrete construction, the Provider is to allow for installing, where practical a dry lining/insulation system as specified in the External and Internal Retrofit Wall Insulation section of this Specification to these walls. The cost of which will be reimbursed at the appropriate rates in the Schedule of Rates. The Provider is to inspect the walls for signs of any water ingress and is to immediately report to the Client's Representative the nature, cause and extent of any water ingress damage.

008 The plan of the proposed kitchen layout and final colour choices should be produced for approval by the Customer, the Customer is to sign off all design drawings and Customer choice forms. A minimum of 5 (five) sample panels obtained from the Provider's chosen kitchen supplier shall be provided, for use at Customer consultation visits/meetings etc.

009 Sample panels shall include a 300x 300mm sample of a worktop, door and drawer front, plinth etc., The door and drawer front samples shall have suitably matching handles fitted. The sample panels shall be sized in order to provide a representative sample and be easy to transport between Customer consultations meetings/visits. See Clause 026 for requirements on floor covering samples and Clause 084 for requirements on wall tiling samples.

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- 010 No works can commence without the Customer's agreement to sign-off the Design. Copies of the sign off forms completed by Customers are to be provided to the Client's Representative.
- 011 Once the Customer signs confirmation of their approval to the Provider's and their kitchen unit manufacturer's proposals, the agreed plan together with the draft Valuation of the Works to be undertaken (tendered all in rate for kitchen renewal for size of Property together with the cost of any additional Works reimbursable through the Schedule of Rates) is to be forwarded to the Client's Representative to be technically approved and signed off.
- 012 The Client's Representative is also to be notified of the proposed commencement and completion dates, and proposed date for completion inspection once all the Works are completely finished including any snagging by the Provider.
- 013 When programming/scheduling the Work, allow for a maximum of 5 working days from start to completion per Property, in accordance with the prescribed Works timetable.
- 014 Agree a maximum number of kitchens to be worked on at any one time before the Works programme begins to suit number of Properties/Contract period available.
- 015 A kitchen must be 100% complete prior to commencing on further kitchens above the agreed maximum and each completed kitchen must be signed off by the Customer and the Client's Representative.
- 016 The first completed kitchen at each Property is also to be signed off by the Client, the Provider and the kitchen unit manufacturer's representative, and will be used as the benchmark against which the standard of all the other kitchens in the Properties are judged.
- 017 The manufacturer's permanent identification label (as required by Clause 22 of the Specification for Kitchen Furniture and Installation (Standard and Universal range)) is to be fixed to the inside of the drawer unit, this label is to identify the kitchen unit, door and worktop manufacturer(s) and the supplier of door handles, hinges and drawer units, date of manufacture and date of installation) and the information provided shall be electronically loaded onto the Client's Asset Management IT System.

Access/Security

- 018 Where access is available, through the rear garden, directly to the kitchen, rear access is to be used. Where access is from the front, ensure the front door is closed in order to maintain security of the Property at all times.
- 019 Works are to be restricted to the area of Work, which in general will be the kitchen.
- 020 Where access is through the property into the kitchen provide dust sheets to protect all floor coverings. These must be in place at all times when working within a Property.

Protection

- 021 Allow for protection of floor coverings, furniture and Customer's belongings throughout the duration of the works. Include for moving all furniture, cooker, fridges, Customer's belongings and everything necessary in order to carry out the Works and minimise disturbance to the Customer as far as possible. On completion of the Works place all previously moved furniture and white goods in locations agreed with the Customer and generally as shown in the kitchen layouts. Where access to be gained through the Property dust sheets and protective sheeting must be used at all times during the Works to prevent any damage.
- 022 Take responsibility for any damage to carpets or Customer's belongings, it is recommended the Provider undertakes a schedule of condition and agree this with the Customer prior to undertaking any Works. The Provider's attention is drawn that the usual claims are for damaged carpets or white goods damaged during moving. It is therefore considered prudent, to take photographs of any damaged Customer's belongings within the vicinity of the Work prior to commencement, and where appropriate to obtain a signed disclaimer.

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Completion

- 023 On completion of all works thoroughly clean all surfaces throughout the kitchen, including glazing internally/externally, floor coverings, ceramic wall tiles, kitchen units and joinery etc. to a good standard.
- 024 All builders rubbish both internally and externally must be removed on completion of the Works.
- 025 Leave the kitchen area of work in a clean and tidy condition.
- 026 Note:** The following section describes works in detail however not all items of Work will be applicable to each Property.

Floor Coverings

- 027 All floor coverings to be 2mm thick anti slip vinyl sheet floor coverings are to be to applicable Standard and to have a Pendulum test value (PTV or slip resistance value) (36+ (CoF) or above) as tested to applicable Standard and a Surface roughness (Rz) (20+µm (microns) or above) to applicable Standard. Floor covering to be complete with aluminium threshold strips at doors
- 028 Customers are to have a choice of colour of up to 16 colour shades for the products.
- 029 Floor covering to extend through to the cooker or other appliance spaces and to go under plinths, and **NOT** cut butted up to plinths.
- 030 At junctions with skirting boards or walls apply white silicone sealant. At junctions with plinth apply clear silicone finished neatly and smooth.

Vinyl on Solid Floor

- 031 Carefully take up existing floor coverings including all adhesives etc. and remove from site.
- 032 Prepare the solid floor and apply latex self-levelling compound. Provide and fully adhere the chosen floor covering. Ensure that it is fully adhered and finish with hot welded seams.
- 033 Provide and lay floor covering of choice all as described above in Clauses 025 to 028 inclusive.

Vinyl on Solid Floor Where Ceramic Tiles Previously Fitted

- 034 Carefully hack up existing ceramic tiles and remove from site. Allow for making good screed where damaged with proprietary epoxy repair. Apply latex self-levelling compound.
- 035 Provide and lay floor covering of choice as described above in Clauses 025 to 028 inclusive.

Vinyl on Suspended Timber Floors.

- 036 Carefully take up vinyl floor coverings including all adhesives, hardboards, fixings etc. and remove from site. Prepare the timber floor, ensure that all boards are securely fixed and acceptably level. Punch in or countersink protruding fastenings and plane, sand as necessary to provide a smooth, even surface, make good as necessary and provide and lay minimum thickness 3.2mm hardboard (applicable Standard Type: HBH Table 3) or 6mm plywood to applicable Standard in largest sections possible with staggered joints and neatly cut close butted to skirting's etc.
- 037 Condition sheets by stacking in room in which they are to be fixed for not less than 72 hours with separators between each sheet. Secure hardboard to floor with 24mm divergent staples, commencing at the centre of each sheet, at 150mm grid centres over the area of each sheet and at 100mm centres along perimeter, set in 12mm from edge. Ensure that fastenings do not protrude.
- 038 Provide and lay floor covering of choice all as described above in Clauses 025 to 028 inclusive.

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Existing Floor Coverings.

- 039 Where the existing vinyl/ceramic floor coverings are to be retained, allow for all protection of the floor coverings for the duration of the Works using hardboard with all joints taped. Allow for any minor repairs, (e.g. grouting tiles, sealants etc.), on completion of the Works.

Renewal of Kitchen Fitments.

- 040 Carefully strip out the complete kitchen, including all base and wall units, worktops, breakfast bars, sink etc. When removing worktops, allow for carefully cutting out the worktop where heating pipes pass through so as not to damage any services. Remove all wastes, traps, disconnect/isolate hot and cold water plumbing and strip back to suitable position and remove from site all unwanted material.
- 041 Where the floor covering is owned by the Customer and they have chosen to retain it, the Provider is reminded of above item 021 and where appropriate to obtain a signed disclaimer.
- 042 **Note:** The central heating boiler and all electrics are to be retained except if specifically described otherwise elsewhere.
- 043 OPTION 1: The minimum kitchen storage requirements shall be based upon Property/occupancy size as follows: -
- bedsit/studio or 1 bed 1 or 2-person occupancy property - 1.5m³ storage capacity.
 - 2 bed/3 or 4-person occupancy property - 2.0m³ storage capacity.
 - 3 bed/5-person occupancy property - 2.2m³ storage capacity.
 - 4 bed/6-person occupancy property - 2.4m³ storage capacity.
 - 5 bed/7 person and more than 7 persons occupancy property - 2.6m³ storage capacity.
- 044 OPTION 2 The minimum kitchen storage requirements shall be based upon kitchen size as follows: -
- Small Kitchen - 2.0m³ storage capacity.
 - Medium Kitchen - 2.4m³ storage capacity.
 - Large Kitchen - 2.6m³ storage capacity.
- 045 Note that the above maximums are not set in stone and there will be instances when they are exceeded. Storage space is a premium to Customers so in all cases when Designing a kitchen, the view is not to make the matter worse. Where the Customer has extended their kitchen into what was originally intended as a dining area and the amount of storage exceeds the maximum, no additional units are to be incorporated. In all instances when the Design is going to exceed the criteria, it must be reported to the Client's Representative immediately. No Works are allowed to proceed until the Client's Representative has given his written authorisation to do so. **No additional payment** will be made for the provision of storage capacity greater than tabled above.
- 046 Kitchen unit manufacturers shall design units sizes etc., to guidance provided in the applicable Standards. All Kitchen units should be glued and assembled in factory conditions and tested to applicable Standard Level H (heavy duty), performance of surface finish and adhesion applicable Standard, particleboards to applicable Standard type P3. Proof of certification must be retained for the Client's Representative's verification when requested. All base units to have a 75mm service void behind the unit backboard – unit side to extend 25mm into this void area. Designs for kitchens to be used by Disabled persons shall be to applicable Standard.
- 047 Where a kitchen's layout does not allow for the storage defined above then any new Design must not allow less storage than the existing and shall be subject to approval. Maximisation of storage capacity to the levels table above may require the substitution of base units with tall larder/appliance units at no additional cost to the Client.

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- 048 Kitchen Design should aim to improve usability of the kitchen by eliminating design faults. e.g. cookers with no adjacent worktop, washing machine spaces too far from waste outlet.
- 049 The Kitchen Design is to meet the target and minimum storage capacity as set out item 039 above (subject to health and safety restrictions). Wherever practical existing built in larder cupboards should be removed (any retained larder cupboard should not be included in the overall storage capacity calculation in item 039 above). Larders should only be removed (ensuring that structural stability is retained) on Instruction from the Client's Representative.
- 050 Where practical a clear space of at least 1000mm is to be provided in front of all fittings and units and 1200mm where units are located on opposite walls.
- 051 Kitchens must be designed so that preference is given to larger units e.g. where it is feasible to fit a 1000mm unit, 2 x 500mm units will not be accepted. Corner base units are preferred over a single unit and a double base unit with a half blank face (minimum size of corner base units 900 x 900mm), Wall unit to be 720mm.
- 052 Where practical units to be kept clear of doorways to allow minimum 300mm clearance to the leading edge of the door.
- 053 Where practical, a small gap should be left at the end of a run of units where it abuts adjacent walls to ensure unit doors will open to a minimum of 90 degrees. The gap to be filled with an infill panel to match the kitchen design. Consideration should also be given to the location of radiators adjacent or in front of units.
- 054 Where drawers are provided, they must be easily accessible to allow full opening and complete removal if necessary.
- 055 As far as practical, the sink should be located under a window and 300mm away from corners and ends of worktop runs.
- 056 Layout of the kitchen to form a "work triangle" between the refrigerator, cooker and sink where practicable.
- 057 Plinths to be supplied in white where a complementary coloured plinth is not available as standard, returned into appliance spaces, and on external angles, a matching angle strip is to be used "iron on" strips are not acceptable, clear plastic capping to be fixed to the bottom edge of plinths.
- 058 Each kitchen shall be designed to incorporate a space for both a fridge/freezer and cooker. These should be, when sited between units a minimum of 620mm wide, and where necessary should provide the minimum clearances as required by the manufacturer of the existing appliances. In addition space should be allowed for a washing machine and future provision for a dishwasher, by designating one of the base units complete with plinth to be an easily removable unit with the floor covering carried underneath that unit.
- 059 The cooker space should be located where steam and fumes can be easily extracted, cooker space must not be placed in front of a window. The cooker space should be safely positioned in relation to windows, wall units, electric sockets etc., and be at least 300mm from an adjacent wall or the corner base unit (measured from the front edge of the adjacent worktop). Overhead extract fan and blanks (see Clause 053 below) are to be provided in all kitchens.
- 060 Customer's freestanding cookers need to be installed at same height as adjacent worktops – raised cooker plinths to be installed where necessary.
- 061 Doors to base and wall units either side of the cooker should not open over the cooker space. The cooker space should have a minimum of 300mm length of worktop on both sides.

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- 062 Each cooker space shall have a gas bayonet and electric cooker outlet and restraint chain, and be tiled down to the floor as detailed elsewhere.
- 063 Provide and install kitchen units, worktops, upstands, pelmets, cornices, gable ends, sinks and taps as described below, kitchen units to be manufactured to applicable Standard Level H with materials that comply with applicable Standard Type P3. Sink unit and plinth to be manufactured from minimum 15mm veneered moisture resistant plywood (plywood shall comply with applicable Standard)
- 064 Drawer units to be provided with 4 No drawers and have metal drawer sides with veneered chipboard base and backs. Handles to be stainless steel T-bar handles or as selected by the Customer (as required by Clause 19 of the Section - Specification for Kitchen Furniture and Installation (Standard and Universal range)).
- 065 All base units to be 600 mm deep, (575 mm carcass) and supplied with plastic adjustable feet. Wall units to be 720mm high and 290mm deep. All doors to be fitted with 170% hinges (heavy duty – tested and passed to applicable Standard test level H) and have stainless steel T bar handles or as selected by the Customer, (as required by Clause 19 of the Section - Specification for Kitchen Furniture and Installation (Standard and Universal range)). Carcass to be constructed to accommodate the 75mm “pipe” space and grooved to receive hardboard backs and glued in place during manufacture.
- 066 All panels to base units to be cut and finished in white, base unit carcass shall finish at the underside of the base unit and not the floor to facilitate future repairs, separate 18mm vinyl foil wrapped MDF base and wall unit gable end panels are to be supplied to match doors and drawer fronts. The gable end panels are to be screw fixed through side end of carcass (screws to be countersunk flush and finished with plastic caps)
- 067 Worktops to be 28 mm thick moisture resistant chipboard to comply with applicable Standard Grade P3 (colour dyed green), 616 mm deep, to be selected by Customers from the kitchen unit manufacturer’s range. Corner joining to be mitred, supplied and fitted with clamps. Worktop ends to be finished with proprietary metal edging to match the worktop finish.
- 068 All timber is to comply with the European Union Timber Regulation (EUTR), FSC, PEFC or equivalent.
- 069 A standard “example” of number of required units for a Kitchen to a bedsit/studio or 1 bed/1 or 2 person occupancy Property as item 043 above are:

1000mm base unit	1
500mm base unit and inset sink with drainer	1
500 mm base unit	1
600mm base unit (tumble dryer/dishwasher space)	1
500 mm drawer pack unit	1
500mm Tall Unit/Broom Storage	1
1000mm wall unit	1
500mm wall unit	1
Cooker hood unit	1
Worktop cut and fitted	As required by kitchen layout Design
Plinth cut and fitted	As required by kitchen layout Design
Pelmet cut and fitted	As required by kitchen layout Design
Cornice cut and fitted	As required by kitchen layout Design

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070 A standard "example" of number of required units for a Kitchen to 2 bed property/3 or 4 person occupancy as item 043 above are:

1000mm base unit	1
500mm base unit and inset sink with drainer	1
500 mm base unit	1
600mm base unit (tumble dryer/dishwasher space)	1
500 mm drawer pack unit	1
500mm Tall Unit/Broom Storage	1
1000mm wall unit	1
500mm wall unit	1
Cooker hood unit	1
Worktop cut and fitted	As required by kitchen layout Design
Plinth cut and fitted	As required by kitchen layout Design
Pelmet cut and fitted	As required by kitchen layout Design
Cornice cut and fitted	As required by kitchen layout Design
Cooker space	1
Fridge/freezer space	1
Washing machine space	1

071 A standard "example" of number of required units for a Kitchen to a 3 bed property/5 person occupancy Property as item 043 above are:

500mm base unit	2
500mm base unit and inset sink with drainer	1
1000mm base unit	1
600mm base unit (tumble dryer space)	1
500 mm drawer pack unit	1
500mm Tall Unit/Broom Storage	1
1000mm wall unit	2
500mm wall unit	1
Cooker hood unit	1
Worktop cut and fitted	As required by kitchen layout Design
Plinth cut and fitted	As required by kitchen layout Design
Pelmet cut and fitted	As required by kitchen layout Design
Cornice cut and fitted	As required by kitchen layout Design
Cooker space	1
Fridge/freezer space	1
Washing machine space	1

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072 A standard "example" of number of required units for a Kitchen to a 4 bed property/6 person occupancy Property as item 043 above are:

500mm base unit and inset sink with drainer	1
1000mm base unit	1
500 mm base unit	1
600mm base unit (tumble dryer/dishwasher space)	1
500 mm drawer pack unit	1
500mm Tall Unit/Broom Storage	1
1000mm wall unit	1
500mm wall unit	2
Cooker hood unit	1
Worktop cut and fitted	As required by kitchen layout Design
Plinth cut and fitted	As required by kitchen layout Design
Pelmet cut and fitted	As required by kitchen layout Design
Cornice cut and fitted	As required by kitchen layout Design
Cooker space	1
Fridge/freezer space	1
Washing machine space	1

073 A standard "example" of number of required units for kitchen to a 5 bed 7 person and more than 7 persons occupancy Property as item 043 above are:

1000mm corner base unit	1
500mm base unit and inset sink with drainer	1
1000mm base unit	1
500 mm base unit	1
600mm base unit (tumble dryer/dishwasher space)	1
500 mm drawer pack unit	1
500mm Tall Unit/Broom Storage	1
1000mm wall unit	2
500mm wall unit	1
Cooker hood unit	1
Worktop cut and fitted	As required by kitchen layout Design
Plinth cut and fitted	As required by kitchen layout Design
Pelmet cut and fitted	As required by kitchen layout Design
Cornice cut and fitted	As required by kitchen layout Design
Cooker space	1
Fridge/freezer space	1
Washing machine space	1

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074 A standard "example" of number of required units for a Small Kitchen as item 044 above are:

1000mm base unit	1
500mm base unit and inset sink with drainer	1
500 mm base unit	1
600mm base unit (tumble dryer/dishwasher space)	1
500 mm drawer pack unit	1
500mm Tall Unit/Broom Storage	1
1000mm wall unit	1
500mm wall unit	1
Cooker hood unit	1
Worktop cut and fitted	As required by kitchen layout Design
Plinth cut and fitted	As required by kitchen layout Design
Pelmet cut and fitted	As required by kitchen layout Design
Cornice cut and fitted	As required by kitchen layout Design
Cooker space	1
Fridge/freezer space	1
Washing machine space	1

075 A standard "example" of number of required units for a Medium Kitchen as item 044 above are:

500mm base unit and inset sink with drainer	1
1000mm base unit	1
500 mm base unit	1
600mm base unit (tumble dryer/dishwasher space)	1
500 mm drawer pack unit	1
500mm Tall Unit/Broom Storage	1
1000mm wall unit	1
500mm wall unit	2
Cooker hood unit	1
Worktop cut and fitted	As required by kitchen layout Design
Plinth cut and fitted	As required by kitchen layout Design
Pelmet cut and fitted	As required by kitchen layout Design
Cornice cut and fitted	As required by kitchen layout Design
Cooker space	1
Fridge/freezer space	1
Washing machine space	1

076 A standard "example" of number of required units for a Large Kitchen property as item 044 above are:

1000mm corner base unit	1
500mm base unit and inset sink with drainer	1
1000mm base unit	1
500 mm base unit	1
600mm base unit (tumble dryer/dishwasher space)	1
500 mm drawer pack unit	1
500mm Tall Unit/Broom Storage	1
1000mm wall unit	2
500mm wall unit	1
Cooker hood unit	1
Worktop cut and fitted	As required by kitchen layout Design
Plinth cut and fitted	As required by kitchen layout Design
Pelmet cut and fitted	As required by kitchen layout Design
Cornice cut and fitted	As required by kitchen layout Design
Cooker space	1
Fridge/freezer space	1
Washing machine space	1

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- 077 Installation shall include taking delivery of and placing in position, adjusting base unit feet, as necessary, to obtain complete alignment and providing and fixing plinths, fixing plates for base units and brackets on wall units screwed to walls including plugging if required, scribing to all surfaces, securing worktops to base units with appropriate screws and easing and adjusting drawers and doors prior to handover. All base units are to be fitted to the wall via an anchor rail to allow units to be removed individually (with the exception of corner units) in the future if required.
- 078 Include for providing blocking pieces, linings, cover fillets including internal corner vertical cover moulding, softwood bearers, support rails, blanking panels, end panels, (matching door finishes) cutting out holes for plumbing including washing machine and dishwasher wastes and hot and cold plumbing including cold water mains and stopcock and everything necessary for the installation of the kitchen units.
- 079 Supply and fix 28 mm thick double roll fronted laminate worktops and install in positions shown on the sketch plans, including over washing machines, dishwashers, driers, fridges etc., Include for all scribing, softwood bearers plugged and screwed to walls, including coloured metal worktop end pieces, mitred corner joints and clamps, fitting stainless steel/colour coded edge strips to both sides of cooker spaces, jointing strips, aluminium/bronze coloured stainless steel, legs to support ends of worktops, sealing raw edges etc.,
- 080 Cut out worktops as necessary for inset sinks and hob units, and treat raw edges with yacht varnish in minimum 2 coats to seal edges. Allow for cutting worktop to allow passage of all vertical heating and hot and cold water pipes and neatly seal around openings with sealant if pipe boxing's are not to be provided.
- 081 Include for fitting worktop in fridge space, cut down and jointed with straight metal strip to allow future removal should Customers wish to fit tall fridge freezer unless fridge/freezer is indicated on the drawings where the worktop is to be omitted.
- 082 Finish all wall/floor/unit abutments with sealant.
- 083 **Note:** Worktops will be longer in length than some units, as they will extend over voids, appliance spaces etc., and covering over gable ends and required end overhanging's.
- 084 For the purpose of calculating their tender, the Tenderers are to base their tender on worktops being supplied by the same kitchen unit manufacturer as the supply of the base units etc:-
- 085 **Note:** Where walls are drylined, allow appropriate plug and screws fittings for fixing back to masonry and DO NOT rely on dry-lined wall plug fixings only.

Sink & Taps

- 086 Provide stainless steel inset sinks to applicable Standard with single bowl, single drainer, 2 tap holes. Supply 0.9mm satin polish finish sinks with:
- deck pattern chromium plated sink mixer with metal handle control with colour discs, red for hot and blue for cold;
 - DN 40 chromium plated combined plug type waste and overflow unit with un-slotted or slotted tail (for use with an appliance with overflow);
 - DN 40 polypropylene 76mm (minimum) seal trap to applicable Standard chrome plated sink waste chain and stay with black rubber or plastic plug; and
 - all fittings necessary to connect to services and disposal systems.
- 087 Include for altering hot and cold water supplies as necessary and connect to mixer taps.
- 088 Include for extending pipework to washing machine and dishwasher and terminate with colour coded hot and cold water valves for direct connection of appliance hoses. (No flexipipe connections are to be used in any situations)

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- 089 Supply and fit isolation low pressure ball-a-fix or similar isolation valves prior to mixer taps and washing machine supply pipes in convenient location to allow separate isolation. Position of valves is to be easily accessible. Provide a push button valve to be installed directly after the existing stop cock where the incoming mains water supply enters the Property. The valve shall be connected to a valve switch with twin bore tubing which shall be located in a suitable position adjacent the inset sink above the worktop and at least the width of a wall tile away from any socket. The water control plate switch shall be fixed to a metal electric light wall box recessed into the wall and the twin bore tubing shall be protected within conduit, also tracked into the wall. Only where the tubing is concealed, for example within the services gap behind kitchen base units, shall it be clipped to the surface of the wall.
- 090 Where the incoming mains water supply enters the Property at an alternative position, careful consideration shall be given to the position and location of the valve water switch.
- 091 Provide and fit 76 mm deep seal polypropylene trap and 32 mm waste and extend and connect to existing soil pipe or to discharge into external gully as appropriate. Include for all builders works, making good etc. trap is to accommodate washing machine waste.
- 092 Supply and fit 38mm PVC-u waste complete with trap and upstand pipe rising 760mm above base of trap in washing machine space and extend waste to discharge into gully externally or connect to soil stack as appropriate, if the waste cannot be fitted to the sink waste. Trap and upstand pipe is to be located within the rear service void of an adjacent base unit to allow large depth appliance to fit flush with the front of the worktop.
- 093 Supply and fit 38mm PVC-u waste complete with trap and upstand pipe rising 760mm above base of trap in dishwasher space and extend waste to discharge into gully externally or connect to soil stack as appropriate. Trap and upstand pipe is to be located within the rear service void of an adjacent base unit to allow large depth appliance to fit flush with the front of the worktop.
- 094 Securely clip all waste pipes to walls to prevent movement.
- 095 All surface run pipework within kitchen areas to be boxed in with plywood and battens prior to wall tiling.

Glazed Tile Splashback

- 096 Customers are to be offered 4 no colours and sizes of tiles for choice of tiles – 1 no colour/tile size choice per property kitchen.
- 097 Hack off existing glazed wall tiles and remove from site. Where walls are drylined allow for making good and applying skim coat. Where walls are plastered allow for re-plastering as required, finishing with skim coat and leave all smooth and even. Due to time limits set for kitchen renewal (as described above) and related drying times, re-plastering should be kept to a minimum.
- 098 Supply and form new glazed splash-back in 6.5mm white or coloured ceramic glazed tiles between wall units and worktop and to same height above worktops where wall units are not present, down to floor in cooker space, and to window sills. (Window sills to be renewed in bull nose finish white PVC-u sill board).
- 099 Wall tiling to be fixed with waterproof adhesive and neatly pointed in white tile grout. All exposed edges to be fitted with proprietary plastic rounded edge beading fitted during the course of tiling – colour to match tile. External joints at window reveals and the like are to be rounded off and neatly finished with tile grout.
- 100 Seal all junctions between tiling and worktop, sink, tall units with white mould resistant silicon sealant smoothed into a neat bead. Ensure all surfaces are thoroughly cleaned with methylated spirit before application in order to ensure thorough adhesion.
- 101 Allow for removing all electrical face plates (sockets, fused spurs, etc.) to allow wall tiling behind and re-fix on completion of the Works. Allow for additional length screws when face plate which has tiling around the socket.

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Electrical Works

- 102 All electrical work must be carried out to the applicable Standards for electrical installations, other applicable Standards Institution Publications and Statutory Regulations. **All cabling to be concealed and NOT surface run, unless otherwise specified or approved.** Cable shall be installed without joints other than at equipment and terminal fittings, Junction boxes and 30A connection plates are not permitted
- 103 All relevant Works to comply with Building Regulation's; Provider must be suitably accredited, and Works must be certified, and certificates electronically loaded onto the Client's Asset Management IT System.

Electrical Inspection and Test

- 104 As part of the undertaking of the Survey and Consultation on Customers Choice, prior to undertaking any Works, carry out a full inspection on the electrical installation within the Property and provide a written report in the form of an Electrical Installation Condition Report. On completion of any alterations or Works described below provide "Minor Electrical Installation Works or Electrical Installation Certificate to the applicable Standards for electrical installations as applicable.

Electrical Switch and Socket

- 105 Within appliance location below worktop provide and install single socket outlet and extend wiring above worktop and connect to a 20A DP switch with neon light.

Electrical Socket Outlet

- 106 Provide and install double switched socket outlets above worktop in location indicated on the standard drawings (restricted areas provided within the Client's standard details should be observed). Include for wiring to most convenient location in suitably sized cable.

Spurs (Label)

- 107 Engrave/label all existing and new 20A DP switches identifying their function.

Equipotential bonding

- 108 Standard to applicable Standards for electrical installations: Connect the following metallic parts to the main earthing terminal, where they are extraneous-conductive parts to:
- metal water installation pipes;
 - metal gas installation pipes, as near practical to the point of entry of the service into the Property and before any branch pipework where the meter is fitted externally. Where practicable the connection shall be made within 600mm of the meter outlet union where the meter is installed internally;
 - central heating system pipework;
 - other installation pipework (including oil and gas supply pipes) and ducting; and
 - exposed metallic structural parts of the Property.
- 109 Sizes of bonding conductors are given in applicable Standards for electrical installations.

Supplementary equipotential bonding

- 110 Standard to applicable Standards for electrical installations: Within the zone formed by the main equipotential bonding, provide connections to:
- baths;
 - sinks;
 - exposed pipes; and
 - heating systems.

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- 111 In locations containing a bath or shower, supplementary equipotential bonding is comply with applicable Standards for electrical installations.
- 112 Sizes of supplementary equipotential bonding conductors are given in applicable Standards for electrical installations.
- 113 Standard: Electrical equipment and/or electrical circuits installed in a room containing a bath or shower shall have RCD protection, complying with applicable Standards for electrical installations
- 114 Standard: Where all electrical requirements in the Property to applicable Standards for electrical installations are met, supplementary equipotential bonding as Clause 097 may be omitted.

Switch face plates

- 115 Where retained replace all existing switch face plates with new.
- 116 All switch and socket fittings shall be manufactured using white moulded plastic and shall from the one manufacturer
- 117 Typical scope of electrical works in individual kitchens:
- wall mounted light switches to suit kitchen layout.
 - 3 no 13A twin switched socket outlets kitchen
 - 1 no 13A twin switched socket outlet dining area
 - A 20A DP switch with neon indicators (fridge, washing-machine, dishwasher, tumble dryer where applicable and cooker hood (fused at 3A) with 1 no 13A single un-switched socket outlet for fridge and 2 no fused connection (3A) for washing machine and tumble dryer below worktop, and 1 no fused connection unit (3A) adjacent cooker hood at high level.
 - 2 no (max) ceiling rose and pendant drop with standard BC lamp holder to applicable Standard with 20 Watt BC compact fluorescent lamp with integrated control gear to have a total output greater than 400 lamp lumens
 - 1 no heat detector;
 - 1 no wall mounted canopy type cooker extractor hood at a minimum of 760mm above the hob with flat plastic ducting system along the top of the kitchen wall units direct to atmosphere, where feasible. Cooker extractor hood to comply with Waste Electrical and Electronic Equipment (WEEE) European Directive EC/2002/96, and Kite mark certified. Size: 60cm, colour: white or brown. Minimum extract rate of 30 l/s (108m³h) over the hob. Cooker hood to have 1 or 2 No. built in lamps to illuminate the hob below, three speed fan motor control to be located on the front face of the hood, washable grease filter, electrical supply: 230–240V/ 1/ 50Hz.
 - Where a cooker hood exhaust cannot be ducted to atmosphere provide a recirculating cooker hood with charcoal filter and minimum extract rate of 30 l/s (108m³h) over the hob, and a wall mounted or ceiling mounted extract fan where feasible;
 - 1 no 45A DP switch with neon indicator for cooker with a cooker connection unit below work top (where an occupier owns a separate hob and cooker, provide a separate 45A DP switch and cooker connection unit below worktop for each appliance);
 - 1 no heating boost switch to applicable Standards for electrical installations, push button with control settings to replace standard water immersion heater switch;
 - Earth bonding to sink and all necessary supplementary bonding;
 - Where no existing alarm systems exists or alarms are only battery operated, provide a hard wired smoke detector system with an optical detector head to each of the circulation spaces and the main habitable room, and a head detector head in the kitchen.

Builders Works

- 118 Include for all builders works in installing new electrical fittings. Builders works to include chasing, re-plastering, cutting out plasterboard and making good and everything necessary in order that all new wiring is concealed and NOT surface run.
- 119 **Note:** All Electrical cabling is to be concealed and adequately protected and is not to be surface run.

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Light Fitting

- 120 Carefully remove existing light fitting and remove off site. Provide and install 2 no (maximum) ceiling roses with a standard BC lamp holder having a 20 Watt BC compact fluorescent lamp with integrated control gear and to have a total output greater than 400 lamp lumens.

Extract Fans

- 121 Provide and install a wall mounted canopy type extractor hood at a minimum of 760mm above the hob with a flat plastic ducting system along the top of the kitchen wall units direct to atmosphere, where feasible. Include for all accessories include a terminal grill etc. Include for all builders work in installing the new fan and all electrical connections and alterations as necessary to install the new extract fans.

Heat Detectors

- 122 Provide and install heat detector to ceiling. Include for all connections and alteration as necessary as Clause 98.

Smoke Detectors

- 123 Provide and install an optical smoke detector to in each of the circulation space and the main habitable room, where applicable as Clause 98.

Redecorations

- 124 Upon completion and at the discretion of the Client's Representative, the complete kitchen is to be fully redecorated including all previously decorated areas and any areas intended for decoration (approval should be gained before carrying out redecorations).

Ceilings

- 125 Prepare ceilings for decoration by washing down with sugar soap, removing grease and dirt, scraping off all loose paint, stopping in cracks and imperfections and stabilising surfaces. Provide and apply brilliant white **Quick Drying Eggshell Finish** paint in two coats (paint manufactures premium range and BBA Accreditation or equivalent).

Walls

- 126 Strip all wallpapers and thoroughly wash all walls, rake out and fill all cracks and minor surface imperfections, rub down to afford a smooth finish. Allow to size and hang 1200g lining paper. Paint one mist cost and two coats of **Quick Drying Eggshell Finish** paint (paint manufactures premium range and BBA Accreditation or equivalent).
- 127 **Note:** If existing wall plaster is reasonable and lining paper not required – Client would prefer walls to be painted only and no lining paper.
- 128 Customers are to be offered five colour choices.

Joinery

- 129 Rub down all previous painted woodwork, scrape back loose paint and rub down to feather edge. Knot, prime and stop bare patched areas and rub down smooth. Fill all cracks and surface imperfections with flexible timber filler and rub down to afford a smooth finish.
- 130 Provide and apply one undercoat and one coat white full gloss interior paint (paint manufactures premium range) to all internal faces of windows, skirtings, other previously painted surfaces and kitchen doors and frames room side. Painters mix of undercoat and gloss paint is not acceptable.

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- 131 To all previously stained joinery lightly rub down and apply two coats of high gloss wood stain finish similar colour to existing.

Metal Pipes and Other Metal Work

- 132 At the Client's Representative's discretion prepare all metal work including all exposed radiators, pipes, water pipes and all metal work etc., by cleaning and applying two coats of satinwood paint generally same colour as background except for radiators which are to be brilliant white.

Drier Vent Kit

- 133 Provide and install drier vent kit complete with flexible hose fitted to dryer, through the wall lining and terminal plastic grill complete with back draught excluder. Include for all builders works in core drilling to form opening or making good and all final connections of hose between vent and appliance.

Gas Certificate

- 134 Carry out a gas inspection and test and certify on a 'GAS SAFE' Landlord's Gas Safety Record. The inspection and certification must be carried out by a GAS SAFE registered person. Certificates are to be electronically loaded onto the Client's Asset management IT system.

Miscellaneous Repairs

- 135 Miscellaneous repairs are included where applicable within the pricing schedule for each Property.

Customer's appliances/fittings

- 136 Prior to commencement, the Provider is to obtain the Customer's signature to a Disclaimer Agreement in respect of any appliances located in the kitchen. Any refusal to do so must be brought to the attention of the Client's Representative and the work placed on hold, until resolved.
- 137 The Provider is to check the condition and working order of all such appliances and undertake a photographic record, paying particular attention to any existing scratches, dents or other damage.
- 138 Temporarily reposition fridge/freezer to facilitate the Works and ensure it is plugged into the electrical supply.
- 139 Customers are responsible for taking down and storing any personal fixtures and fittings e.g. knife racks etc and for emptying all existing cupboards. The Provider may be required to provide storage boxes for the use of Customers.
- 140 During the works the sink and a cooking facility should be left operational at the end of each working day.
- 141 On completion of the kitchen refurbishment, the Provider is to re-install washing machine and dish washer and connect up hot and cold water feeds and wastes.
- 142 The Provider is to re-install and wire up any electric cooker to new control panel or cooker connection unit.
- 143 The Provider is to re-install and connect any gas cooker to supply pipe and install securing device as required by Gas Safety (Installation and Use) Regulations 1998. (assuming the gas cooker is fit for use under the Regulations).

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Additional Requirements in respect of Disabled Adaptation Works

The following Paragraphs are to apply in addition to the previous Paragraph's 001 to 124 inclusive

Respite Facility Requirements

- 144 A number of Properties have their own facilities which can be utilised as respite facilities. At these Properties it is not anticipated that there will be any need for respite facilities to be provided by the Provider.
- 145 Where Works are likely to be disruptive (e.g. replacing the kitchen or bathroom) the Customers will need to be out of their Property at the key stages of work (normally strip out and up to carcasses going in). In these Properties, there may be a need for the Provider to provide the temporary decant facilities as described in Clause 028 of the General section of this Specification.
- 146 In addition to the above there are some Properties where the Customers live independently but suffer from mental health or learning difficulties. In these Properties it may be necessary (if Client's Representative cannot arrange for the Customer to visit family or be out for day) for the Provider to provide the temporary decant facilities at key parts of the project. This may be necessary to prevent Staff from being distracted from the delivery of their Work and to protect the Customers from injury due to possible lack of perception over risks. The cost of any temporary decant facilities provided by the Provider is deemed to be included in the tendered Rates.

Generally:

- 147 Works should be delivered in line with the guidance set out by the occupational therapist in respect of the Works required to individual Properties.
- 148 Under no circumstances are Providers to cold call to the disabled adaptation Properties. All access is to be arranged in advance of any visit to survey the Property or to undertake the Works.
- 149 Extensive disabled adaptations may be needed at some of the Properties, where they are indicated the Provider must be prepared to accommodate specific needs for some Customers in their costing proposals, these are to be priced as an extra over or under addition to the Kitchen and Bathroom costs
- 150 Customer's needs do change quite rapidly this is to be ascertained by the occupational therapist at the Design consultation stage.
- 151 The Provider will be required to attend all meetings that may be required with the occupational therapists and Customers to discuss the requirements of the disabled adaptations to be undertaken.
- 152 Works will be ordered on an individual Property or shared house (communal works) basis for Disabled Adaptations

Access and Security:

- 153 Any dustsheets and or protection must be trip hazard free. For the Client's Properties the tolerance for trip and slip hazards is much less so all protection must be trip and slip hazard free. Edges and joints must be flush with the areas they are protecting, and the materials used must be non-slip.

Completion:

- 154 Builders rubbish must all be cleared at the completion of each day's Work and removed from the site and estate. If the Provider has a secured waste facility (skip) on site waste will only have to be removed to this point at the end of each day's Work.

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Floor Coverings:

- 155 In areas where a continuous sheet floor is needed, the position of welded joints must be confirmed with the Client's Representative prior to floor covering being laid. Floors with welded up stands to skirting's and plinths or skirting formers may be needed at some Properties this is to be checked as part of the Design of the kitchen, bathroom or wet room.

Renewal of Kitchen Fitments:

- 156 Disabled kitchens cater for Customers with a variety of disabilities and vulnerability issues and tend to require a greater volume than the kitchen to a standard Property. They also often need individual lockable wall or base units per Customer. As a result, this must be accommodated in the volume of the Design and the minimum space required must equal or exceed what currently exists.
- 157 The Design must accommodate lockable cabinets where they are specified at the Design consultation stage.
- 158 Some kitchens will need the Provider to incorporate racks and or carrousel equipment in them. Make allowance to reinstate or order new carrousel or rack mechanisms where needed or already fitted to base units. The extent and number of such installations is to be approved by the Client's Representative as part of the Design approval process.
- 159 The disabled adaptation kitchen Designs/proposals must be approved by the Client's Representative.
- 160 All worktop joints shall be mitred
- 161 In wheelchair accessible kitchens pull down shelf units in wall cabinets and similar facilities may be required by occupational therapists etc.
- 162 In some instances handles may need to differ from those specified. Initially the range from kitchen unit manufacturer should be made available and or bespoke handles obtained considered if they are not suitable theses would be treated as an extra over cost.

Kitchen Sinks and Taps:

- 163 Some Properties may need multiple sinks, hand washing sinks, double sinks and/or double drainers. All are to conform to applicable Standards.
- 164 Hand washing sinks may need Thermostatic Mixing Valves (TMV) fitted, if so they must have the TMV's set to a maximum of 43 Centigrade.

Other Kitchen appliances:

- 165 The Customer will be consulted by the occupational therapist over their plans for the location of appliances at the Design stage. Some may opt to purchase new equipment to go with the new kitchen. If this is planned the co-ordination of the new kitchen Design and new appliances is the responsibility of the Provider.
- 166 Verify if built in equipment is being purchased.
- 167 Appliances removed are to be set aside and carefully stored to refit unless otherwise directed by the Customer. The Client SHALL NOT be held liable for repairs or replacement and extreme care shall be taken where appliances are to be re used. Where defects are noted and repairs are uneconomical, the Client's Representative should be advised for replacement.
- 168 All appliances to be plumbed in with isolating valves where none exist, connected and left on full working order.

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- 169 If new appliances are provided by the Provider, give full directions for use of new appliances with accompanying manufacturer’s technical data sheet left on site.
- 170 If the Provider is Instructed by the Client’s Representative to supply kitchen appliances for the Customer then the cost of these must be invoiced separately. All white goods and other appliances Instructed to be supplied will be reimbursed at the rates in the Schedule of Rates or in accordance with Paragraph 4.4 of the Price Framework Rules.

Thermostatic mixing valves:

- 171 Thermostatic mixing valves (TMV) will be needed to Properties (where required) they must be offered at the Design stage. TMV’s are to be set to a maximum of 43 Centigrade. Each installation is to be certified by the Provider and confirmation of the temperature settings given as part of the hand over/sign off and Health and Safety file information.

Electrical works:

- 172 Under wall unit task lighting is to be replaced if it is incorporated into the existing kitchen, or as otherwise instructed, this Work is reimbursed at the rates in the Schedule of Rates.

Redecorations:

- 173 A sachet of fungicidal additive anti mould agent must be added to paint to be applied in the disabled kitchens. Ceilings to be white, walls to be coloured emulsion from applicable Standards colour index (selected range), Customer to confirm colour choice (paint manufacturer’s premium range and BBA Accreditation or equivalent).

Client’s current manufacturers/suppliers/products

- 174 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

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Kitchen Installation: Example Check List
[Client to amend as appropriate]

Item	Work Description	Deemed included within All-in Kitchen Renewal Rates	Reimbursed through Schedule of Rates
	General		
1.0	Remove and dispose of existing kitchen units and worktops, flooring, wall tiles etc. Install New kitchen units etc., as per the approved Design.	✓	
1.1	Patch plaster walls for decorations following strip out, total area not exceeding 2m2 (making good following larder removal included elsewhere.) Re-plastering behind kitchen units to be kept to a minimum.	✓	
1.2	Protect existing windows and door. Apply protective tape to any PVC-u window frame.	✓	
1.3	Disconnect existing kitchen appliances, set-aside, reconnect daily and on completion.	✓	
1.4	Disconnect, store and protect any washing machine and tumble dryer etc.	✓	
1.5	Allowance for new kitchen units in 1.0 above includes for up to 6 number end panels (to match doors) to base and wall units, any additional end panels reimbursed at rates in Schedule of Rates.		✓
	Plumbing	✓	
2.0	Provide plumbing to sink and washing machine.	✓	
2.1	Provide plumbing for dishwasher (where applicable).	✓	
2.2	Supply and install inset stainless steel sink top complete with taps, etc.	✓	
2.3	Hot and cold pipes behind kitchen units to be lagged with preformed insulation to suit pipe diameter.	✓	
2.4	Supply and fix new 38mm white PVC-u waste from sink washing machine and dishwasher into existing gullies or soil and vent pipes.	✓	
2.5	Reposition radiator, new heating pipework.		✓
2.6	Provide vent for tumble drier.	✓	
2.7	Replace existing or fit new stopcock in existing position.		✓
2.8	Supply and install button valve and a valve switch with twin bore tubing.	✓	

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Item	Work Description	Deemed included within All-in Kitchen Renewal Rates	Reimbursed through Schedule of Rates
2.10	Renewal of galvanised cold water storage cistern or tank in loft space with moulded 227 litre tank complete with lid and insulation as Clause 055 of Plumbing.		✓
2.11	Renewal of galvanised steel cold or lead water rising main with insulated copper pipework including all fittings, stop valves etc.		✓
	Gas Installation		
3.0	Relocate cooker gas point with new bayonet fitting.	✓	
3.1	Cap off redundant gas point.		✓
3.2	Reconnect existing gas cooker in accordance with manufacturer's technical data sheet, ensure safety chain is secured/fixed. Provide a safety chain not already in place.	✓	
3.3	Carry out a gas inspection and test and certify on a Landlord's Gas Safety Record.	✓	
	Electrical		
4.0	As part of the Survey and Consultation on Tenants Choice, carry out a full inspection on the electrical installation within the property and provide a written report in the form of an Electrical Inspection Condition Report.		✓ Reimbursed in Advance Payment
4.1	Isolate, disconnect and remove existing power sockets, cooker point and light switches. Strip out obsolete wiring.	✓	
4.2	Rewire power distribution back from existing consumer unit location. Utilise existing conduits where possible or chase in new PVC-u conduit and socket boxes, to facilitate minimum 10mm- plaster coverage.	✓	
4.3	Supply and install up to 4 twin gang sockets (above worktop).	✓	
4.4	Supply and install up to 5 single gang (below worktop) with switched fused spur, with engraved neon indicators (above worktop).	✓	
4.5	Supply and install 20Amp DP switch with indicator at low level and fused connection unit for cooker hood or extract fan.	✓	
4.6	Provide a new ring final circuit to kitchen.	✓	
4.7	Replace consumer unit in accordance with applicable Standards for electrical installations & IET On-Site Guide on receipt of Instruction from Client's Representative.		✓

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Item	Work Description	Deemed included within All-in Kitchen Renewal Rates	Reimbursed through Schedule of Rates
4.8	Carry out all Code 1 and 2 recommendations to electrical installation outside of Kitchen and Bathroom (if being renewed at same time as Kitchen) on receipt of Instruction from Client's Representative.		✓
4.9	On completion, all work is to be tested as laid down in applicable Standards for electrical installations and the current IET on-site guide. An electrical installation certificate or minor electrical works certificate is to be provided as appropriate.	✓	
5.0	Installation of supplementary equipotential bonding	✓	
5.1	Installation of main equipotential earth bond.	✓	
5.2	Supply and install up to 2 no ceiling rose, lamp-holder with 20 watt BC compact fluorescent lamp(s).	✓	
5.3	Supply and install a single pendant light fitting within existing larder unit.		✓
5.4	Reposition a light switches.	✓	
5.5	Provision of hard wired Smoke Detectors to dwelling if not existing or currently battery operate.		✓
5.6	Provision of Heat Detector.	✓	
	Wall tiling		
6.0	Remove existing wall tiling. Making good plaster as necessary prior to retiling this is addition to item 1.1.	✓	
6.1	Supply and install 6.5mm white or coloured Customer choice ceramic wall tiles between worktop and wall units, and to same height above worktops where no wall units are placed. Tiling to be carried out behind Customer's cooker to the floor and up to the underside of cooker hood or extractor fan and to internal windowsills and reveals.	✓	
6.2	White waterproof grout to tile areas and polish to smooth clean dust free finish.	✓	
6.3	Seal joint of the worktop and tile with white fungicidal silicone mastic.	✓	
6.4	Provide tile trim to all external edges.	✓	

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Item	Work Description	Deemed included within All-in Kitchen Renewal Rates	Reimbursed through Schedule of Rates
	Flooring		
7.0	Uplift and dispose of existing floor covering regardless of floor area.	✓	
7.1	Prepare and level existing solid floor surface with self-levelling screed regardless of floor area.	✓	
7.2	Boarded floors to be overlaid with 3.5mm hardboard pinned at 150mm centres regardless of floor area.	✓	
7.3	Supply and lay floor covering in accordance with flooring specification to include flooring under Customer's appliances regardless of floor area.	✓	
7.4	Seal all junctions between tiling, skirting, window board/sill-board and base panels with matching flexible sealant.	✓	
	Decorating		
8.0	Prepare, undercoat and one gloss coat :- doors, architrave, skirting, radiators, window and all other internal joinery in kitchen any size or Prepare and apply stain to doors.	✓	
8.1	Ceilings to be thoroughly prepared and painted with 2 coats white vinyl emulsion in kitchen any size.	✓	
8.2	Strip wall paper in kitchen any size.	✓	
8.3	Prepare walls for decorations in kitchen any size.	✓	
8.4	Apply two coats of eggshell to walls in kitchen any size.	✓	
8.5	Apply mist coat of eggshell to all new plaster work regardless of area.	✓	
8.6	Line walls with minimum 1200 grade lining paper to manufacturer's technical data sheet.	✓	
8.7	Make good pattern to ceiling any size area.	✓	
8.8	Apply stain sealer coat to ceiling any size and walls where required.	✓	
8.9	Apply textured surface coating to complete ceiling any size.	✓	

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Item	Work Description	Deemed included within All-in Kitchen Renewal Rates	Reimbursed through Schedule of Rates
	Carpentry		
9.0	Install missing skirting to match existing regardless amount and behind white goods.	✓	
9.1	Construct Non-removable boxing of pipework in any number of length/s with access panel/s if required.	✓	
9.2	Adjust internal doors (max 2) if required and service all furniture and fittings re hang if required.	✓	✓ each additional door
	Structural		
10.0	Removal of larder (brick or timber construction to include removal of old metal windows) making good to walls (inside and out), ceiling, skirting etc.		✓
	Insulation		
11.1	Installation of 65mm dry lining.		✓

KITCHEN FURNITURE AND INSTALLATION

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KITCHEN FURNITURE AND INSTALLATION

Introduction

- 001 This Specification aims to set out the expectations of the Client in relation to Kitchen Furniture.
- 002 In addition, this Specification further establishes standards expected in the manufacture and installation of Kitchen Furniture and the need to achieve the “in-use” life expectancy.

Objectives

- 003 Kitchens are not only the main workplace in a home but provide the focal point for much social activity. The Design of the kitchen should, therefore, recognise its use as a family room. The approaches to kitchen Design are well documented and centre around meal preparation, including the following:
- Storage and preparation of food;
 - Cooking and serving;
 - Waste disposal and washing up;
 - Clothes washing and drying.
- 004 The objectives of this Specification for Kitchen Furniture are;
- To ensure Customers are satisfied with the service and standard achieved.
 - To ensure that high standards of quality continue to be/are achieved and that those standards are assessed through a measurable and independent audit.
 - To ensure that the Suppliers and Provider working in partnership with the Client, supply and work to the standards set out and established in the project proposals and supported by this Code of Practice for Kitchen Furniture
 - To ensure that all relevant technical standard specifications along with appropriate clauses and specific items to the project are strictly adhered too.
 - To ensure that all Kitchen Furniture is failure free and achieves a **maintenance cycle** in terms of Decent Homes Standards of **30 years minimum**.

- 005 In order to achieve the above objectives and enhanced life expectancy the Code of Practice to be adopted is detailed below.

Standard Compliance

- 006 All Kitchen Furniture timbers shall comply with the EU Timber Regulation (EUTR) and with standards and requirements as detailed in tables below:

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Table 1. Certification of Kitchen Units and Doors		
Applicable Standard Publication Title	Standard Spec.	Special Needs Spec.
Domestic kitchen equipment. Fitted kitchen units, peninsular units, island units and breakfast bars. Performance requirements and test methods.	✓ Level H	✓ Level H
Domestic kitchen equipment. Performance requirements for durability of surface finish and adhesion of surfacing and edging materials	✓	✓
Particleboards Specification (Identifiable Moisture Resistant Material) Note 1	Type P3	Type P3
Fibreboards. Specifications. Requirements for dry process boards (MDF)	✓	✓
Plywood. Specifications	✓	✓
Domestic and kitchen storage units and worktops. Safety requirements and test methods	✓	
Kitchen Design requirements		
FIRA Standard for kitchens for the disabled		✓
Kitchen furniture. Co-ordinating sizes for kitchen furniture and kitchen appliances	✓	✓
Design of buildings and their approaches to meet the needs of disabled people. Code of Practice.		✓

007 Ensure that all the certification required in conformity with the Code of Practice is provided to the Client's Representative.

Table 2 Certification of Kitchen worktops	
Applicable Standard Publication Title	Performance
Domestic kitchen equipment. Performance requirements for durability of surface finish and adhesion of surfacing and edging materials	✓
High Pressure Laminates (HPL) Sheets based on thermosetting resins (usually called laminates) Introduction and General Information	✓
High Pressure Laminates (HPL) Sheets based on thermosetting resins (usually called laminates) Thickness 2mm and Greater	✓
Particleboards Specification (Identifiable Moisture Resistant Material) Note 2	Type P3
Note:1: Particleboards (or chipboard) is 'Non load-bearing boards for use in Humid Conditions' must be colour dyed green Note 2: notable as colour coded white, green	

008 Manufacturers will be certified to ISO 9001 and 14000 and have in place a company environmental policy – made available at the request of the Client's Representative.

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Sample Panel/Display Boards

- 009 The Provider shall when requested by the Client’s Representative, make available a minimum of 5 sample panels obtained from his chosen kitchen supplier, for use at Customer consultation visits/meetings etc. and any other means of display identified in the service information.
- 010 Sample panels shall include a portion of a worktop 300mm wide by 50mm deep and a 300mm wide door and drawer front. The door and drawer samples shall have suitably matching handles fitted (as outlined in clauses 089-091) and 300mm wide by 130mm deep plinth shall also be fitted. This sample panel shall represent a full size sample of the front of a 300mm base unit.
- 011 Three sample panels shall be provided displaying matching groups of worktops, door and drawer fronts with handles. Colour and type as agreed with the Client’s Representative.

Note; sample sizes have been reduced from 500mm wide to 300mm wide in an attempt to make them more manageable and easier carried.

Kitchen Layout

- 012 All kitchen layouts shall be provided with the units outlined in Table 3 as standard.

Table 3 Standard Units and Appliance Spaces to be included for all kitchens			
Description	Depth x Length (mm)	Description	Depth x Length (mm)
Sink /drainer unit ¹	600x500	Fridge/Freezer Space	600x600
Four Drawer ²	600x500	Cooker Space ³	600x600
Washing Machine Space	600x600	Tumble Dryer/Dishwasher Unit ⁴	600x600
<p>Note: 1 Sink/drainer units must be water resistant plywood 2 Drawer units may also be provided as 600x400mm, but as a general rule the above should apply. 3 Cooker space must be fitted with overhead extract fan and wall unit above. 4 All electrical connections must be fitted regardless of current Customer owning a tumble dryer machine or not.</p>			

- 013 In cases where a Customer does not own a tumble dryer, all electrical works must be carried out regardless and a 600x600mm single door base unit temporarily provided. Please see clauses 094-097 for fitting requirements of EFR fitted units.
- 014 The kitchen layout should provide a work sequence of work surface/cooker/work surface/sink/work surface unbroken by tall fitments.
- 015 The cooker space should be safely positioned in relation to doors, windows, wall units; electric sockets etc. and be at least 300 mm from an adjacent wall or the corner base unit (measured from the front edge of the adjacent worktop).
- 016 In cases where the existing Customer has a gas cooker with an overhead grill, a 900mm space should be left clear of wall units centred on the cooker location. A wall mounted extractor fan should also be provided in place of the overhead fan. Further details can be found by reading the HSE Technical Bulletin 022 found in the below link;
http://www.hse.gov.uk/gas/landlords/120814-prevused_domestic_gas_cooking_appliances.pdf
- 017 Cooker space should not be positioned under or immediately adjacent to a window or wall.

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018 As all Works are of a retrofit nature **Table 4 below should be used as a 'guide only' and not be taken as prescriptive as layouts will be approved at area clearance meetings.** Kitchens are costed in the Price Framework. The number of units etc. provided within each kitchen size is not prescriptive or limited to the below table/s. It should also be noted that units shown below are indicative of space and can be substituted for a variety of sizes i.e. 1000mm may be 2 No 500mm units etc. It should be considered best practice to allow for retaining or introducing a dining area (where no dining room is provided). **No additional payment will be made if a greater number of kitchen units or a longer length of worktop and associated wall tiling is provided.**

Table 4 Guidance for Kitchen Storage Units						
	500 Base Unit	1000 Base Unit	500 Wall Unit	1000 Wall Unit	500 Tall Unit/Broom Storage Note 5	Min length of Work Surface (excl sink, overhangs, gable ends, cooker, etc.)
SMALL	1	1	1	1	1	2000
MEDIUM	2	1	1	2	1	3000
LARGE	2	2	1	2	1	4000

Note 5: This unit can be disregarded if space provided elsewhere.
Notes;
1) Units indicated in this table are additional to units in Table 3.
2) The base units can be provided by usable corner space storage unit (min 900x900mm).

- 019 Kitchen designers should allow for gable ends when setting out their proposals (see clause 056).
- 020 It should be noted that 'partial blank corner units' should be avoided as far as possible, as they have shown to be the cause of Customer dissatisfaction in the past. In order to avoid these it is assumed the designer will first indicate all the necessary items identified in Table 3 above, then base the layout on providing 900x900mm (min) corner base units where possible.
- 021 If 'partial blank corner units' is unavoidable the minimum door width shall be 500mm
- 022 The minimum depth of worktop is 600 mm and minimum length of worktop should be 300 mm.
- 023 Note; length of worktops should be measured from; the end of a run; an adjacent wall; 600mm out from corners.
- 024 Accommodation for a fridge should be provided at the end of a worktop leaving a 600 mm opening (min) – consideration should be given to possible addition space required for skirting boards etc. (an assumption is made that the fridge door can be reversed to accommodate full opening to allow removal of fridge shelves etc.) No services or high-level cupboards should be installed over this space to allow for the possible future location of a tall fridge/freezer. The removal of this 600mm worktop to accommodate current or future installation of a tall fridge/freezer should not reduce the minimum worktop requirements set out in Table 4 above.

Standard Range

Workmanship

- 025 Units shall be soundly built to ensure a satisfactory in-use life expectancy with guarantees/warranties as set out in clause 109 with minimum maintenance.
- 026 Units shall be supplied from the manufacturer assembled, glued and dowelled.
- 027 Knock down or self-assembly units will not be accepted.

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Dimensions

028 Units shall be 600mm in depth as standard and be provided in size differences as Table 5 below. As indicated in section 5.6 above the below table should be used as a guide, if kitchen dimensions do not measure in 100mm sections, 50mm increments (door/unit size) may be adopted. Thereafter filler pieces should not exceed 50mm and be provided flush with the front of the unit and constructed of the chipboard described in section 11.0 below. Filler pieces should not be or more than 50mm i.e. increase the size of one wall and one base unit by 50mm to avoid the use of a filler piece. *It should be noted by the Provider that applying 50mm or 100mm increments to units does not result in a 'bespoke' kitchen. As per the Contract Documents, **the Provider will only be paid for works installed in the Property and on completion i.e. only works/kitchens installed into the Property can be paid. Thus all individual manufactured kitchen units should be of standard that can be transferable regardless of address.***

	300 Unit	400 Unit	500 Unit	600 Unit	800 Unit	1000 Unit	1200 Unit	900x900 Corner Base unit	600x600 Corner Wall Unit Note: 6
Wall Unit	✓	✓	✓	✓	✓	✓			✓
Base Unit	✓	✓	✓	✓	✓	✓	✓	✓	
Number of Doors	1	1	1	1	2	2	2	2	1
Drawer unit		✓	✓	See note 2 of Table 3 above					

Note 6: To allow for better layout design, the corner base unit may be increased to 1000x900mm or 1000x1000mm

029 All base units to be 900mm from floor level to the top of worktop (measured on a level floor).

030 All double door units should be fitted with a vertical central support rail

031 It should be noted that base units are set 50mm from the wall and secured to the anchor rail (see clauses 046 and 047) to provide a service void. If additional space is required for services an additional 25mm is available behind the hardboard. When notching out for services is necessary, it must be carried out with an electric jigsaw OR handheld coping saw to ensure a tidy finish.

General Construction

032 Particleboard (or Chipboard) for carcasses and wall units (with exception to sink base unit – see clause 033 below) shall be 15mm thick in density range of 650 - 800 kg/m³ and comply with applicable Standard-**Grade P3** (colour dyed green). Chipboard to be faced both sides in white melamine. Pre-glued edging strips to be fixed to all exposed sides in order to enable a seal. Front edging strip to match door finish.

033 Sink base unit carcasses shall be **15mm moisture resistant plywood** and comply with the applicable Standard. Plywood to be faced both sides in white high pressure laminate. Pre-glued edging strips to be fixed to all exposed sides in order to enable a seal. Front edging strip to match door finish. All sink base unit carcasses to be supplied with a removable back.

034 Surface colours and textures shall be decided by the Client’s Representative from a range offered by the Provider. All front facing edging strips, plinths, upstands, cornices, pelmets and gable ends are to match the chosen door finish.

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- 035 Paint or spray finish will not be acceptable on any wood components.
- 036 Vertical rails to front of double door units shall be minimum 44mm x 32mm medium density fibreboard and covered in white melamine. Chipboard vertical rails shall not be acceptable.
- 037 Horizontal rails to the top front of base units shall be minimum 50mm x 19mm chipboard (as per carcass material), with exception to sink unit which are to be moisture resistant plywood.
- 038 All base units shall be fitted with 4 No adjustable feet, securely fixed to the base of the unit to facilitate levelling/alignment and minor height adjustment of units. Note; unit carcass shall not extend below the top level of adjustable feet. As the tall unit depth extends out flush with the worktop, consideration should be taken when securing foot to the front edge to ensure a continued flush plinth (toe board).

Hardboard back

- 039 All base units (with the exception of the sink unit) shall have 3mm thick white internal finish hardboard back, extending from the base to the underside of the worktop.
- 040 Sink units shall have 3mm thick white internal finish hardboard back extending from base to 150mm beyond the centre shelf with the upper portion left clear to facilitate pipe and waste connections (Note; stopcock valves are specified as remote shut off valves and **access will not be required through the backing board to the stopcock**).
- 041 All wall and tall units shall have 3mm thick white internal finish hardboard back, extending from the base to the top of the unit.
- 042 All carcasses shall be grooved to receive hardboard backs and glued in place. All support timbers shall be fitted behind the hardboard backing and not be visible from the inside of the unit.

Fixing Rails

- 043 Metal or plastic corner fixing brackets or vertical battens **shall not be accepted** as a means of fixing either wall or floor units. (Corner fixing brackets may be used with standalone supporting gable ends).
- 044 Wall unit fixing rails shall be minimum 44mm x 19mm softwood horizontally top and bottom and to the backside of the hardboard lining of all wall units and plugged and screwed to the wall (all screw heads to be fitted with caps).
- Wall units are to be fixed to the wall via this fixing rail. Wall units shall be fixed 2120mm from the finished floor level to the top of the unit i.e. level with the top of a tall unit. (where corner units are being fitted into internal corners of less than 90degrees, the wall fixing rail may be reduced to the next available timber size and built up with timber packers – the remaining line of base units must maintain the 75mm service void to the rear)
- 045 Floor units shall have minimum 44mm x 25mm softwood rail screwed horizontally at top only (all screw heads to be fitted with caps). Double door base units to be fitted with an additional vertical rail, spanning from the fixing rail to the base to support the hardboard backing sheet. (Note; fixing rails to be provided to the backside of the hardboard backing, therefore providing a 75mm service void between the wall and the hardboard). Fixing rails exposed to the inside of the unit will not be accepted.
- 046 With exception to the sink unit, all base units are to be fixed to the wall by plugging and screwing a horizontal 100x50mm softwood anchor rail to the wall and then screwing the unit to this anchor rail.
- 047 The sink unit fixing rail shall be 44mm x 19mm and set flush with the rear of the unit and plugged and screwed directly to the wall.
- 048 The above requirements are to be implemented to ensure possible ease of removal of any one single unit during their useable lifetime.

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049 Adjacent carcasses should not be screwed together. However where it is not possible to get carcasses finishing tight together vertically on the front edge (i.e. due to uneven wall conditions etc.), white PVC-u 'inter screws' (size M6) shall be used to give a strong tight fixing.

Doors

050 Doors shall be manufactured from 18mm vinyl foil wrapped profiled MDF. The minimum thickness of wrapping shall be 0.4mm.

051 Corner base units to have one door fitted with an internal purpose-made cover rail or. It should be manufactured from one piece of corner profiled MDF and vinyl foil wrapped to match door finish. (i.e. two piece profiles will not be accepted) or alternatively manufacture one door wider to allow it have a finished width flush with the rear of the accent doors (see standard details).

052 Under no circumstances should the inside of a corner base unit be plainly visible from a standing position when the doors are closed. A maximum clearance gap of 5mm must be achieved between corner base units adjoining doors (or door/cover rail)

053 All doors shall be fitted with hinges and handles (as clauses 089-091) with the exception of the box unit above the extract fan. The door to the extract fan box unit is not to be fitted with hinges or a handle but held in place with 2no. pegaline catches.

054 NOTE: Internal melamine face of doors to be either colour white or to match external side of doors.

Gable Ends (sacrificial gable)

055 To facilitate future repair, separate 18mm MDF vinyl foil wrapped base and wall unit gable end panels to be supplied to match doors. These shall be screw fixed through side end of carcasses (screws to be countersunk flush and finished with white plastic caps).

056 Base unit gable ends must extend to floor level to provide closure (Note; returning the plinth along exposed gables will not be acceptable) and be 'pre- notched' to reflect plinth (toe board).

057 Alternative gable end - To allow for untrue floor levels only, it should be noted that this is only to be used as the exception and not the rule. Kitchen cooker space sacrificial gable ends should only be supplied as per clause 055 above or as Option 1 below i.e. provided as full length avoiding joints along the face;

Option 1

058 The Provider should obtain a supply of base unit sacrificial gables manufactured 50mm longer on the pre-notched side (at the bottom) to allow site fitting (scribing) to suit floors. Gable ends MUST be placed on a bed of mould proof silicone, with new floor tiling abutted to the gables, to waterproof. Neither on-site or factory applied lippings will be required to the bottom edge of these gables. This option can only be used in the case of an un-level floor.

Option 2

059 Sacrificial Gable ends may be provided the size of the base unit carcass only, with a full depth returned plinth scribed to match the (un-level) floor. Corner joints to be butt jointed and edge sealing applied. The returned plinth should be positioned to sit flush with the exterior face of the base unit carcass. This option can only be used in the case of an un-level floor.

060 To avoid hygiene issues with returned plinths at the cooker locations, all cooker spaces should be furnished with base unit gable ends (as per Clause 055 above) either side of the cooker space (designers and kitchen fitters should ensure additional space for base unit gable ends is provided in the kitchen layout).

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- 061 Wall unit gable ends should be fitted either side of extract hood (designers and kitchen fitters should ensure additional space for wall unit gable ends is provided in the kitchen layout).
- 062 Both constructed carcass gables of the tall unit should be 18mm MDF vinyl foil wrapped and be supplied to match doors.
- 063 The plinth should only be returned along the gable of base units in the location of appliances i.e. washing machine, fridge etc. The horizontal joint should be sealed with white mould resistant mastic i.e. no coloured gable end panels are to be provided within appliances space.

Table 6 Location of Sacrificial Gable End	
Location	Yes/No
End of run of base units	✓
End of run of wall units	✓
Either side of cooker space	✓
Either side of cooker extract fan	✓
Either side of appliance i.e. fridge/washing machine/dryer etc	x
See clause 055 above for gable ends to tall units	

Supporting Gable End

- 064 It should be appreciated that in number of cases a gable end will be required to support the worktop i.e. when the washing machine is located at the end of the run. (Corner fixing brackets may be used with standalone supporting gables ends).
- 065 Kitchen designers should endeavour to avoid producing kitchen layouts where 2No white goods are adjacent to each other or where the location of an easy future removed (EFR) unit is adjacent white goods. Where this cannot be avoided a supporting gable end is to be provided in-between 2No white goods or in the case of the latter, a gable end is to be provided to the side of the EFR unit (this supporting gable must not be screwed into the adjacent base unit. It should be secured in place with the use of one L-bracket to the worktop and one L-bracket to the floor at the front end of the gable. The rear of the gable may be secure to a timber lath which has been secured vertically to the wall)
- 066 All supporting gable ends shall be of the same material construction as the sacrificial gable ends described in clauses 054-060 above. The supporting gable end located at the end of runs (see clause 061 above) shall be of the same Design as the sacrificial gable – (i.e. outer side to match the door finish and the inner side coloured white). Supporting gable as described in clause 062 above shall be coloured white and flush on both side (note; the notch within a supporting gable should butt against the back of the plinth/toe board to allow the plinth/toe board to run through)

Drawers

- 067 Drawer fronts shall be 18mm vinyl foil wrapped profiled MDF to match doors as outlined in clause 050 above.
- 068 All drawers shall be proprietary metal framed with 15mm melamine faced and edged chipboard (as per carcass) drawer base and back. Each internal metal drawer liner shall be maximum 140mm deep.
- 069 All drawers shall be mounted in full depth proprietary metal drawer runners with restrictor stops included.

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Work Tops

- 070 Work tops shall be minimum 28mm thick moisture resistant chipboard to comply with BSEN 312-**Grade P3** (colour dyed green). Surface colour and texture shall be decided by the Client's Representative from a range offered by the Provider.
- 071 Chipboard worktops shall be identified as being of moisture resistant grade and display the name of the manufacturer as well as the approved standard mark.
- 072 Chipboard worktops shall be faced and edged with an approved plastic laminate as per Table 2 above and have a double bull nose front edge. Corner jointing and ends to be finished with proprietary metal edging.
- 073 Worktop horizontal joint with tiles and/or tall units should be sealed with white mastic suitably mould resistant (clear mastic is not to be used).
- 074 Worktops should extend a maximum of 50mm past gable ends (identified in clause 056 above) and finish flush at cooker and fridge/freezer spaces.
- 075 Worktops may require to be butted into wall over a filler piece; dimensions should not exceed that identified in clause 028 above.
- 076 Post-formed worktops shall be standard.
- 077 Worktops must be supplied with individual kitchens complete.

Shelves

- 078 Shelves shall be as carcasses (see clauses 032 and 033 above) and lipped on all exposed edges, glued and dowel fixed.
- 079 Shelves to 800 and 1000mm wall and floor units shall be supported at each vertical rail.

Plinths

- 080 Plinths (or Toe Boards) shall be **15mm moisture resistant plywood** to comply with the applicable Standard, deep and laminate faced and sealed on all edges coloured to match door colour. A 10 to 20mm gap should be maintained at the top edge of the plinth (with exception to plinth returns) with the base edge remaining factory sealed, to allow air to circulate around the base units.
- 081 Return Plinths shall be 15mm exterior grade WPB plywood, 150mm deep and laminate faced and sealed on all edges coloured white to match carcase gable. All return plinths should be fitted flush with the side of the base unit (plastic feet should be positioned accordingly, see clause 080 below).
- 082 To allow future removal, plinths should only be fitted after the floor covering is complete. Note: this will require the floor covering to extend to the front edge to the base unit feet.
- 083 Plinths shall be fixed by PVC-u holding collars to the PVC-u adjustable feet which are securely fixed into base of units. The collar shall fit snugly over the feet. Loose or sloppy unions shall not be acceptable. Collars should be fitted to at least one foot per unit and always fitted to the last foot on runs. Return plinths should be fixed to both front and rear base unit feet.
- 084 All corner joints to be butt jointed and cut ends to be edge sealed (i.e. return plinths are to be butted into the back of the toe board).

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- 085 Front facing plinths to have cut ends edge sealed and should be butt jointed into gable ends.
- 086 Where an EFR unit occurs, the plinth fixed to the ERF unit is to be cut and sealed on all edges to facilitate easy removal when ERF unit removed.

Cornices

- 087 Cornices shall be vinyl foil wrapped MDF Standard profile and shall be not more than 50mm above the top level of wall units when fitted. The colour/finish shall match the colour/finish of the unit doors.
- 088 All corner joints shall be mitred and glued. Fixing shall be by screws into top of wall units at maximum 300mm centres

Pelmets

- 089 Pelmets shall be vinyl foil wrapped MDF Standard profile and shall be not more than 60mm deep below the wall unit when fitted. The colour/finish shall match the colour/finish of the unit doors.
- 090 All corners joints shall be mitred and glued. Fixing shall be by plastic mounting blocks screwed at maximum 300mm centres to the back of pelmet and underside of wall units.
- 091 Small return sections of returning pelmet i.e. at the cooker, exposed gable, etc. should have a minimum of two mounting blocks.

Door and Drawer Handles

- 092 Handles are to be as selected by the Customer.
- 093 Sample boards as described in clauses 009-011 should include a minimum of 5 No handles of different designs - i.e. shaker style (2No imitation screw heads dye cast into both end front faces); Contemporary dimple bow style (arching D handle extending past fixing points, with parallel rows of dimples on handle face) etc., - note this list is to be used as a guide and describes what is currently being provided by kitchen manufacturers as standard.
- 094 Handle Samples should also be provided in a selection of finishes i.e. old brass effect finish, brushed nickel, satin nickel, chrome etc.

Hinges

- 095 All Hinges shall be concealed nickel plated pressed steel, 3 way adjustable, to open through 180°. (Heavy duty - tested and passed to applicable Standard test level H)
- 096 All hinges shall be screwed to unit gables and dowel fixed or screwed to doors.

EFR fitted Base unit

- 097 EFR (easy future removed) fitted base units are to be provided where provision is being made for future appliance/s i.e. tumble dryer or dishwasher. The 'EFR' unit is a standard 600x600mm base unit with single door.
- 098 Where the EFR is to be located adjacent to the washing machine a sacrificial gable end should be provided to the washing machine side to the EFR (i.e. upon removal of the EFR the sacrificial gable end can be retained to support the worktop between the two appliances)
- 099 The unit should be 'set in' place while adjacent units are being secured to their individual horizontal anchoring rails (see clause 045 above). The 'EFR' unit is not at this stage secured to the wall, other units or the worktop.

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- 100 When the floor covering is being provided the 'EFR' unit is removed to allow the floor covering to be laid within the now void space. After the floor covering has set, the 'EFR' unit should be replaced, levelled and secured by screwing through to the anchor rail as set out in clause 045.

Manufacturer's Identification

- 101 The manufacturer shall fix a permanent identification label to the inside of the drawer unit in each kitchen for future identification purposes. The label shall be protected with an oversized piece of clear acrylic screwed directly onto the unit
- 102 The label shall identify the kitchen unit; door and door handle and worktop manufacturer and shall identify the supplier of door handles, hinges and drawer runners. Label shall also to include the date of kitchen manufacture and the date of installation.
- 103 The underside of all worktops shall be stamped with the name of the manufacturer and the relevant applicable Standard Grade P3 mark as per table 2 above.
- 104 All units complete with doors, fittings and worktops within a scheme shall be obtained by the Provider from one supply source.

Inset Sinks

- 105 Approved inset stainless steel sinks in accordance with applicable Standard are to be fitted in each and every kitchen as the standard.

Existing Ventilation

- 106 Where existing through wall ventilation holes (i.e. larder vents) are no longer required as part of the new kitchen layout, these should be built up.
- 107 Where an existing cavity void/insulation is present, all existing materials crossing the cavity should be removed.
- 108 The selection of construction materials for building up the redundant wall vents shall be specified using the same or similar construction to the existing dwelling. i.e. cavity, timber frame, aluminium wall type etc. and approved by the Client's Representative.

Existing Meter board

- 109 Where existing meter board are located in the kitchen wall unit area, a lockable cupboard should be provided of the same material and finish as described above.
- 110 The final Design location of the meter cupboard will vary from Property to Property and the Client's Representative will have the final approval of the proposed Design. Design proposals must be provided as part of Property clearance.
- 111 Where existing meter boards/cupboards are located outside the kitchen and to be provided with/renewed as part of the kitchen renewal works, reference should be made to the standard details for meter cupboards

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Guarantee/Warranties

112 To ensure that kitchen doors, units and fitting can be obtained during the 25 year lifespan and maintenance period (detailed above) all kitchens will be accompanied with warranties as set out below;

Table 7 Guarantee/Warranty	
Item	Length of Warranty
Carcases and shelves	25 years
Worktops	10 years
Doors and gables ends (to include against veneer lifting)	10 years
Hinges and drawer runners	10 years

113 Certificates of Warranty must be provided to the Client’s Representative before purchase of products. Warranties should include for a written guarantee covering availability of ‘spare parts’ for a similar period.

Universal Use Range

Introduction

114 It is understood that the Customer’s occupational therapist will be involved in the Design and requirements of any proposed universal kitchen. Items within this section should be used as a guide for that Design.

115 Kitchen furniture for universal users shall comply generally with the requirements as for the standard range of furniture outlined in the above sections but with the following additional requirements:

Universal Use General

116 The height from floor level to the top of work surfaces shall be a maximum of 800mm.

117 Oven and fridge housings shall be 600mm wide.

118 The standard height of all plinths shall be 200mm and is to be set in 150mm from front face of units to allow for toe space of wheelchair users.

119 All corner base units shall be provided with a carousel, which should have a wire tray at mid shelf height.

Open Space and Portable Unit

120 If an open space and portable unit can be provided within the kitchen layout, the portable unit should be set on 4 No castors. The dimensions of the portable unit shall be 500mm wide x 500mm deep and a maximum height of 600mm from floor level to top of work surface. The unit shall be fitted with one full depth mid height shelf and top.

121 If an open space and portable unit cannot be provided a pull-out lap board shall be provided in close proximity to the hob at a height of 600mm from floor level to the top of the board. The width of the lap board shall be not less than 450mm and shall project at least 300mm in front of any vertical surface, such as a door. A restrictor stop shall be fitted to prevent the lap board from being pulled out of the housing accidentally although it shall be possible to remove it for cleaning purposes. Provision shall be made to enable height adjustment of lap board between 600mm from floor level to 50mm below work top.

122 The finished surface of the portable unit and/or the pull-out lap board shall comply with standards set out in Table 2 above (Certification of Kitchen worktops).

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Inset Sinks

123 Approved inset stainless steel sinks in accordance with clause 102 above. Kitchens fitted suitable for Wheelchair users use should be fitted with a 150mm deep sink bowl with a heat resistant surface underneath.

Worktop

124 Worktops not to be sealed where they meet with walls as difficulties may be experienced when future height adjustment is attempted. All worktop edges shall be lipped with laminate. Proprietary rubber gaskets shall be fitted to edges to provide seal at walls as required.

125 Where wall tiling is provided the height of tiling shall extend to cover the area between the highest and lowest possible position of the worktops.

126 The horizontal distance between the sink unit and the hob unit shall not be less than 500mm but more than 300mm.

Mechanical and Electrical Connections

127 All electric switches for appliances shall be located at a convenient low level on front fascias.

128 All plumbing to sinks and electrical connections to hob and electric switches for appliances shall be flexible to incorporate height adjustment.

Client’s current manufacturers/suppliers/products

129 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

METALWORK

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METALWORK

MATERIALS

Generally

- 001 Grades of metals, section dimensions and properties are to be to the appropriate applicable Standards. When not specified, select grades and sections are to be appropriate for the purpose.
- 002 Prefinished metal products may be used if methods of fabrication do not damage or alter appearance of the finish, and the finish is adequately protected.
- 003 Fasteners and fixings are to be to the appropriate applicable Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.

Mild Steel

- 004 Ensure steel used is free from imperfections. Before fixing, remove all rust, mill scale, welding slag and flux residue from iron and steel surfaces by wire brushing, scraping, hammering and/or flame cleaning.
- 005 Hot rolled structural steel long and flat products (excluding structural hollow sections and tubes) are to be to applicable Standard.
- 006 Fine grain steels, including special steels are to be to applicable Standard.
- 007 Steels with improved atmospheric corrosion resistance are to be to applicable Standard.
- 008 High yield strength steel plate and wide flats are to be to applicable Standard.

Galvanised coatings

- 009 Apply galvanised coatings to applicable Standard.
- 010 Powder Coatings unless specified otherwise, comply with all relevant requirements and recommendations of applicable Standard for aluminium alloy backgrounds; applicable Standard for galvanized steel backgrounds; applicable Coatings Federation: Code of safe practice - Application of powder coatings by electrostatic spraying.

Garage door repairs

- 011 Ensure fittings and furniture for metal 'up and over' garage doors generally match the existing fittings.

WORKMANSHIP

General repairs

- 012 Cut out defective metal balusters and replace with new, including all welded joints. Prime where damaged and leave ready to receive decorative finish.
- 013 Cut out defective ironmongery and replace with new, including any welding that may be necessary. Prime where damaged and leave them ready to receive the finish.
- 014 Make good damaged welds including removing the remains of the weld, wire brushing, hacking the surface and re-welding. Prime where damaged and leave it ready to receive the finish, in accordance with the details in the "Painting and Decorating" section.

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- 015 Remove a defective arch bar by:
- cutting it out from brickwork;
 - providing temporary supports;
 - replacing with a new primed mild steel bar; and
 - making good the brickwork with a finish to match the existing finish.

Fabrication

- 016 Ensure compliance with any stated design and performance requirements. Ensure sections and dimensions are in accordance with relevant applicable Standards. Do not permit contact between dissimilar metals. Mitre corner junctions of identical sections. Use tack welds only for temporary attachment. Make joints with parent material fully bonded throughout with no inclusions, holes, porosity or cracks. Prevent weld splatter falling on surfaces that will be self-finished and visible in completed work. Remove traces of flux residue, slag and weld splatter.
- 017 Avoid contact between dissimilar metals in components.
- 018 The finished components are to be rigid and free from distortion, cracks, burrs and sharp arrises, moving parts to be free moving without binding, and corner junctions of identical sections are to be mitred.
- 019 Cold formed work is to have accurate profiling with straight arrises.
- 020 Surfaces of metals to receive adhesives are to be degreased, abraded mechanically or chemically etched and rined to suit the adhesive being applied,
- 021 Steel is to be welded to applicable Standard.
- 022 Stainless steel is to be welded to applicable Standard using double butt welds, backing bars, jiggling and other methods to remove distortion.
- 023 Aluminium alloys are to be welded to applicable Standard.
- 024 Brazing is to be to applicable Standard with butt joints finished smooth and level with adjacent surfaces.
- 025 All sharp arrises are to be removed from any welding or brazing to prevent hazards.

Welding

- 026 Welding procedures:
- Method and standard: Metal arc welding to applicable Standards;
 - Welding Procedure Specification (WPS): Not required.
- 027 Preparation:
- Joint preparation: Clean thoroughly.
 - Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.
- 028 Jointing:
- Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks;
 - Dissimilar metals: Not applicable;
 - Strength requirements: Welds to achieve design loads;
 - Heat straightening: Provider to submit proposals;
 - Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds;
 - Tack welds: Use only for temporary attachment;
 - Jigs: Provide to support and restrain members during welding;
 - Filler plates: Provider to submit proposals;
 - Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater;
 - Weld terminations: Clean and sound.

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Finishing:

- 029 Welded and Brazed Joints visible in Complete Work:
- Standard: To applicable Standard. - Preparation grade:P1.
 - Butt joints: Smooth, and flush with adjacent surfaces.
 - Fillet joints: Neat. • Grinding: Grind smooth where indicated on drawings.
- 030 Preparation for Application of Coatings
- General: Complete fabrication, and drill fixing holes before applying coatings.
 - Paint, grease, flux, rust, burrs and sharp arrises: Remove

Balustrades

- 031 Isolated balustrades shall be mild steel hot dipped after manufacture to applicable Standard, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint, handrails are to be continuous and smooth to avoid key clamp style fixings;
- 032 Isolated external balustrades for ramp access to adaptations, steps and stepped ramps shall be 48.3mm circular hollow section mild steel, hot dip galvanised after manufacture to applicable Standard, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint, handrails are to be continuous and smooth to avoid key clamp style fixings;

Mesh Infill to Handrails

- 033 Proprietary mild steel to applicable Standard galvanised diamond pattern mesh netting fixed to existing galvanised steel tubular handrails, guarding to provide a minimum horizontal force/metre run of 0.74 kN/m, galvanised after fabrication, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint;
- 034 Proprietary mild steel to applicable Standard galvanised diamond pattern mesh netting fixed to new galvanised steel tubular handrails, guarding to provide a minimum horizontal force/metre run of 0.74 kN/m, galvanised after fabrication, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint;

Vertical Railings to Galvanised Tubular Handrails

- 035 Mild steel to applicable Standard hot dipped galvanised after manufacture vertical railings to new or existing galvanised tubular handrails galvanised after fabrication, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint;

Isolated Wall Mounted External Handrails

- 036 48.3mm diameter circular hollow section mild steel to applicable Standard hot dipped galvanised after manufacture isolated wall mounted external handrails galvanised after fabrication, all welding /fabrication of components shall be complete prior to galvanising, bolted site connections only will be accepted, no site welding is permitted, damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint;

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PVC-u Handrail Cover

037 Moulded PVC-u section to suit 50mm x 8mm core rail and installed in accordance with the manufacturer’s technical data sheet;

Fixings Generally

038 Methods of fixing and fastenings to be as specified using fixing and jointing methods and types, sizes, quantities and spacing of fastenings which are suitable having regard to:

- Do not modify, cut, notch or make holes in structural members except as shown on any applicable drawings or as approved.
- All welding/fabrication of components shall be complete prior to galvanising.
- Do not site wild connections. Bolted site connections only will be accepted.
- Damaged sections of galvanising and exposed bare metal shall be liberally painted with proprietary cold galvanising paint.

Nature of and compatibility with product/material being fixed and fixed to.
 Recommendations of manufacturers of fastenings and manufacturers of components, products or materials being fixed and fixed to.
 Materials and loads to be supported.
 Conditions expected in use.

Completion

039 Upon completion of the installation works, the Provider is to provide the Client’s Representative with the manufacturer’s maintenance instructions and technical data sheets, guarantees, warranties, test certificates, record schedules and log books.

040 Remove all temporary protective coverings and carry out any cleaning and post installation maintenance in accordance with the manufacturer’s technical data sheets.

Client’s current manufacturers/suppliers/products

041 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

PLASTERWORK AND OTHER FLOOR, WALL AND CEILING FINISHES

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PLASTERWORK AND OTHER FLOOR, WALL AND CEILING FINISHES

MATERIALS

Cement

- 001 Use either normal setting ordinary or rapid hardening or sulphate resisting Portland cement or blast furnace cement. All cement must comply with applicable Standard and be manufactured by a firm with their capability assessed and registered with BSI or other quality certification body acceptable to the Client’s Representative.

Lime

- 002 Use Class B hydrated lime, to applicable Standard.

Sand

- 003 Sand for mortar is to be to applicable Standard 0/2 FP or MP Category 3 unless specified otherwise. Sand for facework mortar is to be from one source, different loads to be mixed if necessary to ensure consistency of colour and texture’.

Sand and aggregate Material Property Limits	applicable Standard Category for other aggregates and Sand	applicable Standard Category for Air cooled blast furnace slag
Acid soluble sulphate content	AS0.2	AS 1.0
Total sulphur	≤ 1% by mass	≤ 2% by mass
Water soluble content	≤ 1% by mass	≤ 1% by mass
Loss on ignition	PFA ONLY ≤ 7% by mass	≤ 3% by mass

- 004 Where mixes contain lime, the lime:sand mortar shall be obtained premixed from a competent mortar manufacturer to the satisfaction of the Client’s Representative. Ordinary Portland cement is added on site by volume in accordance with the mix specification.

- 005 Coloured mortar, where required, to be made using a proprietary coloured ready-mixed lime:sand to applicable Standards; colour as shown on drawings.

Building paper

- 006 Building paper is to be water resistant breather type. Starting from the bottom, fix with clout nails or staples in horizontal lengths, with 100mm laps.

Membranes

WORKMANSHIP GENERALLY:

- 007 Apply Materials carefully to provide a completely waterproof, continuous membrane. Laps to be not less than 300mm. Ensure that surfaces to be covered are clean, dry, smooth and free from voids, sharp protrusions and frost. Protect finished sheeting adequately to prevent puncturing during following work. Cover sheeting with permanent overlying construction as soon as possible. Immediately prior to covering, check for damage and repair as necessary. Where services pass through sheeting, make junctions completely watertight by forming collars to pipes. Identify position of adjoining damp proof courses and expose to view where concealed. Thoroughly clean away all mortar, debris and dirt from vicinity of DPCs, including any projecting portions of DPCs. DPCs which project from the wall: Lap by 200mm with sheeting and fully bond/seal to projecting DPC.

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POLYTHENE DPM:

- 008 Type: PIFA - Standard 6/83A:1995. Min.300 micrometres / 1200 gauge. Lay sheets neatly and tuck well into angles to prevent bridging. If sheets cannot be kept dry, double welted joints may be used provided they are temporarily weighted to hold the folds in position prior to laying concrete or insulation. Form folded welts at corners in upstands.
- 009 RADON GAS IMPERMEABLE MEMBRANE BARRIER SHEETING SYSTEM (300µm):
- Primary protection for use in Zone 1 at ground level with ground supported and suspended concrete floors;
 - Performance:
 - Radon Permeability 12x10⁻¹²m²/s: Laboratory Test;
 - Low temperature flexibility to applicable Standard – No cracking at -25° Centigrade;
 - Products:
 - Low Density Polyethylene (LDPE) sheet, minimum 300 micrometres (1200 gauge);
 - Tensile strength to applicable Standards Method 326E: 1995.
 - Minimum 13N/mm²;
 - Elongation to applicable Standard;
 - Minimum 450%;
 - Tear Resistance to applicable Standard: Method 360C;
 - Minimum 100N;
 - Accessories:
 - 5mm polypropylene geotextile protection layer for gas membrane barrier;
 - 30mm double sided butyl tape self-adhesive bonding strip sealant for compression joints; to be non-hardening permanently flexible and durable;
 - 110, 120 or 130mm nominal diameter take external dimension of pipe preformed Top Hat pipe collars section (for service pipes);
 - 110 -140mm diameter adjustable stainless steel clip;
 - Preparation:
 - Barriers shall be stored rolled up in a dry area until they are to be used; keep away from sharp objects and chemical solvents;
 - Store rolls on their sides under cover until needed;
 - To offer protection against granular fill or rough surfaces of pre-cast concrete units; lay down geotextile protection layer;
 - Installation in accordance with manufacturer's technical data sheet.
- 010 RADON GAS IMPERMEABLE MEMBRANE BARRIER SHEETING SYSTEM (300µm):
- Primary protection for use in Zone 2 at ground level with ground supported and suspended concrete floors;
 - Performance:
 - Radon Permeability 12x10⁻¹²m²/s: Laboratory Test;
 - Low temperature flexibility to applicable Standard – No cracking at -25° Centigrade;
 - Form an airtight, durably sealed, barrier across the whole of the building; including the floor, internal walls and both external and party walls - along with the associated cavities.
 - Carefully install and seal sections of the barrier; ensure airtight sealing at all joints, laps, service entries and cavity trays.
 - Products:
 - Low Density Polyethylene (LDPE) sheet, minimum 300 micrometres (1200 gauge);
 - Tensile strength to applicable Standard Method 326E: 1995.
 - Minimum 13N/mm²;
 - Elongation to applicable Standard;
 - Minimum 450%;
 - Tear Resistance to applicable Standard: Method 360C;
 - Minimum 100N;

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- Accessories:
 - 5mm polypropylene geotextile protection layer for gas membrane barrier;
 - 30mm double sided butyl tape self-adhesive bonding strip sealant for compression joints; to be non-hardening permanently flexible and durable;
 - 110, 120 or 130mm nominal diameter take external dimension of pipe preformed Top Hat pipe collars section (for service pipes);
 - 110 -140mm diameter adjustable stainless steel clip;
- Preparation:
 - Barriers shall be stored rolled up in a dry area until they are to be used; keep away from sharp objects and chemical solvents;
 - Store rolls on their sides under cover until needed;
- To offer protection against granular fill or rough surfaces of pre-cast concrete units; lay down geotextile protection layer;
- Installation in accordance with manufacturer's technical data sheet.

011 INSTALLATION OF RADON GAS IMPERMEABLE MEMBRANE:

- Form an airtight, durably sealed, barrier across the whole of the building; including the floor, internal walls and both external and party walls - along with the associated cavities;
- Carefully install and seal sections of the barrier; ensure airtight sealing at all joints, laps, service entries and cavity trays.

Application and arrangement:

- Remove loose debris from the surface of the concrete slab. The surface of the slab should be smooth and free from projections or indentations.
- Cover entire site with main membrane barrier to be loose-laid directly onto a protection layer (as recommended by manufacturer) on concrete slab; allow for 150mm over lapping joints between sheets; lay main membrane barrier neatly, tuck well into angles to prevent bridging and creasing.
- Repair or replace any damaged areas.
- Take care to ensure all joints have a clean, dry and dust-free overlap.
- Carry edges of membrane under DPC of external walls. Avoid slip panes as per PD 6697:2010.
- Provide 600mm wide membrane strip under internal walls; allow for 150mm overlapping joints with the main membrane barrier.
- In the case of an extension to an existing dwelling, cut a chase in the existing wall and tuck in the membrane. If there is a radon membrane in the existing floor, make the cut slightly above or below.
- For service pipe penetrations through the main membrane barrier, cut a hole in the barrier so that it fits neatly around the penetration and install preformed "Top Hat" pipe collars membrane sections ensuring 150mm overlap with main membrane barrier.
- Ensure a secure gas-tight seal connection at membrane barrier overlaps using one strip of double-sided tape; 2 No. strips to be used to seal "Top Hat" pipe collar sections - firstly tape butt joint main membrane barrier to service pipe and secondly, membrane barrier to "Top Hat" Section.
- Install and tighten adjustable stainless steel clip around top of "Top Hat" pipe collars to ensure a gas tight seal is maintained around service penetrations.
- Ensure that the barrier is not punctured as building work continues; any damage must be repaired before laying the floor slab; cover the barrier with the permanent over lapping construction as soon as possible.

Slip Resistance

- 012 The Pendulum Test Value (PTV) should be 36+ (CoF) or above when tested, wet or dry as appropriate for the anticipated service conditions including any likely surface contamination by the method described in and required by the applicable Standard.

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- 013 For plaster, use Gypsum building plasters or 'Pre-mixed Lightweight Plaster', plaster to applicable Standard (see below) to a minimum thickness of 8mm, Finish Plaster to applicable Standard; minimum thickness of 2mm to bonding plaster, minimum thickness of 3mm when applied to plasterboard.

Types of gypsum binders and gypsum plasters	
Designation	Notation
Gypsum Binders e.g.: <ul style="list-style-type: none"> • gypsum binders for direct use or further processing (dry powder products); • gypsum binders for direct use on site • gypsum binders for further processing (e.g. for gypsum blocks, gypsum plasterboards, gypsum elements for suspended ceilings, gypsum boards with fibrous reinforcement) 	A A1 A2 A3
Gypsum plaster: <ul style="list-style-type: none"> • gypsum building plaster; • gypsum based building plaster; • gypsum-lime building plaster; • lightweight gypsum building plaster; • lightweight gypsum based building plaster; • lightweight gypsum –lime building plaster; • gypsum plaster for plasterwork with enhanced surface hardness. 	B B1 B2 B3 B4 B5 B6 B7
Gypsum plaster for special purposes: <ul style="list-style-type: none"> • gypsum plaster for fibrous plasterwork; • gypsum mortar; • acoustic plaster; • thermal insulation plaster; • fire protection plaster; • thin coat plaster, finishing product; • finishing product. 	C C1 C2 C3 C4 C5 C6 C7

Bonding agent

- 014 Where bonding agents are permitted, use an opaque white non-toxic externally plasticised PVA of high viscosity manufactured to applicable Standard solution to sound surfaces, with a 1:3 solution to be applied to soffits.

Metal lathing, beads and stops

- 015 Ensure steel lathing is of the plain expanded type having a minimum weight of 1.6Kg/m².
- 016 Ensure beads and stops are of an appropriate profile and:
- for internal use are galvanised; and
 - for external use are manufactured from stainless steel or PVC-u to applicable Standard.

Plasterboard

- 017 Plasterboard is to be to applicable Standard; core density of 6kg/m² for 12.5mm board. Product selection to be restricted to materials with a minimum 75% recycled content.
- 018 Dry lining is to be to applicable Standard, core density of 10kg/m² for a 12.5mm board; taper edged.

Wall tiling

- 019 Plain cushion edge white or coloured glazed ceramic tiles to applicable Standards size 6mm minimum thickness. Waterproof adhesives for ceramic tiles to be to applicable Standard. Waterproof grout to applicable Standard. Wall tiling for repairs is to match existing for repairs to existing tiled surfaces.

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Sealant

020 Sealants are to be:

- gun grade white silicone mould resistant sealant to applicable Standard low modulus; or
- gun grade white silicone sealant to applicable Standard low modulus; or
- fire retardant sealant to applicable Standard

Textured decorative finish

021 Use a plastic compound textured decorative finish. Apply it to provide a finish to match the existing finish. Apply to no less than the minimum thickness stated in the manufacturer's technical data sheet.

Steel lathing beads and stops

022 Lathing to Timber or Masonry to be either:

- Zinc coated lathing to applicable Standards zinc coated Reference L3 fixed with staples at 150mm centres; or
- Stainless steel lathing to applicable Standards stainless steel Reference SWL fixed with stainless steel staples at 150mm centres.

023 Lathing to External Wall Insulation to be either:

- Stainless steel lathing to applicable Standards stainless steel Reference HWL fixed with stainless steel staples and ties at 150mm centres; or
- Glass or Carbon reinforced lathing, with fibres encapsulated against alkali attack, strength and stiffness greater than that for stainless steel, fixed with stainless steel staples and ties at 150mm centres

024 Stretch lathing and fix securely in accordance with manufacturer's technical data sheet to give a taut firm base for plaster/rendering, fix with the long way of the mesh at right angles to supports and with all strands sloping in the same direction, Lap side edges not less than 100mm. Lap ends 50mm at supports and 100mm between supports. Laps must not occur within 100mm of angles or bends. Tie all edges and ends together with 1.2mm wire ties at not more than 150mm centres. Ensure all joints have a 100mm lap and are wired at centres not exceeding 75mm.

025 Angle beads are to be either:

- PVC-u angle bead with 25mm x 25mm lugs to take 2mm plaster to applicable Standard; or
- PVC-u angle bead with 40mm x 40mm lugs, depth to suit external render;

026 Bellcast beads are to be PVC-u with 25mm x 45mm lugs.

027 Stop beads are to be PVC-u edge bead 25mm wide.

028 Fix beads and stops with galvanised steel or stainless steel nails or mortar or render dabs on accordance with the manufacturer's technical data sheet.

Plasterboard, Dry Lining and Thermal Boards

029 Fix plasterboard to soffits or studding with 32mm x 12 swg galvanised clout headed nails for 10mm boards and 38mm x 12 swg galvanised clout headed nails for 12.5mm boards at intervals suitable for the particular application. Provide all supporting members as necessary for fixing the plasterboard. Do not use cross joints in boards. Seal all exposed and cut edges with PVAC sealer.

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- 030 Horizontal joints will not be permitted on dry lining unless the wall height exceeds the maximum manufactured board dimension. All joints are to be taped and finished to a flush seamless finish. Jointing material is to be to applicable Standard. Seal all exposed and cut edges with PVAC sealer.
- 031 Ensure flush joints between plasterboards and at the junction between walls and soffits with straight edged and level finish plaster. Cover them with 90mm wide jute scrim cloth bedded in neat board finish. Apply a coat of neat d finish plaster at least 5mm thick immediately after the joint application has set but before it dries out.
- 032 Fix dry lining to metal framing with drill point ("jack point") drywall screws at 300mm centres to vertical studs, around openings and at board edges.
- 033 Ensure that backing walls are dry and direct bond dry lining with a gypsum based adhesive , seal perimeter and around openings with gypsum adhesive.
- 034 Ensure the plaster finish to thermal board consists of two coats of premixed lightweight plaster total thickness of plaster system of at least 13mm as follows:
5) the first coat being scratch coat of bonding plaster; followed by
6) a coat of appropriate finish plaster trowelled to a smooth finish.

Plaster on concrete soffits

- 035 Ensure the plaster finish to concrete soffits consists of two coats of premixed lightweight plaster, to a total thickness of plaster system of at least 10mm as follows:
- the first coat being a bonding scratch coat; followed by
 - a finishing coat trowelled to a smooth finish.

Plaster on solid vertical backgrounds

- 036 Ensure the plaster finish to solid vertical backgrounds consists of two coats of lightweight premixed plaster to a total thickness of plaster system of at least 13mm as follows:
7) the first coat being:
- on low suction backgrounds, a bonding plaster scratch coat containing exfoliated vermiculite; or
- on normal suction backgrounds, a scratch coat of HB browning plaster containing expanded perlite aggregate; and
8) the second coat being finish plaster containing exfoliated vermiculite aggregate trowelled to a smooth finish.

Dissimilar Solid Backgrounds for Plaster:

- 037 Where plaster is to be continued without break across joints between dissimilar solid backgrounds which are rigidly bonded or tied together, cover the joints with a 200 mm wide galvanized mesh strip (backgrounds in the same plane) or with galvanized corner mesh (internal angles) fixed at not more than 600 mm centres along both edges, unless specified otherwise.

Dissimilar Solid Backgrounds for Plaster (Lintels):

- 038 Where plaster is to be continued without break and without change of plane across the face of a lintel which is not wider than 300 mm and is rigidly bonded or tied to the plaster background:
9) Cover the face of the lintel with building paper to applicable Standard extending 25 mm on to the adjacent background.
10) Overlay with expanded galvanized steel lathing extending 50 mm beyond the edges of the
11) paper and securely fix with masonry nails at not less than 100 mm centres along both edges.
- 039 Alternatively, a suitable paper and mesh lathing may be used.

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Dissimilar Solid Backgrounds For Rendering:

- 040 Where rendering is to be continued without break across joints between dissimilar solid backgrounds which are in the same plane and rigidly bonded or tied together, cover joints with a 150 mm wide strip of building paper to applicable Standard overlaid with 300 mm wide stainless-steel lathing fixed at not more than 600 mm centres along both edges, unless specified otherwise.

Conduits:

- 041 Conduits bedded in undercoat to be covered with 90 mm wide jute scrim bedded in finishing coat mix, pressed flat and trowelled in. Do not lap ends of scrim.

Cement beds, backings and renderings generally

- 042 Unless the Client's Representative Instructs otherwise, ensure all beds, backings and renderings are composed of one part Portland Cement to three parts sand, by volume. Keep the water content as low as possible and ensure it does not exceed 18 litres per 50 Kg of cement (including the moisture content in the sand).
- 043 Brush sub-bases and backgrounds free of all dust. Well wet them and coat them with cement slurry before applying the screeds. Alternatively, use 1:10 EVA bonding adhesive instead of cement slurry.
- 044 Where the beds, backings or renderings are specified as waterproof, incorporate waterproofer to applicable Standard in the mix.
- 045 Expansion joints should be placed to form bays not exceeding 3.50m x 3.50m. Finish off the surfaces of beds and backings to receive the appropriate tiling, paving or other finishing.
- 046 External rendering is to be to applicable Standard. Ensure external renderings have a surface finish to match the existing renderings.

Granolithic finish

- 047 Ensure granolithic finish is composed of 1 part cement to 1-part fine aggregate to 2 parts coarse aggregate 10mm maximum size, all measured by weight. Add the minimum amount of water necessary to give sufficient workability for laying and compacting. All granolithic repairs are to match existing.
- 048 Thoroughly scabble, clean, wet and treat the base for granolithic application either by brushing on a neat cement grout or an EVA emulsion bonding agent. Lay the granolithic finishing in bays not exceeding 15m² with the bay proportions being such that the ratio of sides will not exceed 1:1 1/2.
- 049 Ensure the minimum thickness is 19mm to a sound loadbearing concrete base. To prevent dusting, avoid excessive trowelling. Carry out curing for at least 4 days or, if the Client's Representative so Instructs, for longer.
- 050 Ensure the deviation from the level is no more than +/- 3mm in 3m.
- 051 Steel trowel the granolithic to produce a close knit surface and either tool it by stud rolling or sprinkle it with non slip grains to produce an anti-slip finish as Instructed by the Client's Representative.

Wall tiling

- 052 Fix tiles to the backing with straight joints on a combed bed of waterproof adhesive. Ensure all exposed edges of tiles are round edged. Either round edge or mitre the external angles, at the Provider's discretion. Form exposed stop end corners using double bullnose tiles.

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- 053 Fill the joints between tiles solid with waterproof grout. Tool off the joints and clear off all residual adhesive and grout from the tiles and surrounding surfaces on completion of the Works.

Quarry and Ceramic floor tiling

- 054 Lay tiles either on a bed of cement and sand (1:3) or on a cementitious adhesive bed to applicable Standard 3-6mm thick, which makes full contact with the tile and background.

Suitability of Backgrounds/Bases:

- 055 Before starting work ensure that backgrounds/bases:
- Are sufficiently flat to permit specified flatness of finished surfaces, bearing in mind the permissible minimum and maximum thicknesses of the bedding material.
 - Have been allowed to dry out by exposure to the air for not less than the following:
 - Concrete slabs: 6 weeks.
 - Cement:sand screeds: 4 weeks.
 - Rendering: 2 weeks.
 - Gypsum plaster: 4 weeks.

Plain Coloured Skirting To Existing Painted Plaster:

- 056 Tiles: Plain coloured unglazed ceramic skirting tiles, minimum rounded top edge, coved bottom to applicable Standards, Size: 8mm minimum. Joint width: 3mm.
- Background/Base: Existing painted plaster.
 - Grouting material: Waterproof grout.

Setting Out:

- 057 Ensure that:
- Joints to be true to line, continuous and without steps.
 - Joints on walls to be truly horizontal, vertical and in alignment round corners.
 - Joints in floors to be parallel to the main axis of the space or specified features.
 - Cut tiles/slabs to be kept to the minimum, as large as possible and in unobtrusive locations.
 - Before laying tiles obtain confirmation of setting out to satisfaction of the Client's Representative.

Flatness of Wall Tiling:

- 058 Sudden irregularities not permitted. When measured with a slip gauge in accordance with the applicable Standards, the variation in gap under a 2 m straight edge placed anywhere on the surface to be not more than 3 mm.

Flatness of Floor Tiling:

- 059 Sudden irregularities not permitted. When measured with a slip gauge in accordance with the applicable Standards, the variation in gap under a straight edge (with feet) placed anywhere on the surface to be not more than 3mm over a 2m straight edge.

Vinyl and thermoplastic tiles

- 060 Unless the Client's Representative Instructs otherwise, lay tiles in accordance with applicable Standard with straight joints on a combed bed of adhesive to a standard and quality approved by the Client's Representative. Match the size, colour and pattern of the tiles as nearly as possible to any existing surrounding tiles.

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Vinyl and other Resilient Sheet Floor Coverings

- 061 Unless the Client’s Representative Instructs otherwise, vinyl and other resilient sheet floorings are to be of a standard, quality and laid in accordance with the applicable Standards.
- 062 All non slip floor coverings to be 2mm thick anti slip vinyl sheet floor coverings to in accordance with the applicable Standards and to have a Pendulum test value (PTV or slip resistance value) (36+ (CoF) or above) as tested to in accordance with the applicable Standards and a Surface roughness (Rz) (20+µm (microns) or above) to in accordance with the applicable Standards. Floor covering to be complete with aluminium threshold strips at doors

Textured decorative finish

- 063 Fill joints in plasterboard to receive decorative textured finish with plastic filler. Cover them, while wet, with wet strength paper scrim or while wet or dry, with glass fibre membrane scrim tape. Allow this to dry before applying the finishing coat. Apply the finishing coat evenly. Tool or brush this to match the existing surrounding finishes or as the Client’s Representative Instructs otherwise.

Labour and sundry items

- 064 Cut and fit and/or make good all wall and floor finishings around any kind of obstruction or projection of a permanent nature from the wall background or floor base including any:
 - structural elements;
 - pipework, ducting and their brackets and supports;
 - fittings and appliances in connection with the electrical, water, gas heating, air conditioning, communication and waste disposal systems; and/or
 - fittings and any permanent object in connection with any permanent parts of the Property.
- 065 Unless the Client’s Representative Instructs otherwise, maintain plasterwork, renderings, backings, asphalt and any applied finishes in the same plane as any existing surrounding similar applications. Make a fair joint between the new application and any existing surrounding application.

Client’s current manufacturers/suppliers/products

- 066 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

EXTERNAL AND INTERNAL RETROFIT INSULATION LINING SYSTEMS

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EXTERNAL AND INTERNAL RETROFIT INSULATION LINING SYSTEMS

GENERAL

IWI/EWI System Guarantee

- 001 Provide a 25 year, third party, insurance-backed guarantee to cover the external wall insulation materials, system and installation. For each Property insulated, a guarantee certificate should be provided stating the exact address of the Property covered by the guarantee. The Provider shall provide written details of the future maintenance regime to ensure compliance with the detailed terms of the insurance backed guarantee.
- 002 The guarantee must meet the following criteria:
1. Provide a minimum guarantee of 25 years.
 2. Provide assurance that funds are available to honour the guarantee, including in the event the contractor/installer/manufacture ceases to trade.
 3. Cover the full replacement of a failed EWI system, including remedial works, materials and installation.
 4. Have a quality assurance framework in place whereby the quality of the system and its installation are independently assessed by a UKAS accredited body.
- 003 A list of appropriate guarantees can be found on the Ofgem website under their ECO Guidance. Please note this list is not exhaustive and other appropriate guarantees may be available.
- 004 All costs associated with providing the guarantee are to be borne by the Service Provider and the Service Provider must make the Client's Representative fully aware in advance and in writing of the maintenance regime required to uphold the guarantee.

PAS 2030: 2019 and PAS 2035: 2019

- 005 The Client has adopted PAS 2030:2019 and PAS 2035: 2019 and compliance with applicable Standards in commissioning measures to improve the energy efficiency of their existing Properties and to undertake fuel saving improvements.
- 006 All works in respect of the installation of energy efficiency measures in existing Properties are therefore to be undertaken in accordance with the requirements of PAS 2030:2019.
- 007 All works in respect of retrofitting dwellings for improved energy efficiency are to be undertaken in accordance with the requirements of PAS 2035:2019 in addition to PAS 2030:2019.
- 008 Must be registered as compliant with PAS 2030:2019 by a PAS 2031 accredited scheme provider/certification body and provide evidence to demonstrate compliance with PAS 2030:2019 and PAS 2035:2019 in support of their Tender submission.
- 009 Any person or firm proposed by the Provider to undertake any of the following roles:
- retrofit adviser;
 - retrofit assessor;
 - retrofit co-ordinator;
 - retrofit designer; or
 - retrofit evaluator
- must have undertaken an approved accredited course approved by UKAS, and copies of their relevant certification are to be provided when requested by the Client
- 010 In addition, if the retrofit Works are in respect of energy efficiency and retrofitting of traditional (having solid, vapour permeable walls) or historical buildings which fall under the requirement with compliance with applicable Standards, the person or persons undertaking any of the roles indicated above, must hold an SQA Level 3 award in energy efficiency and retrofit of traditional buildings and evidence of this is to be provided when requested by the Client.

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PAS 2030 and installation

- 011 The installation must be undertaken by persons with appropriate skill and experience, approved by the manufacturer and in accordance with PAS 2030.
- 012 Evidence must be provided that the IWI/EWI installation contractor has PAS 2030 certification.
- 013 A pre-design survey of the Property is to be carried out by a competent person in accordance with PAS 2030 to assess its suitability to receive the insulation. The Client's Representative, Service Provider and system designer should be made aware of any remedial Works required and, if Work is to proceed, these should be carried out prior to installation.
- 014 Pre-design survey, method statements and the related requirements of PAS 2030 are to be provided to the Client prior to installation.
- 015 Clear records of work undertaken must be kept and presentable at the reasonable request of the Client to allow monitoring of installation Work.
- 016 On completion of the Work, a "Declaration of Conformity" to PAS 2030 standard shall be provided to the Client's Representative for their records.

Design Considerations

- 017 The proposed Design and installation must not have a negative effect on the ventilation, air quality, humidity and comfort of the Property. When presenting Designs, the Provider must make recommendations for any further measures required to prevent environmental changes occurring as a result of the insulation works, and to ensure the continued or improved comfort of the Customers. The proposed Design must as a minimum satisfy Building Regulations.
- 018 The insulation system designer should:
- Calculate U-values in accordance with:
 - Applicable Standards
 - BRE report BR 443
 - Ensure that thermal bridges, air leakage and condensation are avoided or at least kept to a minimum within the acceptable parameters as delineated in applicable Standards, in accordance with the following methods of calculation and assessment:
 - Hygrothermal performance of building components and building elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation.
 - Thermal bridges in building construction. Heat flows and surface temperatures.
 - Thermal performance of buildings. Transmission and ventilation heat transfer coefficients.
 - BRE BR 262 – Thermal Insulation: avoiding risks.
 - Code of Practice for the Control of Condensation in Buildings.
 - Assess the subject walls for the effects of wind-driven rain and the suitability of the proposed system in accordance with:
 - Code of Practice for assessing the exposure of walls to wind-driven rain.
 - Ensure that the wall insulation will meet the appropriate Building regulations standard set out in Approved Document B Fire Safety; ensuring appropriate cavity barriers, detailing to building services, penetrations, fire breaks and all materials specified insulation should be non-combustible, Euroclass A1 or A2-s1,d0 standard for combustibility even in locations where not mandated by regulation.
- 019 Existing walls that are considered to be vapour permeable shall only be insulated using vapour permeable finishes, adhesives and insulation such as wood fibre. The thickness of the insulation should be limited to a maximum of 100mm.
- 020 Where the existing construction is not considered to be vapour permeable, vapour closed insulation materials may be used.

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INTERNAL WALL INSULATION (IWI)

Generally

- 021 Design and installation should be carried out in accordance with the BRE Good Practice Guide 138 – Internal wall insulation in existing housing, and is to be undertaken by a PAS 2030 certified specialist installer and according to manufacturer’s standard details and construction methodology.
- 022 Materials used must be certified by the BBA or equivalent. Fire classification of the Materials is to be tested to applicable Standard and the design and installation to be in strict compliance with the BBA certificate. If there is any doubt as to the suitability of the system on the subject building, the Service Provider must seek clarification from the certificate holder.
- 023 Remove and securely fit new fixtures and fittings to match existing or as Instructed by the Client’s Representative, such as skirting, architraves, picture rails, curtain back boards, etc.
- 024 Strip any gloss paint or vinyl wallpaper from wall. Ensure that the plasterwork on the wall to receive insulation is dry.
- 025 Survey the walls to assess flatness and the presence of moisture, to determine which method of installation is best suited.
- 026 Insulation can be applied directly to the plasterwork providing it is not defective.
- 027 If plasterwork is defective, for example blistering, cracking, efflorescence, it is to be hacked off and debris removed from site, and a parge coat of cement and sand (1:3) applied with a float finish. Allow sufficient time for drying out before installing insulation.
- 028 If the plasterwork is defective due to water ingress/rising damp/mould etc., carry out necessary remedial works and treatments and make good. Following treatment/repairs, allow sufficient time for drying out before installing insulation.
- 029 Extend electrical wiring towards the inside face of the insulation layer and fit new face plates.
- 030 Generally direct electrical cables away from internally insulated walls, and if this is not possible take measures to avoid accidental damage of wiring, over-heating and early degradation of PVC sheathed cables, in accordance with BR 262. Avoid contact between PVC insulated wiring and polystyrene insulation.
- 031 Relocate and securely fit central heating pipes and radiators towards the inside face of the insulation layer.
- 032 Remove and securely fit new PVC-u window sills to suit thickness of new insulation backed plasterboard.
- 033 Where new windows and/or doors are being installed along with the IWI, tape perimeter of openings with airtightness tape.
- 034 Where practical, return the insulation along walls perpendicular to external walls (e.g. internal and party walls) for a minimum distance of 1m, to reduce the thermal bridge at this point.

Internal Insulation Applied Directly to Walls

- 035 Insulation (the type and thickness specified to meet the required U-value) backed, 12.5mm plasterboard with integral vapour control layer and taped joints fixed to the walls using plaster adhesive recommended by the plasterboard manufacturer can be utilised where the background plaster is smooth, level and dry. The adhesive is to be applied to the insulation board in strips. To prevent air movement between the insulation board and the background plaster, and the spread of fire gases at floors, ceilings and adjacent walls; a continuous band of adhesive is to be applied to the perimeter of the wall and to the surround of any opening, in accordance with the manufacturer’s instructions. In addition mechanical fixings should also be utilised, sufficient to prevent collapse in the event of a fire.

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- 036 Plasterboards incorporating plastic insulation are also to be secured with recommended screw mechanical fixings in addition to the adhesive described above, to prevent the insulation collapsing in a fire.
- 037 Insulation (the type and thickness specified to meet the required U-value) backed, 12.5mm plasterboard with integral vapour control layer and taped joints fixed to the walls using plaster dabs recommended by the plasterboard manufacturer can be utilised where the background plaster is not smooth and level but is dry. To prevent air movement between the insulation board and the background plaster, and the spread of fire gases at floors, ceilings and adjacent walls; a continuous band of adhesive is to be applied to the perimeter of the wall and to the surround of any opening, in accordance with the manufacturer's instructions. In addition mechanical fixings should also be utilised to prevent collapse in the event of a fire.
- 038 Where the background is uneven or has been previously treated for damp, preservative treated timber battens are to be screwed or nailed to the existing plastered or newly re-parge coated brick wall, a high performance breather membrane, high wet strength, water resistance and high vapour permeability CE and BM TRADA Certified breather membrane is to be provided between the timber battens and the background wall.
- 039 Air tightness flexible grommets are to be provided and installed where any pipe or cable penetrates the vapour membrane; damage to the vapour membrane caused by the penetration of pipes or cables is to be repaired using tapes recommended by the vapour membrane manufacturer.
- 040 A compressed flexible insulation/flexible expanding foam seal is to be provided at the perimeter of the plasterboard where abutting other floor, wall and ceiling finishes.
- 041 Insulation backed plasterboard of a higher performing insulation than that of the main walls is to be provided and installed to all reveals, heads and sills, and sealed against the window or door frame or lining with a flexible sealant. Thickness of insulation is to be determined by thermal bridging calculations and depth of window/door frames so as not to inhibit the operation of opening the window or door.
- 042 The Provider is to provide existing and proposed, project specific thermal resistance and transmittance values based on proposed material and fixings, calculated and declared to applicable Standards.
- 043 U-values are to meet Building Regulations, unless a lower value is requested by the Client's Representative.

Insulation Fitted between battens

- 044 Preservative treated sawn softwood battens, 50mm wide or proprietary timber battens incorporating a cork laminate to reduce thermal bridging, at least the thickness of the insulation, are to be screwed or nailed to the wall at maximum 600 centres, a high performance breather membrane, high wet strength, water resistance and high vapour permeability CE and BM TRADA Certified breather membrane is to be provided between the timber battens and the background wall.
- 045 Rigid insulation board (the type and thickness specified to meet the required U-value) is to be cut and friction-fitted between battens and a vapour protection membrane is to be fixed to the face of the battens and insulation.
- 046 12.7mm Plasterboard with taped joints is to be fixed to the timber battens, if a pipework service zone is required, this is to be formed in 38mm x 38mm preservative treated softwood battens fixed to the insulation retaining battens before the application of the plasterboard.
- 047 Alternatively insulation backed plasterboard with an integral vapour membrane and taped joints may be used to increase the U-value and reduce thermal bridging.
- 048 Air tightness flexible grommets are to be provided and installed where any pipe or cable penetrates the vapour membrane; damage to the vapour membrane caused by the penetration of pipes or cables is to be repaired using tapes recommended by the vapour membrane manufacturer.
- 049 A compressed flexible insulation/flexible expanding foam seal is to be provided at the perimeter of the plasterboard where abutting other floor, wall and ceiling finishes.

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- 050 Insulation backed plasterboard of a higher performing insulation than that of the main walls is to be provided and installed to all reveals, heads and sills, and sealed against the window or door frame or lining with a flexible sealant. Thickness of insulation is to be determined by thermal bridging calculations and depth of window/door frames so as not to inhibit the operation of opening the window or door.
- 051 The Provider is to provide existing and proposed, project specific thermal resistance and transmittance values based on proposed material and fixings, calculated and declared to applicable Standard.
- 052 U-values are to meet Building Regulations, unless a lower value is requested by the Client's Representative.

Separate Inner Lining

- 053 In situation where the existing wall was previously subject to rain penetration and remedial works have been carried out, or it is bowed or uneven, separate timber studs can be utilised to create a minimum 30mm air gap between the wall and the rear face of the insulation. Preservative treated sawn softwood studding 50mm wide x depth of mineral fibre or other insulation, at maximum 600mm centres are to be braced between the floor and the ceiling.
- 054 The air gap is to be ventilated to the exterior, at the top and bottom of the wall.
- 055 Mineral fibre insulation (the type and thickness specified to meet the required U-value) is to be stapled to studwork, other insulation material is to be cut and friction fitted between the studding.
- 056 A vapour protection membrane is to be fitted across the face of the studwork and covered on the internal face by 12.7mm plasterboard with taped joints. A pipework service zone can be formed with 38mm x 38mm preservative treated sawn softwood battens before the application of the plasterboard.
- 057 Air tightness flexible grommets are to be provided and installed where any pipe or cable penetrates the vapour membrane; damage to the vapour membrane caused by the penetration of pipes or cables is to be repaired using tapes recommended by the vapour membrane manufacturer.
- 058 A compressed flexible insulation/flexible expanding foam seal is to be provided at the perimeter of the plasterboard where abutting other floor, wall and ceiling finishes.
- 059 Insulation backed plasterboard of a higher performing insulation than that of the main walls is to be provided and installed to all reveals, heads and sills, and sealed against the window or door frame or lining with a flexible sealant. Thickness of insulation is to be determined by thermal bridging calculations and depth of window/door frames so as not to inhibit the opening the window or door.
- 060 Service Provider to provide existing and proposed, project specific thermal resistance and transmittance values based on proposed material and fixings, calculated and declared to applicable Standard.
- 061 U-values are to meet Building Regulations, unless a lower value is requested by the Client's Representative.

EXTERNAL WALL INSULATION

Rendered External Wall Insulation (EWI)

- 062 EWI shall be installed to low-rise (1-3 storey) Properties only. If a building higher than 3 storeys is to be considered to receive EWI, this work should be procured as a specialist project outside of this Contract.
- 063 The majority of external wall insulation works is likely to be carried out to existing solid masonry walls. However, where cavity walls are being considered for thermal upgrade, the cavities must be fully filled with insulation.
- 064 The design and installation of insulated render systems is to be undertaken by a PAS 2030 certified specialist Sub-contractor or Supplier, using proprietary products and the system manufacturer's standard details and construction methodology. (See General Notes).

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- 065 The external wall insulation system and all associated products are to be accredited by the BBA or the BRE or equivalent and guaranteed by the system manufacturer for a minimum of 25 years. (See General Notes)
- 066 The Service Provider is responsible for obtaining all necessary Statutory approvals.
- 067 Prior to the design and specification of the work, the Service Provider must have a survey of the substrate walls carried out by a trained assessor or installer. A survey should be provided for each dwelling and should record, but is not limited to, the following:
- Whether there is space available for the installation of EWI and access for future maintenance.
 - Any areas not suitable to receive EWI.
 - An assessment of the vapour permeability of the walls
 - A line and level survey and any requirement for dubbing out.
 - Aesthetic features to be retained or recreated (particularly in conservation areas).
 - Building dimensions including openings, recesses and protrusions (bay windows etc.).
 - A schedule of services that require removal or relocation prior to the insulation works, and reinstatement once the installation is complete, e.g. communications cables, heating pipework, gas and electricity meters, gullies and rainwater goods.
 - A schedule of fixtures and fittings that require removal prior to the insulation works, and reinstatement once the installation is complete e.g. fences, gates, satellite dishes.
 - Vegetation on or adjacent to the substrate that requires removal (algae, vines).
 - Existing defects to the substrate and the remedial work required before installation, e.g. cracking, bulging, spalling, rising and penetrating damp, mould.
 - A schedule of existing DPC level, movement joints and fire breaks, also indicated on a drawing.
 - Results of structural pull-out tests for a mechanically fixed system, of which a minimum of 15nr. are spread across the subject building to determine the suitability of the substrate for the EWI and to the number and type of fixings.
 - Results of a pull-off test for methods using adhesive only, and adhesive with mechanical fixings.
- 068 The Provider is to ensure that the face of the external wall is to be free of all structural and non-structural protrusions, which if Instructed are to be taken back to the face of the external wall, and any exposed reinforcing bars treated with cement slurry. Rainwater and Soil, Vent and Waste pipework, overflows, external services, condensate pipework, and electrical, telephone, tv and satellite cabling is to be temporary removed and reconnected to maintain services and reconnected on completion of the Works including providing any additional pipework or sleeves to accommodate additional width of insulated rendering. All air vents, balanced flues, condensing flues, extract fans and other grilles are to be taken out and set aside, and later re-fixed including additional sleeves or spigots on completion of the Works. Insulation and reinforcing mesh is to be notched and cut around pipework, cabling, vents etc., penetrating the external wall. Render is to be made good around pipework, cabling, vents etc., penetrating the external wall.
- 069 All external wall insulation boards and system accessories such as rails, beads, renders and sealants should be stored in accordance with the manufacturer's technical data sheet. External wall insulation boards should be stored in a location that is clean, dry and level, with the boards protected in a manner that avoids accidental damage from impact, water damage or degradation due to exposure to sunlight. Care should be taken to ensure the boards are protected following manufacture, during transportation and whilst stored on site.

Criteria for External Wall Insulation and Accessories

- 070 The proposed design should include for insulation to all areas of the building, to provide a complete envelope, except at the discretion of the Client's Representative and should satisfy the Building Regulations.
- 071 Rigid insulation (of the type and thickness specified to meet the required U-value and suitable for the construction type) is to be mechanically fixed to the face of the external wall utilising a PVC track and rail system as recommended by the system manufacturer.
- 072 Provide existing and proposed, project specific thermal resistance and transmittance values based on proposed material and fixings, calculated and declared to applicable Standard.

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- 073 U-values are to meet Building Regulations, unless a lower value is requested by the Client's Representative.
- 074 Aim to achieve an improved U-value of 0.20 W/m²K or better.
- 075 The system designer shall provide U value calculations and a condensation risk analysis for both types of insulation to confirm that the target U value is achieved and that interstitial condensation will not occur within the structure. These U value calculations shall include for the point thermal transmittance of the fixings (Chi).
- 076 All mechanical fixings e.g. base rails, corner edge and stop beads are to be fibre-reinforced plastic or PVC-u. Metal fixings are not permitted.
- 077 EWI must extend beyond the level of the top of the existing floor insulation by a minimum of 400mm. If no floor insulation exists, or it is not clear, gauge where the insulation would logically be or will be installed in the future.
- 078 The main EWI material should terminate at existing DPC level and the DPC extended through the thickness of the EWI. Below DPC level a water resistant insulation such as extruded polystyrene should be used. Insulation below DPC to be a minimum of 30mm thinner than main wall insulation and a bell cast drip formed.
- 079 Return EWI into the heads, sills and reveals of all openings using a thinner, higher performing insulation as described above. The thickness of return insulation is to suit thickness of existing frame, so as not to inhibit the operation of opening the window or door.
- 080 To reduce thermal bridging, and where new windows and/or doors are being installed along with the EWI, position them so that either the front or rear face of the windows/doors sits flush with the outer face of the masonry wall. If the rear face is flush with the wall, ensure the weight of the windows/doors is adequately supported in a manner suitable for the substrate. The installation should be made airtight and weathertight.
- 081 The EWI installation must be continuous, air-tight and water-tight. Where EWI cannot physically connect with the insulation of another element, e.g. roof insulation, provide a minimum overlap of 400mm.
- 082 The system designer is to provide a full set of project specific design details showing all junctions, including but not limited to soffits, reveals, sills, copings, abutments, ground floor, below DPC and around services. Further detail should be provided of the following:
- Details showing number and pattern of fixings, location of base rails, beads, reinforcement mesh, sealant locations, DPC's, fire barriers and movement joints.
 - Details showing how fixtures and fittings will be secured to the EWI covered substrate.
 - Details showing how to protect exposed edges of insulation, in locations such as eaves, gables, soffits and opening, by the use of overhangs, sealants, flashings and over-cladding window sills.

Integrity

- 083 The installation must be:
- Weather tight under all anticipated conditions;
 - Capable of resisting all dead loads and design live loads, including impact and wind loads, and accommodate all thermal and structural movements without damage.

Impact Loading

- 084 Impact resistance of finished walls when tested to 3 and 10 joule hard body impacts in accordance with ETAG 004 and ISO 7892 "Vertical building elements – Impact resistance tests – impact bodies and general test procedures" must achieve a classification of Category 11. It must have impact resistance strength of 30kJ/m².

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Resistance to Thermal Shock and Rainwater Penetration

085 The system must be tested and have passed the hygrothermal test as defined in ETAG 004 Clause 5.1.3.2.1. Hygrothermal Behaviour.

Wind Loading

086 Design wind loads: Wind loads to be used in testing are to be calculated in accordance with the applicable Standards or equivalent and Codes of Practice.

- Ultimate limit state wind load calculations
- Calculations and specifications to adequately accommodate all potential foreseeable failures.

087 The system designer must submit structural calculations for the Client's Representative's approval to demonstrate that the system can resist an Ultimate (factored) wind suction load for the building under consideration, in accordance with applicable Standards.

088 These calculations must include an assessment of the pull over strength of the fixing washer heads through for example 60mm phenolic foam and 100mm enhanced expanded polystyrene insulation materials. A minimum factor of safety 2 should be applied to the characteristic pull through values that are obtained using the test method given in ETAG 004 clause 5.1.4.3.1 "Pull-through tests of fixings".

Fire Resistance

089 Fire classification of the system is to be tested to applicable Standard, the insulation is to be non-combustible Euroclass A1 or A2-s 1 d and the design and installation to be in strict compliance with the BBA certificate or equivalent. If there is any doubt as to the suitability of the system on the subject building, the Provider must seek clarification from the certificate holder.

090 Non-combustible insulation should be fixed for a minimum distance of 100mm around the circumference of boiler flues.

Preparation

091 Prior to installation, prepare the substrate by carrying out remedial work as identified by the survey, brush and wash walls with suitable mild detergent and allow to dry.

092 Remove areas of render thought to be in poor condition and hammer test and remove locally any loose render. Make good with sand and cement or a proprietary render repair system.

093 Extend eaves and gable overhangs where necessary to protect the top of the EWI.

094 Hammer test and remove any loose material and dub out if necessary, ready to receive the insulation and render system.

095 Treat areas of moss, algae and mould growth with a fungicidal treatment approved by the system manufacturer.

096 Remove all fixtures and fittings attached to wall such as timber fence posts, gates etc. Take note of the exact position of satellite dishes before removal to enable reinstatement in the correct location.

097 Relocate all down pipes, ventilation pipes, storm and foul gullies to accommodate insulation thickness and reconnect where necessary for continued operation during installation.

098 Extend all services ducts to suit the thickness of insulation.

099 Install movement joints as recommended by the system manufacturer/designer.

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- 100 EWI installed to second storey walls and above should have at least one stainless steel fixing per square metre and fire breaks at each floor as advised in BRE Report BR 135: 2013.
- 101 In all instances, provide fire breaks at party/compartment wall locations, the fire breaks shall be part of the overall External wall insulation system Design and are to provide 1 hour fire resistance.

Installation

- 102 The EWI must be installed in accordance with the BBA or equivalent certificate and manufacturer's recommendations, and by installers trained and approved by the certificate holder.
- 103 Installation should be in accordance with the Best Practice Guide: External Wall Insulation 2015, published by INCA.
- 104 Fix insulation boards in a staggered pattern in full contact with the substrate to eliminate air gaps behind the insulation. Fix either mechanically, with adhesive, or with both depending on the project specific recommendations.
- 105 Fix adjacent boards tightly and avoid gaps. Cut boards as required, to a minimum width of 200mm.
- 106 All gaps between insulation boards should be filled with slips of insulation or PUR foam sealant.
- 107 Once installed, insulation boards should be protected from getting wet until the render can be applied. Wet board boards should be replaced before rendering.
- 108 Polyester powder coated aluminium over sills and window reveals integrated into new windows and fully compatible with the external wall insulation system to be installed. Window sills are to provide a minimum 35mm projection in front of new render line.
- 109 Re-attach all rainwater down pipes, soil vent pipes and other lightweight items to the new substrate using spiral anchors.
- 110 Re-attach all medium weight items such as light fittings to the new substrate using cantilevered fixings.
- 111 Re-attach timber fence posts, satellite dishes and other heavy items on treated timber grounds fixed directly to the masonry wall, within the insulation layer. Timber grounds should be the same thickness as the insulation.

Beads, Drips etc.

- 112 Stainless steel, polyester powder coated aluminium or PVC-u angle beads are to be used on all external angles and reveals and installed strictly in accordance with the system manufacturer's technical data sheet.
- 113 Polyester powder coated aluminium eaves flashings, and eaves flashing overtrims are to be installed strictly in accordance with the system manufacturer's technical data sheet.
- 114 Polyester powder coated aluminium adjustable apex flashing trims cut to suit to provide a minimum 40mm overhang beyond the render surface are to be installed strictly in accordance with the system manufacturer's technical data sheet.
- 115 Stainless steel, polyester powder coated aluminium or PVC-u under sills or over sills drip beads are to be installed strictly in accordance with the system manufacturer's technical data sheet.
- 116 Stainless steel, polyester powder coated aluminium or PVC-u bell cast drip beads are to be installed at the base of any wall rendering and installed strictly in accordance with the system manufacturer's technical data sheet.

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- 117 Stainless steel, polyester powder coated aluminium or PVC-u stop end beads are to be installed at the exposed end of any wall rendering, and installed strictly in accordance with the system manufacturer's technical data sheet.
- 118 Silicone sealant is to be applied at any abutment of the rendering system to door or window frames, bottom of wall insulation, and any other non-insulated projection.

Finishes

- 119 All rendering to be in accordance with applicable Standards.
- 120 Application should occur only on dry days and finishing coats should be applied away from direct sunlight and heavy winds to avoid cracking caused by premature curing.
- 121 The minimum overall thickness for render is 6mm, with the final thickness being as per the system manufacturer's recommendations.
- 122 Use self-coloured render, colour to be confirmed with Client's Representative.

Base renders

- 123 For thin coat systems, apply a 2 layer base coat with polypropylene or glass fibre mesh pressed into the first layer.
- 124 For thick coat systems fix metal laths to the insulation before the base coat of render.
- 125 Prepare surface of base coat as recommended and leave to dry for the application of the finishing coat.

Base renders

Cement render

- 126 Pre-mixed with additives applied in two or three coats as specified, (total 16 – 25mm thick), reinforced with either stainless or galvanised steel reinforcing mesh fixed to face of insulation. Movement joints are to be provided at 5m intervals both horizontally and vertically, render to be applied strictly in accordance with the manufacturer's technical data sheet.

Polymer-modified cementitious render (PMCR)

- 127 Pre-mixed with additives and polymer applied in one or two coats as specified (total 6 -12 mm thick) reinforced with mineral fibre or glass mesh fixed to face of insulation, render to be applied strictly in accordance with the manufacturer's technical data sheet.

Acrylic render

- 128 Pre-mixed acrylic and high quality sand/aggregates applied in two coats (4-6mm) reinforced with mineral fibre or glass mesh fixed to face of insulation, render to be applied strictly in accordance with the manufacturer's technical data sheet.

Hydraulic lime renders

- 129 Pre mixed with additives hydraulic lime render, applied in one 10-13mm base coat to foamglas insulation, reinforced with glass fibre mesh reinforcement fixed to face of insulation, and finished with 3mm decorative layer, render to be applied strictly in accordance with the manufacturer's technical data sheet.

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Insulating renders

- 130 Pre mixed with additives and polystyrene balls, perlite or vermiculite insulating aggregate, applied to door and window reveals, reinforced with either stainless or galvanised steel reinforcing mesh fixed to face of reveal, render to be applied strictly in accordance with the manufacturer's technical data sheet.

Hemp – line render

- 131 Pre mixed with additives lime render blended with hemp, applied in coats to achieve a total thickness of 50mm directly to face of brickwork, finished with a lime plaster finishing coat, reinforced with either stainless or galvanised steel reinforcing mesh fixed to face of brickwork, render to be applied strictly in accordance with the manufacturer's technical data sheet.

Finish topcoats

Silicone and Acrylic renders

- 132 Silicone and acrylic finishing coats are to be applied strictly in accordance with the manufacturer's technical data sheet to ensure consistency of finish, texture and architectural finish are to be as specified, method of application can be by trowel, rollers or spray as specified.

Aggregate dash

- 133 Aggregate dash or spar dash or pebbledash is to conform to applicable Standard.

Scratch plaster or Scrapped finish

- 134 Pre- coloured specialist render with a large grain size to provide a textured finish when scratched, applied strictly in accordance with the manufacturer's technical data sheet.

Roughcast render

- 135 Cement based polymer modified self-coloured render incorporating an aggregate of small evenly sized pebbles to provide a textured finish, to be applied over a base coat and dash receiver, to conform to applicable Standard

Spray render or Tyrolean finish

- 136 Waterproof Tyrolean render sprayed using a splatter machine in layers to a minimum coat thickness of 4mm onto smooth coloured polymer-rendered layer, applied strictly in accordance with the manufacturer's technical data sheet.

Coloured Smooth/Flat render

- 137 Pre-mixed coloured render, applied strictly in accordance with the manufacturer's technical data sheet.

Mock brick

- 138 Three coat polymer based render applied in accordance with manufacturer's technical data sheet to give the appearance of brickwork.

Brick Slips

Clay or Concrete slips

- 139 Proprietary clay or concrete brick slips fixed to and including profiled polystyrene and wire mesh proprietary slop mounting system fixed to face of insulation, installation of slips to be strictly in accordance with the manufacturer's technical data sheet, bond of brickwork and jointing and pointing to be as specified.

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Acrylic slips

- 140 Proprietary acrylic “brick” slips fixed to face of coloured smooth finished rendering, installation of slips to be strictly in accordance with the manufacturer’s technical data sheet, bond of brickwork to be as specified.

Reveals and Base of Walls

- 141 All rendering systems are to be returned into reveals and heads of door and window openings, incorporating a reduced thickness of higher performing insulation board fixed to existing reveal or soffit, and a stainless steel or PVC-u angle bead fixed to face of insulation, all to be installed in accordance with the system manufacturer’s technical data sheet.
- 142 The base of the rendering system is to be finished with a bell cast feature complete with stainless steel or PVC-u bell cast drip bead fixed to face of brickwork, all to be installed in accordance with the system manufacturer’s technical data sheet.
- 143 The face of the masonry below the base of the rendering system at DPC level is to be finished with extruded polystyrene insulation to extend at least 400mm below top of floor insulation and finished with render/calcium silicate boarding, all to be installed in accordance with the system manufacturer’s technical data sheet.
- 144 The face of the structure below the base of the rendering system at DPC level is to be finished with 50mm low moisture absorption extruded polystyrene insulation (Jablite Basetherm board or other equal and approved) with Structherm Ejot H1 eco x 95mm or other equal and approved plastic or metal hammer or torque drill fixings complete with integral plastic washers installed at 600mm centres between DPC and ground level to extend at least 400mm below top of floor insulation and finished with render/calcium silicate boarding, all to be installed in accordance with the system manufacturer’s technical data sheet.

Insulated Structural Cladding to Crosswall Constructed Dwellings

- 145 Remove all fixtures and fittings attached to wall such as timber fence posts, gates etc. Take note of the exact position of satellite dishes before removal to enable reinstatement in the correct location.
- 146 Relocate all down pipes, ventilation pipes, storm and foul gullies to accommodate insulation thickness and reconnect where necessary for continued operation during installation.
- 147 Extend all services ducts to suit the thickness of insulation.
- 148 Remove existing areas of cladding to expose column bases and carry out in conjunction with the Client’s appointed Structural Engineer an inspection to assess the structural integrity of the Property. Undertake any repairs identified from the Structural Engineer’s report.
- 149 Allow for packing out if necessary to the existing façade with treated timber battening to take out any steps in the line of the walls, the general line and level of the walls should be checked.
- 150 The existing timber studding is to have a fungicidal wash in accordance with the manufacturer’s technical data sheet.
- 151 The cladding panel cage is to be Structherm SPL or other equal and approved incorporating a 70E fire retardant enhanced EPS insulation core, panels 2450mm high x 1200mm wide, boards 2400mm high x 1200mm,

Structural Cladding Panel Cage Thickness	70E Fire Retardant Enhanced EPC Insulation Core Thickness	Base profile with nosing	Stop bead with nosing
75mm	50mm	95mm	90mm
100mm	75mm	120mm	115mm
125mm	100mm	145mm	140mm
150mm	125mm	170mm	165mm

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- 152 The cage is to covered with stainless steel 200mm and 400mm rigid joint mesh in sheets 2400mm long, mechanically fixed clipped to the cage using Vertex or Hartco or other equal and approved clips installed at 150mm centres, all joints should be meshed together with foam filler strips. Stainless steel 300mm x 100mm rigid corner 2400mm long are to be fixed at internal and external angles. and 400mm rigid joint mesh in sheets 2400mm long The cage is to be fixed with Ejot or other equal and approved RA-p 7.5 x 80mm fixings with stainless steel washer plate ay 600mm centres to existing timber studs and brickwork, strictly in accordance with the manufacturer’s technical data sheet.
- 153 Vertical fire breaks required at party/compartment walls and window and door surrounds are to be mineral fibre minimum 100mmwide and 100mm thickness, fully bedded on HP12 and fixed with stainless steel DMH 8/35 x 170E fire fixings and DMT 80E stainless steel washers at 600mm centres.
- 154 All joints and interfaces must be sealed with type F Class 25HM sealant. All junctions are to be double sealed with Compriband TP600 10/2 or TP600 10/5-10 or other equal and approved tape and with a low modulus silicone mastic sealant for windows, cills, door frames etc.
- 155 Insulation to reveals, masonry cross wall brick piers and part walls is to be 20mm Phelonic insulation board fixed with IDK-N 8/60 x 75mm long or 6 x 60mm hammerfix or similar fixings.
- 156 Insulation to brick plinths is to be 70mm Jablite basetherm or other equal and approved High Density EPS board
- 157 The render is to Structherm FR basecoat 24-26mm or other equal and approved applied in two coats, 14-16mm scratch coat, and a 8-10mm floated coat applied in accordance with the manufacturer’s technical data sheet, th render is to have Structhern CPR or other equal and approved primer applied using roller or brush application to an even coverage
- 158 The base of the cladding system is to be finished with a heavy duty polyester powder coated galvanised steel base profile with nosing. all to be installed in accordance with the system manufacturer’s technical data sheet. Heavy duty polyester powder coated galvanised steel HF full system stop beads with nosing and filler strips are to be provided.
- 159 PVC-u clip on render stop end beads, thin coat corner beads with fibre mesh, and movement beads are to be installed strictly in accordance with the system manufacturer’s technical data sheet.
- 160 Structherm CS15-A or other equal and approved silicone finishing or top coats are to be applied strictly in accordance with the manufacturer’s technical data sheet to ensure consistency of finish, texture and architectural finish as specified, method of application can be by trowel, rollers or spray as specified.
- 161 Anti-graffiti coatings may be required to rendered finishes when instructed, these are to be Hydron NU-CRYL AG render coat or other equal and approved applied strictly in accordance with the manufacturer’s technical data sheet.
- 162 The face of the structure below the base of the rendering system at DPC level is to be finished with 50mm or 70mm low moisture absorption extruded polystyrene insulation (Jablite Basetherm board or other equal and approved) with Structherm Ejot H1 eco or other equal and approved plastic or metal hammer or torque drill fixings complete with integral plastic washers installed at 600mm centres between DPC and ground level to extend at least 400mm below top of floor insulation and finished with render/calcium silicate boarding, all to be installed in accordance with the system manufacturer’s technical data sheet. Insulation to have a 50mm or 70mm wide 0.7mm aluminium box profile fixed to substructure at 300mm centres with 8/60 hammer screw bead fixings
- 163 The base of the substrata rendering system is to be finished with a bell cast feature complete with a PVC-u thin coat bell cast drip bead fixed to face of structure, all to be installed in accordance with the system manufacturer’s technical data sheet.
- 164 Polyester powder coated extruded aluminium over-cills to suit profile of existing cills are to be provided when instructed complete with welded corners, upstands, end caps as necessary, over-cills to be sealed with low modulus silicone sealant.

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Insulated Façade Panels

- 165 Removal and replacement of façade panels is to be undertaken within the same single working day ensuring that the Property remains fully watertight and secure with all services reconnected.
- 166 The sequence of undertaking the Works on a panel by panel basis will incorporate:
- Temporary disconnect and set aside services and fittings;
 - Remove facias, soffit boards etc;
 - Protect retained finishes;
 - Break up section and prepare slab;
 - Remove and clear away existing façade panels including windows and doors;
 - Install prefabricated or site assembled panel to structure;
 - Install external sheathing board and seal;
 - Install windows, door frames and doors;
 - Glaze windows and seal;
 - Reconnect services and fittings;
 - Complete cladding rails, flashings and cladding panels;
 - Install internal trims and cill boards;
 - Redecorate and make good.
- 167 Carefully break out 40mm x 60mm wide section of existing concrete floor screed where floor abuts existing façade panels, include for taking up and setting aside existing carpet grippers and carpet to facilitate installation of new panels, protect retained finishes. Dress all surfaces that have been broken up and remove all loose debris and materials and ensure base is level , ready for installation of new panels, where main posts are to be installed allow for breaking out 300mm x 300mm x 40mm deep section of floor structure. Abrade concrete surfaces and ensure all are free from laitance, oil and grease or other contaminants to ensure areas are clean and open to achieve a good mechanical key, apply Wykamol or other equal and approved epoxy coating EP40 damp proof membrane.
- 168 The structural framing to the replacement façade panels is to comprise Kingspan Kingframe steel framing system (SFS) or other equal and approved with 'U' track and 'C' section stud profiles (74mm x 2mm) pre-hot dipped galvanised cold rolled cold rolled steel components with guaranteed yield strength of 390N.mm², to be assembled with head and base track and vertical studs at 600mm centres and complete with all accessories, and installed in accordance with the manufacturer's technical data sheet. All ends are to cut square and all edges protected with zinc rich paint. Fixing of components shall be with self tapping screws
- 169 Framing can be either pre-fabricated off site and delivered complete with sheathing board or proprietary board finish, or assembled on site from individual components including additional studding as framing around openings , and bolt fixing of frame to existing structure to be Ejot (or other equal and approved) 6.3 x 32mm hex head anchors to structure at 600mm centres and G8.8 with locking nut and washers to all brackets and steel connections.
- 170 Perimeter of framed panel to be installed on suitable damp proof course material and sealed with low modulus silicone.
- 171 Any cavity openings in the structure are to be filled with Kingspan koothem PVC-u extrusion J section cavity closers or other equal and approved before the steel framed panels are installed.
- 172 The external face of the panel is to be covered with sheathing board either supplied already installed on pre-fabricated panels or installed on site, the sheathing board is to be 12.5mm Siniat weather defence 2G (or other equal and approved) external square edge glass fibre mat faced moisture resistant gypsum based board fixed in accordance with the manufacturer's technical data sheet to the steel framing and with 60mm taped joints.

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- 173 Install 50mm Isover (or other equal and approved) mineral wool steel framed insulated infill batts fit securely with close butted joints as infill to steel framing, friction fitted between steel framing, fixed at head of frame with timber battens or proprietary clips.
- 174 Install 70mm Kingspan K15 Kooltherm or other equal and approved Rainscreen insulation board fixed to sheathing board in accordance with the manufacturer's technical data sheet, Joints of insulation board are to be taped with 75mm wide self adhesive aluminium foil rainscreen cladding tape. Exposed edges of the insulation board are to be protected by a suitable self-adhesive aluminium fila tape with a 50mm minimum wide overlap onto the insulation board face.
- 175 The inner face of steel framing is to be covered in either:
1. 12.5mm Soundbloc MR (or other equal and approved) gypsum plasterboard fixed at 300mm centres maximum with dry wall screw fixings with Gyproc scrim tape, and two coat board finish skim plaster including all mechanically fixed skim beads.
 2. 12.5mm Soundbloc MR (or other equal and approved) gypsum plasterboard fixed at 300mm centres maximum with dry wall screw fixings with Gyproc scrim tape, and 27mm Gyproc Thermaline plus (or other equal and approved) board complete with PVC-u white angle trim to cover joint between Soundbloc and Thermaline boards, joints to be reinforced with Gyproc paper joint tape and filled for required fire resistance and fixed with drywall crew fixings, and apply two coats dry wall sealer prior to installation.
 3. 62.5mm Kingspan Kooltherm K18 (or other equal and approved) insulated plasterboard installed and finished in accordance with the manufacturer's technical data sheet.
- 176 If a vapour control layer is required to be provided, this is to be installed with the minimum number of joints, with 150mm laps and sealed with a double side tape.

Rainscreen to Insulated Panels

- 177 Install Nvelope or other equal and approved Omega and Zed profiles installed vertically at maximum 600mm horizontal centres and fixed to external insulation clad panels in accordance with the manufacturer's technical data sheet, allow for installing black polyester powder coated Zed profiles at perimeter edges to provide shadow gap detail.
- 178 Install Steni Colour or other equal and approved façade fibreglass reinforced polymer composite panels with a smooth of electron beam cured acrylic 6.5mm thick, fixed in accordance with the manufacturer's technical data sheet with colour matched mechanical rivet fixings into predrilled holes, fixings to be set at maximum 600mm centres horizontally and vertically and to be located at maximum 40mm from side reveals and 75mm from top and bottom edges, all rivet holes to be aligned horizontally and vertically to provide a neat aesthetic appearance. Vertical and horizontal panel joints are to be 8mm. Horizontal joints are to be Steni (or other equal and approved) Corner Profile. External corners are to be Steni (or other equal and approved). Perforated closers are to be installed at cill level to prevent entry of birds and vermin.
- 179 High level cappings and low level cills, trims and other flashings are to fabricated from polyester powder coated aluminium to applicable Standards and to match colour of panels.

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Client’s current manufacturers/suppliers/products

180 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

PAINTING AND DECORATING

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PAINTING AND DECORATING

GENERAL

Benchmark Standard

- 001 Prior to the commencement of painting, the Client's Representative, the Provider and the Paint and Decorative Materials Manufacturer will meet on site to identify a number of Properties which are agreed as being representative in condition and substrate types of the Properties that exist throughout the relevant estate or programme of Works. The Client's Representative shall have the final decision on the Properties identified as the benchmark Properties.
- 002 The selected Properties will be known as the "benchmark Properties" against which decorating materials performance will be measured during the course of the Contract and the agreed addresses will be recorded.
- 003 Prior to commencement of re-decoration to the remainder of the estate or programme of Works, the benchmark Properties will be prepared and redecorated strictly in accordance with the contract/technical decorating specifications and monitored by the Client's Representative.
- 004 Upon completion of the benchmark Properties, the Client's Representative, Provider and Paint and Decorative Materials Manufacturer will meet again to "sign off" the Properties provided the required standards of workmanship and materials have been achieved. The signing off should be in conjunction with the Client's Decorative Materials Performance Record – Benchmark Properties Form.
- 005 Ensure that the standards of preparation and decoration on the benchmark Properties are applied to the remaining Properties within the estate or programme of Works.

The Provider

- 006 Ensure that the selected Paint and Decorative Materials Manufacturer is consulted prior to the commencement of any painting and decorating Works.
- 007 Ensure that all Staff engaged to carry out the painting and decorating are suitably trained to achieve the quality standards and levels of service indicated in this Specification and individual Property, estate or programme of Works requirements.
- 008 The Provider shall be responsible for the quality standards and levels of service achieved both in surface preparation and decorative materials application by those members of Staff engaged for this purpose. The Provider will also ensure that a suitably qualified Supervisor is appointed to control work sequencing, quality standards and to ensure that Customers property is left clean and tidy at the end of each working day.
- 009 Adhere wholly to the "Technical Painting and Decorating Specification" prepared and supplied by the Paint and Decorative Materials Manufacturer, and using the specified paint and other decorative materials so that the application to various surfaces, preparation, initial and final coats achieve the optimum performance as stated. The Provider must use the paint and other decorative materials stated in the "Technical Painting and Decorating Specification" specific to the project Property, estate or programme of Works.
- 010 Provide a minimum of one week's notice to all Customers prior to preparation or painting and decorating Works being carried out on their Property.
- 011 Ensure that the standards of preparation and painting and decorating application to the Benchmark Properties is compliant with the Technical Painting and Decorating Specification" provided and subsequently "signed off" by the authorised representative of the Paint and Decorative Materials Manufacturer and the Client's Representative.

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- 012 Ensure the remaining Properties on the estate or programme of Works achieve equitable painting and decorating standards in terms of quality and performance as the previously agreed Benchmark Property.
- 013 Provide evidence of having a responsible waste management system, i.e. that paint and decorative materials tins and containers are re-cycled and not disposed of to landfill sites.

Paint and Decorative Materials Manufacturer

- 014 The paint and decorative Materials manufacturer is the party indirectly employed by the Provider or their approved Subcontractors to supply paint and other decorative Materials, training and technical support.
- 015 The paint and decorative Materials manufacturer shall liaise with the Client's Representative and the Provider to identify and agree the Benchmark Properties for the estate or programme of Work.
- 016 The paint and decorative Materials manufacturer shall ensure that all of the products supplied for the Contract, are in full compliance with this Specification.
- 017 The paint and decorative Materials manufacturer shall provide for each Property, estate or programme of Work (if required) any necessary on-site training in the use of their products and retain a record of the training undertaken and who received that training.
- 018 The paint and decorative Materials manufacturer shall inspect and survey each Property, estate or programme of Work and prepare the applicable "Technical Painting and Decorating Specification" recommending the preparation, applications and paint and other decorative Material products applicable to the Works identified as being required to be undertaken, which if undertaken correctly would enforce any guarantees given by The paint and decorative materials manufacturer as to the expected life and performance of the paint and decorative Material products used.
- 019 The paint and decorative Materials manufacturer shall liaise fully with the Client's Representative, the Provider and if applicable any approved painting Subcontractors to provide an effective site monitoring of standards and advisory service which ensures best practice in the use of their products. The paint and decorative Materials manufacturer shall complete the Client's Quality Monitor Form on a bi-weekly basis.
- 020 In addition the paint and decorative Materials manufacturer shall be responsible for providing a written report in an electronic format to the Client's Representative following each inspection.
- 021 The paint and decorative Materials manufacturer is required on the completion of every Property to collate a comprehensive Property, estate or Programme of Work specific technical report in an electronic format and submit to the Client's Representative. The technical report must provide clear evidence of the following:
- a comprehensive Technical specification that identifies all of the products used (trade names permitted) with their associated warranties and where applied;
 - Site Monitoring Reports – details of any site visits, any findings identified and what action(s) were taken/requested in terms of remedial works;
 - Where communal hallways have been repainted – full details of flake sampling, independent analysis and what recommendations were followed on site, details of tag(s) affixed should also be recorded including photographic record of location(s);
 - Record of training where specifically requested by the Provider of a paint or decorative Material product or products;
 - Confirmation that all paint and other decorative Material products and their quantities as supplied are held by The paint and decorative Materials manufacturer on his internal IT system for future reference; and
 - Fire certification certificates as applicable on the application of fire retardant paints and the achievement of Class "0" surface spread of flame.

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Redecorate/touch up/make good

022 Note that “redecorate/touch up” or “make good decoration” includes preparation, priming, one undercoat and either one gloss coat to previously painted surfaces or reinstating any stain or clear finish for previously stained or clear finish surfaces.

MATERIALS

Generally

023 The products supplied must be applied in accordance with the relevant product Technical Data Sheet. In addition, all products should be used in accordance with applicable Standards - Code of Practice for Painting Buildings and Workmanship on Building Sites as set out in the table below. When applying coatings, in order to ensure optimum protection and durability, it is essential to achieve the required coverage rate, particularly when using medium/high build finishes,

AREA	LONGEVITY	BASE	RE-COAT Within	COVERAGE
Previously painted woodwork	Up to 8 Years	Solvent or Water Based	8-16 Hours	18m ² /litre
Previously stained woodwork	Up to 10 Years	Solvent or Water Based	16 Hours	20m ² /litre
Previously painted landscape timber (i.e. fencing etc.,)	Up to 8 Years	Solvent or Water Based	16 Hours	12m ² /litre
Previously painted masonry walls	Up to 15 Years	Solvent or Water Based	1 -2 Hours	14 -16m ² /litre
Previously painted masonry walls	Up to 15 Years	Solvent/Oil Based	12 Hours	8m ² /litre
Previously painted masonry walls	Up to 15 Years	Water Based	2 – 4 Hours	12 – 14m ² /litre
Previously painted metalwork	Up to 8 Years	Solvent or Water Based	4 – 8 Hours	15m ² /litre

AREA OF WORK	CERTIFICATION
All paint generally	BBA Accreditation or equivalent
Health and Safety	Current COSHH Regulations as amended
Painting Buildings	applicable Standard - Code of Practice
Workmanship on Building sites	applicable Standard – Code of Practice
Paints and varnishes	applicable Standard
Protective coating of iron and steel structures against corrosion	applicable Standard

024 The products supplied must ensure that failure free repaint and redecoration cycles of 15 years for masonry substrate and 8 years for all other substrate as a minimum will be achieved. The onus is on the paint and decorative Materials manufacturer of any product to “demonstrate compliance”, whilst it is the Provider’s duty to ensure “premium products” are provided in all cases to reflect the established warranties.

025 Obtain undercoats and finishing coats for an individual surface from the same manufacturer.

026 Ensure paints are delivered to the Property in sealed containers as received from the manufacturer and no labels are removed or painted out. Use the paint without adulteration.

027 Under no circumstances thin paint supplied by the manufacturer unless approved by the Client. When such approval has been granted, carry out thinning with thinners of the type stated in the manufacturer’s technical data sheet.

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- 028 Execute painting in shades approved by the Client's Representative. Submit samples of tints before ordering Materials. Ensure each coat of paint matches the finished shade, and where tint types are required by the manufacturer's technical data sheet, they are used.
- 029 Provide samples of Materials to the Client's Representative for approval in sample tins filled 7/8 full after the contents of the container or kettle have been thoroughly stirred and mixed. Record all relevant details of the Materials sampled.
- 030 Immediately remove any unsatisfactory Materials from the Property and make good any Works executed with such defective Materials.
- 031 Note that the Rates include for the use of varied colours in the Works and for the execution of sample patches, as required by the Client's Representative.
- 032 Use water based paints where appropriate.

Knotting

- 033 Use a best quality shellac knotting compound, dissolved in methylated spirits. Cover all knots and resinous parts.

Stopping

- 034 Ensure stopping/filler for:
- plasterwork - is a plaster based filler applied to a PVA solution primed surface, or a proprietary filler suitable for plaster repairs;
 - internal woodwork, hardboard, fireboard and plywood - is a proprietary wood filler either suitably pre-coloured to match the base material or of a neutral colour and capable of being stained to match the required colour when stain is applied;
 - external woodwork – is a proprietary filler recommended for external use approved by the Client's Representative, (and tinted to match the colour of the stained/varnished finish where appropriate); and
 - clear finished woodwork - is tinted to match the surrounding woodwork.

Primer for alkaline surfaces

- 035 For alkaline surfaces use an alkali resistant sealer/primer and finish with a top coat of the type stated in the manufacturer's technical data sheet.

Primer for iron and steelwork

- 036 Prime iron and steelwork with a primer of the type stated in the manufacturer's technical data sheet for the subsequent finish coats.

Primer for galvanised iron and steelwork

- 037 Prime galvanised iron and steelwork with a primer that is compatible with the subsequent finish coats. Pretreat new galvanised surfaces with a mordant solution before priming.

Primer for hardboard

- 038 Where hardboard is not factory primed or sealed, use a suitable primer of the type stated in the manufacturer's technical data sheet for the subsequent finish coats.

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Primer for woodwork

- 039 For woodwork, use a finishing ready-mix primer obtained from the maker of the undercoat and finishing coats.

Primer for oily or resinous timbers

- 040 For British Columbia pine (Douglas fir) or other oily or resinous timber, use an aluminium based priming paint not darker than applicable Standard, Colour 00A01 approved by the Client's Representative which is compatible with the subsequent coats of the type stated in the manufacturer's technical data sheet.

Primer for stains

- 041 For stain finishes, ensure surfaces are clean, rubbed down to an even finish and lightly keyed to every coat except the top coat.

Stabilising sealer

- 042 Use a type and make of stabilising sealer recommended by the manufacturer of the undercoat and finishing coat.

Chemical stripper

- 043 Ensure chemical paint stripper is water soluble.

Anti fungal solution

- 044 Ensure an anti-fungal solution is appropriate to the surface being treated and is used in accordance with The Control of Pesticides Regulations 1986 (amended 1997) and The Pesticides Act 1998.

PREPARATION OF SURFACES

Preparations

- 045 Thoroughly prepare all surfaces to a high standard of preparatory work. Note that "prepare" used in the Schedule of Rates includes all Works described below including washing down, rubbing down, filling in pin and plug holes, priming and painting extra coats, but excluding paint removal.
- 046 Report any necessary paint removal to the Client's Representative and agree the extent of this with the Client's Representative before starting this Work. Note that no payment will be made for paint removal unless this is done.
- 047 Apply a liberal brush coat of timber preservative conforming to Building Establishment Technical Note No. 24 (or equivalent) to existing bare non-durable timber surfaces. Allow adequate time for this to dry before overcoating.
- 048 Rub down previously painted surfaces in good condition with abrasive paper. Fill cracks as described in Paragraph 034. Subject to Paragraph 046, remove existing paint in poor condition completely using a non-caustic paint remover.
- 049 Treat stains on the ceiling before decoration to prevent them bleeding through subsequent decorative coatings with a proprietary stain stop or blocker appropriate to the substrate and in keeping with the requirements of the finish to be applied.
- 050 Use tinted undercoats if the Client's Representative so Instructs.

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Approval

- 051 Where specified, obtain the approval of the Client's Representative to the preparation of surfaces before applying any coating.

Stopping

- 052 Where stopping/filling is referred to in this Section, use the appropriate stopping as described in the Materials Section.

Burning off

- 053 Burn off and rub down to remove paint from wooden surfaces. Fill in cracks, knot, prime and stop woodwork so exposed all as described for new Work, rub down with fine abrasive paper and apply one additional undercoat before painting as specified. Burning off is not permitted indoors without the express written permission of the Client's Representative.

Plaster, render, concrete and brickwork

- 054 Remove plaster or mortar splashes from the decorated surfaces by scraping. Stop all holes, cracks, etc. Brush down the whole surface to remove dust and loose material. Remove all traces of mould oil by scrubbing with water and detergent and rinsing with clean water to remove all detergent.
- 055 Allow plaster surfaces to dry out completely before decorating, (i.e. < 10% moisture content).
- 056 Remove efflorescence first by wiping dry with a dry course cloth and then with a damp cloth. Leave the surfaces for 48 hours to see if efflorescence has ceased and clean the surfaces to remove dirt, dust, etc. Allow the surfaces to dry out thoroughly before painting is commenced. When efflorescence has occurred or is suspected, defer painting as Instructed by the Client's Representative. New plaster/render should be allowed to dry for a minimum of 28 calendar days before decorating.
- 057 Cut out loose and defective rendering and make good before redecoration. Stabilise existing surfaces to be redecorated with an stabilising agent of 1:10 PVA solution or 1:3PVA solution to soffits.

Plasterboard to receive direct redecoration

- 058 Finish the joints in plasterboard ceilings to receive textured decorative finishings as described in the 'Plasterwork and Other Floor, Wall and Ceiling Finishes' Section.

Iron and steel

- 059 Remove rust, mill scale, welding slag and flux residue from iron and steel surfaces by wire brushing, scraping, hammering, flame cleaning, etc.

Previously painted metalwork

- 060 Thoroughly clean down all paintwork which is in sound condition and rub down with abrasive paper. Remove small areas of defective paint and all rust and loose scale by chipping, scraping and wire brushing back to clean metal. Prime the metal so exposed immediately after preparation with one coat of primer and apply one additional undercoat before painting.
- 061 Remove large areas of defective paint by using a non-caustic stripper appropriate to the substrate and in accordance with the technical data sheet for the subsequent coats or by chipping, scraping and wire brushing back to clean metal. In all cases where rust is apparent, scrape the rusting section and a sufficient area around it clean of all paint and rust and coat it with a rust inhibiting primer approved by the Client's Representative in addition to the priming coat described.

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Defective putties

- 062 Hack out defective, cracked or uneven putties to glazing, prepare and prime the rebates as required and make good the putties before any painting is carried out. Allow putties to form a hard skin before painting with an oil based paint or allow for no less than 14 calendar days drying time where water based paint/stain is to be applied.

Hardboard

- 063 Remove dirt and grease from hardboard surfaces. Before priming ensure all nail holes and other imperfections are stopped/filled in.

Plywood

- 064 Fill as required with a plastic based filler before priming/staining. Prime surfaces of internal plywood before painting with one coat of primer, filled as required with a plastic based filler. Rub and dust down and apply a second coat of primer/stain.
- 065 Before final priming/staining ensure that all imperfections are stopped, rubbed down and brushed off. Prime/stain surfaces of external plywood before painting with one coat of primer/stain. Where stain is to be applied use a stainable filler, or a filler pre-coloured to match the stain finish. Rub and dust down and apply a second coat of primer/stain.

Woodwork to be painted

- 066 Before fixing woodwork, rub down surfaces that will be visible after fixing. Scorch back excess resin from live knots and resin pockets. Coat all knots and resinous areas with fresh knotting. Prime all surfaces, ensure all nail holes and other imperfections are stopped/filled. Rub down the whole surface and brush off all dust before the undercoat is applied.

Previously painted woodwork

- 067 Wash down thoroughly with sugar soap or white spirit solution all paintwork which is in sound condition and allow to dry. Rub down to a smooth surface with an abrasive paper, achieving the final pre-paint finish with a fine grain abrasive paper to achieve a finish free from abrasive marks. Rinse well with clean water and allow to dry. Fill in cracks, etc., as described for new woodwork.
- 068 Remove small areas of cracked or defective paint by carefully scraping back to a firm edge. Knot, prime and stop woodwork so exposed as described for new work. Sand with fine abrasive paper and apply one additional undercoat before painting if required.
- 069 Apply a liberal coat of brush applied water repellent timber preservative conforming to the recommendations of the applicable Standard to bare existing non-durable timber surfaces or surfaces with defective areas of paint film. Allow adequate time to dry before overcoating.
- 070 On existing coated timber, remove any degraded surface timber by sanding down to clean sound timber. Remove resinous exudations by heat using hot air gun. Apply 2 coats of knotting to affected areas and any exposed knots and allow to dry.
- 071 On existing coated timber, remove dirt, algae and dead fibre by means of high pressure power hosing, apply one coat fungicide and leave for 72 hours.

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Woodwork to receive a clear finish

- 072 Stop/fill holes and other imperfections in surfaces that are to receive a clear finish. Rub down the whole surface and brush off all dust.
- 073 Prepare existing varnished surfaces in sound condition by cleaning down with a suitable detergent and thoroughly rinsing them. Lightly key sound existing finishes to an even finish over the entire surface ensuring that all existing finish sheen is removed.
- 074 Strip and revarnish existing varnished surfaces in unsound condition.

Woodwork to receive stain finish

- 075 Prepare previously treated and untreated surfaces that are to receive a proprietary stain finish in accordance with the manufacturer's technical data sheet.

WORKMANSHIP

Paint

- 076 In order to eradicate any unauthorised addition of thinners or driers, or other adulteration of paint:
- give adequate supervision during the painting work to ensure that paint is not adulterated;
 - note that if cases of unauthorised or excessive thinning or other adulterations are discovered, the Client's Representative will usually exercise the power contained in this Contract to require the removal of the Staff members concerned;
 - ensure a notice is exhibited drawing the attention of Staff to the Client's requirement to use paint as supplied by the manufacturer and the consequences of a breach of this requirement; and
 - note that similar requirements will apply to Subcontractors.

Stirring of Materials

- 077 Thoroughly stir the contents of all cans and containers of Materials before and during use. Suitably strain them as and when necessary.

Application

- 078 Apply coatings by brush or roller. Use sprays only with the prior approval of the Client's Representative. Where spray application is approved it shall be applied as directed by the manufacturer, including thinning with thinners of a type and to a ratio that complies with the manufacturer's technical data sheet.

Priming of glazing beads

- 079 Prime/stain glazing beads, rebates and the backs of beads at the same time as priming/staining the window frames.

Condition of priming

- 080 If the priming/staining has in any way deteriorated or has been damaged by the time of the first coat, rub down and reprime/re-stain the affected portions, or the whole if necessary. Where required, touch up with the same primer/stain or equivalent all articles, such as the windows, that were primed by their manufacturers.

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Coatings to be dry

081 Allow coatings to dry thoroughly for the time specified by the manufacturer before applying succeeding coats.

Painting windows/doors

082 Do not paint windows or doors in the closed position.

Rubbing down

083 Rub down and de-nib undercoats for paints and clear finishes to a smooth surface with abrasive paper. Remove all dust before the succeeding coat is applied.

Differing colours of undercoats

084 Ensure each succeeding coat of priming and undercoating paint is sufficiently different in colour to be readily distinguishable.

Unsuitable conditions

085 Do not apply coating:

- to surfaces affected by wet, damp, foggy or frosty weather or other unsuitable conditions;
- to any damp surface; or
- in temperatures below 5^o Centigrade.
- when heat is likely to cause blistering or wrinkling.

086 Take all necessary precautions including restrictions on working hours, providing temporary protection and allowing extra drying time, to ensure that coatings are not adversely affected by climatic conditions before, during and after application.

Protection of wet surfaces

087 Take adequate care to protect surfaces whilst still wet, by the use of screens and 'wet paint' signs where necessary. Take responsibility for any damage which may be caused by or through wet paint.

Damage to adjoining surfaces

088 Take care not to damage or stain other Works when storing Materials, preparing surfaces, or applying paint or stains. Remove all such stains, making good the stained surface and touching up any paintwork disturbed.

Cleanliness

089 Keep surfaces clean and free from dust during the painting processes. Do not carry out painting in the vicinity of other operations which might cause dust. Provide a suitable movable receptacle into which all liquids (including slop washings) are placed. Ensure this is not tipped down any of the gullies, manholes, sinks, basins, water closets or any other sanitary fittings. Remove all solid refuse or inflammable residues from the Property.

Removal of ironmongery

090 Remove surface fixed ironmongery, fittings and door/window furniture (except hinges) before painting and refix them on completion.

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Radiators

- 091 Take down radiators to allow the proper decoration of the surfaces behind. Refit the radiators and refill the systems including inhibitor and balance if required.

Protection of furniture

- 092 Protect all furniture and fittings, use dust sheets and remove items such as curtains before commencing the Works. Rehang or reinstate on completion of the Works.

Protection:

- 093 Adequately protect both internal and external surfaces which are not to be coated, by covering with dust sheets or other suitable materials. Exhibit 'Wet paint' signs and provide barriers where necessary to prevent damage to freshly applied coatings.

Concealed Joinery Surfaces:

- 094 Where one or more additional coats are specified to be applied in the factory, they must be applied to all surfaces, including those which will be concealed when incorporated into the Property.

Painting Existing Concrete:

- 095 Preparation: - Remove surface salts and other loose material with stiff brush. Leave for 48 hours and repeat process if necessary. Apply one coat of fungicide solution and leave for 72 hours, apply one coat proprietary sealer/primer, carefully remove all loose or defective areas of coating to a firm edge. Thoroughly clean by wiping down with white spirit or washing with water containing detergent. Remove heavy deposits of oil, grease, etc. with a suitable proprietary cleaning solution, sand down surfaces while still wet to provide a key, rinse off and allow to dry, patch prime as specified. fill joints, cracks, holes and other depressions with filler worked well in and finished off flush with surface. Sand smooth and remove dust, apply additional coats to areas where paint has been removed to restore the original coating thickness (Bring forward). Sand down junctions to give a flush surface.
- 096 Apply initial coat of exterior quality water based masonry paint and one finishing coat of exterior quality water based masonry paint.

Painting New Concrete:

- 097 Preparation: - Remove surface salts and other loose material with stiff brush. Leave for 48 hours and repeat process if necessary. Apply one coat of fungicide solution and leave for 72 hours, apply one coat proprietary sealer/primer, apply one coat of exterior quality water based masonry paint thinned as necessary in accordance with the manufacturer's technical data sheet. Sand down junctions to give a flush surface.
- 098 Apply initial coat of exterior quality water based masonry paint and one finishing coat of exterior quality water based masonry paint.

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Painting Existing Render:

- 099 Preparation: Take back to a firm edge all areas of poorly adhering or defective coatings. Remove all loose or powdery material by vigorously brushing down with suitable stiff brushes and dust off. Where appropriate on smooth surfaces, rub down sound areas to produce the necessary key for good adhesion and dust off. Cut out and make good all cracks, holes, open joints and other imperfections etc., with an approved proprietary filler, rub down smooth and dust off. Prime all sound bare areas exposed by the removal of coatings with one coat of exterior quality water based masonry paint, thinned as necessary in accordance with the manufacturer's technical data sheet. Apply stabilising primer to all areas. Bring forward all areas which during preparation were taken back to bare substrate or disfigured/exposed by the removal of the previous coating with one coat of exterior quality water based masonry paint of the selected shade.
- 100 Apply initial coat of exterior quality water based masonry paint and one finishing coat of exterior quality water based masonry paint.

Painting New Render:

- 101 Preparation: Thoroughly clean down to remove all surface contamination, mortar splashes, nibs etc. Allow to fully dry. Cut out and make good all cracks, holes, open joints and other imperfections etc., with an approved proprietary filler, rub down smooth and dust off. Apply one coat of exterior quality water based masonry paint, thinned as necessary in accordance with the manufacturer's technical data sheet. .
- 102 Apply initial coat of exterior quality water based masonry paint and one finishing coat of exterior quality water based masonry paint.

Painting Existing Concrete/Render with Anti-Graffiti Paint:

- 103 Preparation: Carefully remove all loose or defective areas of coating to a firm edge. Thoroughly clean by wiping down with white spirit or washing with water containing detergent. Remove heavy deposits of oil, grease, etc. with a suitable proprietary cleaning solution. - Sand down surfaces while still wet to provide a key. Rinse off and allow to dry, patch prime as specified, fill joints, cracks, holes and other depressions with filler worked well in and finished off flush with surface. Sand smooth and remove dust. Apply additional coats to areas where paint has been removed to restore the original coating thickness (Bring forward). Sand down junctions to give a flush surface.
- 104 Apply initial coat of two pack water based epoxy anti-graffiti paint and one finishing coat of two pack water based epoxy anti-graffiti paint.

Painting New Concrete/Render with Anti-Graffiti Paint:

- 105 Preparation: Remove surface salts and other loose material with stiff brush. Leave for 48 hours and repeat process if necessary. Apply one coat of fungicide solution and leave for 72 hours, fill joints, cracks, holes and other depressions with filler worked well in and finished off flush with surface. Sand smooth and remove dust. Apply one coat proprietary sealer/primer. Sand down junctions to give a flush surface.
- 106 Apply initial coat of two pack water based epoxy anti-graffiti paint and one finishing coat of two pack water based epoxy anti-graffiti paint.

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Painting Existing Coated Brickwork/Blockwork:

- 107 Preparation: Carefully remove all loose or defective areas of coating to a firm edge. Thoroughly clean by wiping down with white spirit or washing with water containing detergent. Remove heavy deposits of oil, grease, etc. with a suitable proprietary cleaning solution. Sand down surfaces while still wet to provide a key. Rinse off and allow to dry, patch prime as specified. Fill joints, cracks, holes and other depressions with filler worked well in and finished off flush with surface. Sand smooth and remove dust. Apply additional coats to areas where paint has been removed to restore the original coating thickness (Bring forward). Sand down junctions to give a flush surface.
- 108 Apply one initial coat of exterior quality solvent based masonry paint, and one finishing coat of exterior quality solvent based masonry paint.

Painting New Brickwork/Blockwork:

- 109 Preparation: Carefully remove all loose mortar etc. Thoroughly clean by wiping down with white spirit or washing with water containing detergent. New brickwork/blockwork: Remove surface salts and other loose material with stiff brush. Leave for 48 hours and repeat process if necessary. Apply one coat of exterior quality solvent based masonry paint thinned as necessary in accordance with the manufacturer's technical data sheet. Sand down junctions to give a flush surface.
- 110 Apply one initial coat of exterior quality solvent based masonry paint, and one finishing coat of exterior quality solvent based masonry paint.

Painting Existing Plaster – Oil based Paint:

- 111 Preparation: Remove dirt and surface deposit with a stiff brush and rub down to remove nibs, trowel marks, plaster and paint splashes. Widen cracks sufficiently to receive proprietary filler. Brush cracks to remove any loose plaster and fill with proprietary filler and rub flush with surface. Apply one coat proprietary primer/sealer.
- 112 Apply one initial coat of oil based vapour barrier paint and one finishing coat of oil based vapour barrier paint.

Painting New Plaster – Oil based Paint:

- 113 Preparation: Lightly rub over-trowelled glossy plaster with worn abrasive paper. Fill all depressions, holes and cracks and lightly rub down flush with surface, apply one coat proprietary sealer/primer.
- 114 Apply one initial coat of oil based vapour barrier paint and one finishing coat of oil based vapour barrier paint.

Painting Existing Plaster – Emulsion Paint:

- 115 Preparation: - Remove dirt and surface deposits with a stiff brush. Widen cracks sufficiently to receive proprietary filler. Brush cracks to remove any loose plaster and fill with proprietary filler and rub flush with surface. Rub down to remove nibs, trowel marks and plaster and paint splashes, lightly rub over-trowelled glossy plaster with worn abrasive paper, fill all depressions, holes and cracks and lightly rub down flush with surface, apply one coat proprietary sealer/primer.
- 116 Apply two finishing coats of emulsion paint.

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Painting New Plaster – Emulsion Paint:

- 117 Preparation: - Remove dirt and surface deposits with a stiff brush. Rub down to remove nibs, trowel marks and plaster splashes, lightly rub over-trowelled glossy plaster with worn abrasive paper, fill all depressions, holes and cracks and lightly rub down flush with surface, apply one coat proprietary sealer/primer, apply one coat of emulsion paint thinned as necessary in accordance with the manufacturer's technical data sheet.
- 118 Apply two finishing coats of emulsion paint.

Painting Existing Plaster – Eggshell Paint – Fire Retardant Paint

- 119 Preparation: Thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Powdery and friable surface coatings are to be completely removed by scraping, brushing and washing. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion and feather broken edges of existing coating. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off.
- 120 Initial coats: Prime all sound bare areas with one coat of eggshell paint thinned in accordance with the manufacturer's technical data sheet.
- 121 Apply two finishing coats of eggshell paint.

Painting New Plaster – Eggshell Paint – Fire Retardant Paint

- 122 Preparation: Remove dirt and surface deposits with a stiff brush. Rub down to remove nibs, trowel marks and plaster splashes, lightly rub over-trowelled glossy plaster with worn abrasive paper, fill all depressions, holes and cracks and lightly rub down flush with surface, apply one coat proprietary sealer/primer, apply one coat of eggshell paint thinned in accordance with the manufacturer's technical data sheet.
- 123 Apply two finishing coats of eggshell paint.

Painting Existing Plaster – Vinyl Matt Paint

- 124 Preparation: Thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Powdery and friable surface coatings are to be completely removed by scraping, brushing and washing. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion and feather broken edges of existing coating. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off.
- 125 Initial coats: Prime all sound bare areas with one coat of vinyl matt paint thinned in accordance with the manufacturer's technical data sheet.
- 126 Apply two finishing coats of vinyl matt paint.

Painting New Plaster – Vinyl Matt Paint

- 127 Preparation: Remove dirt and surface deposits with a stiff brush. Rub down to remove nibs, trowel marks and plaster splashes, lightly rub over-trowelled glossy plaster with worn abrasive paper, fill all depressions, holes and cracks and lightly rub down flush with surface, apply one coat proprietary sealer/primer, apply one coat of vinyl matt paint thinned in accordance with the manufacturer's technical data sheet.
- 128 Apply two finishing coats of vinyl matt paint.

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Painting Existing Painted Internal Surfaces – Anti Graffiti Paint

- 129 Preparation: Remove existing graffiti with an approved appropriate graffiti removal system, thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Powdery and friable surface coatings are to be completely removed by scraping, brushing and washing. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion and feather broken edges of existing coating. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off.
- 130 Prime all sound bare areas with one coat of anti graffiti paint sealer, bring forward sealed areas with anti graffiti paint primer, apply two finishing coats of anti-graffiti paint.

Painting Internal Surfaces – Anti Graffiti Paint

- 131 Preparation: Thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Powdery and friable surface coatings are to be completely removed by scraping, brushing and washing. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion and feather broken edges of existing coating. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off.
- 132 Prime all sound bare areas with one coat of anti graffiti paint sealer, bring forward sealed areas with anti graffiti paint primer, apply two finishing coats of anti-graffiti paint.

Painting Existing Painted Internal Surfaces – Class "O" Fire Retardant Finish

- 133 Preparation: Remove existing graffiti with an approved appropriate graffiti removal system, thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Powdery and friable surface coatings are to be completely removed by scraping, brushing and washing. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion and feather broken edges of existing coating. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off. Seal marks or suspect areas and surfaces that remain powdery and friable after thorough preparation with one coat of stain blocker.
- 134 Finishing system: Apply three coats of Class "O" as Instructed by the Client's Representative. Fire retardant basecoat applied strictly in accordance with the manufacturer's technical data sheet. Apply two finishing coats of eggshell paint.

Painting New Internal Surfaces – Class "O" Fire Retardant Finish

- 135 Preparation: Thoroughly clean down the surfaces to remove all dirt, grease and surface contaminants. Allow the surface to fully dry before proceeding. Where appropriate rub down sound areas to produce the necessary key for good adhesion. Dust off. Make good holes, cracks and other imperfections with an approved proprietary filler, rub down and dust off.
- 136 Finishing system: Apply three coats of Class "O" as Instructed by the Client's Representative. Fire retardant basecoat applied strictly in accordance with the manufacturer's technical data sheet. Apply two finishing coats of eggshell paint.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Painting Previously Painted Internal Metal – Gloss Paint

- 137 Preparation: Thoroughly clean down to remove all surface contamination. Carefully scrape back to a firm edge all areas of damaged paint coatings. Scrape and wire brush corroded steel to produce a clean metal surface. Rub down with a suitable abrasive and dust off. All surfaces should be prepared to the minimum standard recommended in the applicable Standard at the time of coating. Prime all bare metal with two coats of zinc phosphate primer, applied in accordance with the manufacturer's technical data sheet. Bring forward primed areas with one coat of undercoat.
- 138 Apply two finishing coats of 8 years all weather protection metal gloss finish paint, applied in accordance with the manufacturer's technical data sheet.

Painting New Internal Metal – Gloss Paint

- 139 Preparation: Thoroughly clean down to remove all surface contamination. Rub down with a suitable abrasive and dust off. All surfaces should be prepared to the minimum standard recommended in the applicable Standard at the time of coating at the time of coating. Prime all metal with two coats of zinc phosphate primer, applied in accordance with the manufacturer's technical data sheet. Apply one coat of undercoat.
- 140 Apply two finishing coats of 8 years all weather protection metal gloss finish paint, applied in accordance with the manufacturer's technical data sheet.

Painting Previously Painted External Metal – Gloss Paint

- 141 Preparation: Thoroughly clean down to remove all surface contamination. Carefully scrape back to a firm edge all areas of damaged paint coatings. Scrape and wire brush corroded steel to produce a clean metal surface. Rub down to smooth edges with a suitable abrasive and dust off. All surfaces should be prepared to a minimum standard recommended in the applicable Standard at the time of coating. Prime all bare metal with two coats of zinc phosphate primer or other equal approved, applied in accordance with the manufacturer's technical data sheet. Bring forward primed areas with one coat of undercoat.
- 142 Apply two finishing coats of 8 years all weather protection metal gloss finish paint, applied in accordance with the manufacturer's technical data sheet.

Painting New External Metal – Gloss Paint

- 143 Preparation: Thoroughly clean down to remove all surface contamination. Rub down with a suitable abrasive and dust off. All surfaces should be prepared to the minimum standard recommended in the applicable Standard at the time of coating at the time of coating. Prime all metal with two coats of zinc phosphate primer, applied in accordance with the manufacturer's technical data sheet. Apply one coat of undercoat.
- 144 Apply two finishing coats of 8 years all weather protection metal gloss finish paint, applied in accordance with the manufacturer's technical data sheet.

Painting Galvanised Steel – Gloss Paint

- 145 Preparation: Wash with white spirit to remove dirt and grease then wash with mild detergent solution and rinse off with clean water. Pretreat with mordant solution. Retreat non-blackened areas to achieve blackening of whole of surface. If galvanizing is defective obtain instructions before proceeding.
- 146 Apply one coat zinc phosphate primer, apply one coat of undercoat.
- 147 Apply two finishing coats of 8 years all weather protection metal gloss finish paint, applied in accordance with the manufacturer's technical data sheet.

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Painting Previously Painted Internal Timber – Gloss Oil Paint

- 148 Preparation: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive, taking care to avoid exposing timber on sharp edges. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer; prime all bare areas and areas exposed by the removal of coatings with one coat of wood primer, thinned as manufacturer's technical data sheet. Bring forward areas with undercoat.
- 149 Apply one coat of oil based undercoat and one finishing coat of gloss oil based paint.

Painting Previously Painted Internal Timber – Gloss Water Based Paint (Micro Porous)

- 150 Preparation: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive, taking care to avoid exposing timber on sharp edges. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc., with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer; prime all bare areas and areas exposed by the removal of coatings with one coat of wood primer, thinned as manufacturer's technical data sheet. Bring forward areas with undercoat.
- 151 Apply one coat of water based undercoat and one finishing coat of micro porous gloss water based paint.

Painting New Internal Timber – Gloss Oil Paint

- 152 Preparation: Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer; apply one coat of wood primer.
- 153 Apply two coats of oil based undercoat and one finishing coat of gloss oil based paint.

Painting New Internal Timber – Gloss Water Based Paint (Micro Porous)

- 154 Preparation: Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer; apply one coat of wood primer.
- 155 Apply two coats of water based undercoat and one finishing coat of micro porous gloss water based paint.

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Painting Previously Painted External Timber – Exterior Quality Gloss Paint

- 156 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Remove all areas of blistered, poorly adhering or defective coatings. Where flaking has occurred or coatings are defective, the entire member or section must be stripped back to the nearest joint. Open up all joints which are not tight fitting and rake out thoroughly. Rub down to feather broken edges of existing coating and dust off. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer. Prime all bare areas and areas exposed by the removal of coatings with one coat of exterior preservative primer. Bring forward all primed and/or filled areas to match existing with one coat of 8 years all weather protection exterior micro porous flexible undercoat of appropriate shade.
- 157 Apply one coat of 8 year all weather protection micro porous undercoats of appropriate shade, and one finishing coat of 8 year all weather protection micro porous exterior high gloss paint.

Painting New External Timber – Exterior Quality Gloss Paint

- 158 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary filler, rub down smooth and dust off. Apply two thin coats of knotting to all knots and resinous areas and allow to harden. Spot prime any bare metal, metal fixings, nail heads etc., with one coat of metal primer. Apply one coat of exterior preservative primer.
- 159 Apply one coat of 8 year all weather protection micro porous undercoats of appropriate shade, and two finishing coats of 8 year all weather protection micro porous exterior high gloss paint.

Painting Previously Painted Internal Plastic – Gloss

- 160 Preparation: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive. Finally rinse down and allow to dry. Prime all bare areas with preservative primer. Bring forward all primed areas with one coat of gloss paint.
- 161 Apply one finishing coat of gloss paint.

Painting Previously Painted External Plastic – Gloss

- 162 Preparation and making good: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive. Finally rinse down and allow to dry. Prime all bare areas with preservative primer. Bring forward all primed areas with one coat of 8 year all weather protection micro porous exterior gloss.
- 163 Apply one finishing coat of 8 year all weather protection micro porous exterior gloss paint.

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Previously Wood-stained Internal Timber – Decorative Protection

- 164 Preparation: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive, taking care to avoid exposing timber on sharp edges. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc., with an approved proprietary filler, rub down smooth and dust off. Touch in any bare areas with one coat of decorative wood-stain of appropriate shade, thinned as manufacturer's technical data sheet.
- 165 Apply two finishing coats of decorative wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

New Internal Timber – Decorative Protection

- 166 Preparation: Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Rinse down and allow to dry. Make good all nail holes, open joints and open grain etc., with an approved proprietary filler, rub down smooth and dust off. Apply one coat of decorative wood-stain of appropriate shade, thinned as manufacturer's technical data sheet.
- 167 Apply two finishing coats of decorative wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

Previously Opaque Wood-stained External Timber – Decorative Protection

- 168 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Remove all areas of blistered, poorly adhering or defective coatings. Where flaking has occurred or coatings are defective, the entire member or section must be stripped back to the nearest joint. Open up all joints which are not tight fitting and rake out thoroughly. Rub down to feather broken edges of existing coating and dust off. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary stopper/filler designed for use with a wood-stain system, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Prime all sound bare areas and areas exposed by the removal of coatings with one coat of 8 year all weather preservative basecoat. If required, touch in any primed areas with 8 year all weather protection stain to match the surrounding timber for colour and build. Allow to dry.
- 169 Apply two finishing coats of opaque 8 year all weather protection wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

Opaque Wood-stained New External Timber – Decorative Protection

- 170 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary stopper/filler designed for use with a wood-stain system, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Apply one coat of 8 year all weather preservative basecoat.
- 171 Apply three finishing coats of opaque 8 year all weather protection wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

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Previously Transparent Wood-stained External Timber – Decorative Protection

- 172 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Remove all areas of blistered, poorly adhering or defective coatings. Where flaking has occurred or coatings are defective, the entire member or section must be stripped back to the nearest joint. Open up all joints which are not tight fitting and rake out thoroughly. Rub down to feather broken edges of existing coating and dust off. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary stopper/filler designed for use with a wood-stain system, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Prime all sound bare areas and areas exposed by the removal of coatings with one coat of 8 year all weather preservative basecoat. If required, touch in any primed areas with 8 year all weather protection stain to match the surrounding timber for colour and build. Allow to dry.
- 173 Apply two finishing coats of transparent 8 year all weather protection wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

Transparent Wood-stained New External Timber – Decorative Protection

- 174 Preparation: Thoroughly clean down surfaces to remove all dirt, grease and surface contaminants. Abrade the surfaces in the direction of the grain to remove any grey denatured timber and raised grain, round all sharp edges. Make good all cracks, nail holes, open joints and open grain etc., with an approved proprietary stopper/filler designed for use with a wood-stain system, rub down smooth and dust off. Apply two thin coats of knotting solution to all knots and resinous areas and allow to harden. Apply one coat of 8 year all weather preservative basecoat.
- 175 Apply three finishing coats of transparent 8 year all weather protection wood-stain of selected shade, apply wood-stain in flowing coats, redistribute excess material by brushing before wood-stain has set, allow not less than 24 hours between coats.

Previously Varnished Internal Timber – Polyurethane Varnish

- 176 Preparation: and making good: Carefully scrape back to a firm edge all areas of poorly adhering or defective coatings. Rub down to feather broken edges of existing coating and dust off. Wash down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Whilst wet, rub down the surfaces with a suitable abrasive, taking care to avoid exposing timber on sharp edges. Finally rinse down and allow to dry. Make good all nail holes, open joints and open grain etc with an approved proprietary filler, rub down smooth and dust off. Touch in any bare areas with one coat of interior polyurethane varnish or other equal approved, thinned as manufacturer's technical data sheet.
- 177 Apply two finishing coats of gloss, satin or matt interior polyurethane varnish as specified, brush well in avoiding aeration and layoff, rub down lightly between coats along the grain.

Previously Preservative Treated Sawn Timber; External

- 178 Preparation: Brush down to remove loose fibres, grey denatured timber and poorly adhering or defective coatings. Thoroughly clean down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Rinse with clean water and allow to dry. Surfaces which are contaminated with mould and/or vegetable growths should be scraped and treated with an appropriate fungicidal wash applied strictly in accordance with the manufacturer's technical data sheet. Ensure all surfaces are completely dry. Apply two thin coats of knotting solution to all knots and resinous areas and allow to dry. Spot prime all knots and bare areas with two coats of coloured timber preservative primer.
- 179 Apply one or two (as specified by Client's Representative) finishing coats of opaque fencing timber preservative of selected shade.

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Preservative Treated New Sawn Timber; External

- 180 Preparation: Brush down to remove loose fibres and grey denatured timber Thoroughly clean down the surfaces with soap and water, detergent solution or suitable solvent to remove all dirt, grease and surface contaminants. Rinse with clean water and allow to dry. Apply two thin coats of knotting solution to all knots and resinous areas and allow to dry. Spot prime all knots and bare areas with two coats of coloured timber preservative primer.
- 181 Apply two finishing coats of opaque fencing timber preservative of selected shade.

Stripping Wallpaper:

- 182 Strip wall paper, lining paper, etc., clear away debris, remove dirt and surface deposits with a stiff brush, rub down to remove trowel marks, plaster and paint splashes. Lightly rub glossy plaster with worn abrasive paper. - Fill all depressions, holes and cracks with suitable filler and lightly rub down flush with surface.

Vinyl Covered Backgrounds:

- 183 Where these are to be stripped, the paper backing may be retained as a lining if in good condition and firmly adhering. Stick down any lifting edges and corners.

Treatment of Organic Growths:

- 184 Remove all loose growths and infected coatings/decorations. Apply appropriate biocidal solution to growth areas and surrounding surfaces. Scrape or brush off all dead growth. Remove infected materials immediately to ensure that no other areas become infected. Apply appropriate residual effect biocidal solution to inhibit re-establishment of growths. Biocides must be approved and registered by the Health and Safety Executive (HSE) and listed as surface biocides.

Hanging Wallpaper, Lining Paper etc., Generally:

- 185 All joints must be truly vertical and/or horizontal, straight and fully adhered with edges neatly cut to ceilings and skirtings. Finished coverings must be securely adhered, smooth and free of air bubbles, wrinkles, gaps, tears, adhesive marks and stains.

Sizing:

- 186 Where specified size surfaces with a solution of wallpaper paste diluted in accordance with the manufacturers technical data sheet.

Lining Paper:

- 187 Apply size to walls and hang lining paper with adhesive to applicable Standard with butt joints and turn all edges. When not specified otherwise, select type and weight to suit covering and background. Hang lengths with butt joints; do not overlap. Hang lengths transversely to direction of covering. Leave to dry for 24 hours before hanging covering.

Adhesive:

- 188 When not specified otherwise, type to be as recommended by the covering manufacturer or, in the absence of such recommendation, type to be approved. Adhesives to contain a fungicide and be made up in accordance with the manufacturer's technical data sheet.

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Coverings:

- 189 Self edged coverings to be trimmed to a true straight edge before hanging, unless manufacturer recommends overlap joints. Hang wall coverings vertically unless specified otherwise. Hang ceiling coverings parallel to the main window wall unless specified otherwise. Isolate any metallic foil/fabric coverings from electrical contact.

Joints in Coverings:

- 190 Hang lengths with neat butt joints generally with the patterns matching where applicable. Hang lengths with neat overlapped joints only when permitted by the covering manufacturer where butt joints are impractical.
- 191 Hang lengths in one piece generally. Cross joints are only permitted where single lengths are impractical.

Joints in Coverings - Overlapped and Cut:

- 192 Hang lengths with neat overlapped joints. Cut through when stable to a true straight edge, without damaging the background, and bond joints. Hang lengths in one piece generally. Cross joints are only permitted where single lengths are impractical.

Shading:

- 193 Use lengths in the sequence they are cut from the roll. Check each length for colour and pattern match before hanging.
- 194 Do not reverse alternate lengths unless recommended by the covering manufacturer.
- 195 Check for shade variation after hanging the first three lengths. Inform the Client's Representative of any variation before proceeding.

Graffiti Removal

- 196 Apply a low odour bio-degradable chemical remover to the graffiti treating small areas at a time.
- 197 After the detergent remover has taken effect, the surface can be cleaned using a hot/cold power washer with a fan jet head. Pressure should be restricted to less than 1500PSI to avoid possible damage to masonry surfaces.
- 198 All applications shall be carried out in accordance with current Health and Safety requirements and with the manufacturer's technical data sheet. Suitable detergent cleaners only shall be selected for the surface to be cleaned.

Mould Growth Treatment

- 199 Clean all infected surfaces and surrounding area with anti-bacterial mould growth remover.
- 200 Wash down cleaned surfaces and apply anti-fungicidal solution to prevent re-growth.
- 201 Where repainting is required proprietary anti-fungicidal paint systems shall be used.
- 202 All paint and chemical solutions must be applied strictly in accordance with the manufacturer's Health and Safety instructions on their technical data sheet, and fully comply with current Health and Safety requirements.

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Cleaning Rainwater Gutters and Pipes

- 203 Clear all dirt and debris from inside of gutter and clean.
- 204 Clean out defective joints of gutters and seal with suitable jointing material to satisfaction of the Client.
- 205 Clean outside face of gutters, when the inside has been cleaned.
- 206 Clear all dirt and debris from inside of rainwater pipes.
- 207 Clean out defective joints of rainwater pipes and seal with suitable jointing material to satisfaction of the Client.
- 208 Clean outside face of downpipes, when the inside has been flushed.

Client’s current manufacturers/suppliers/products

- 209 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

GLAZING

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

GLAZING

MATERIALS

Glass

- 001 Clear float, obscured pattern and Georgian wired glass shall comply with the applicable Standard
- 002 Laminated safety, toughened glass and polycarbonate sheet shall comply with and meet the requirements of the applicable Standards.
- 003 Panes to be accurately and squarely cut, with clean, undisfigured, free from all specks, bubbles, bladders and all other defects, and having undamaged edges and surfaces, to suit the sizes of the openings. Dimensions of edge cover and clearance, positions and materials of distance pieces, setting and location blocks to be to the requirements of the applicable Standard and glass and sealant manufacturer's recommendations.
- 004 For clear float glass, use 'ordinary glazing quality'.
- 005 For obscure/patterned glass, use clear cast glass either to match the existing glass or of a pattern approved by the Client's Representative.
- 006 For polished plate glass, use 'glass for glazing quality'.
- 007 For wired glass, use Georgian wired cast or Georgian wired polished plate glass, as specified. Ensure the wire extends to the edges of the glass and is free from rust. Cut Georgian wired glass to ensure that any edge is parallel to the alignment of the wires. Care to be taken to ensure that the wires in adjacent panes line up either horizontally or vertically.

Double and triple glazed units

- 008 Ensure flat dual/hermetically sealed double glazing units are manufactured using low-E coating on inner face s and have a minimum 5 (five) year guarantee. Provide details of the guarantee to the Client's Representative. Units to comply with the requirements of the applicable Standards, with units to be clearly marked on at least one section, the spacer bar with the BS kitemark or equivalent standard or compliance with the applicable Standard, the manufacturer's name and number and the date of manufacture, to the month. All units to have argon gas filling.
- 009 Secure double glazed units into rebates with double-sided PVC-u foam closed cell high density security glazing to PAS 24.
- 010 Install units in accordance with the applicable Standards, and the Glass and Glazing Federation Glazing Manual or equivalent.

Putty

- 011 For glazing to wood use timber slips and sealants.
- 012 On timber windows the bottom slip shall be a proprietary drained aluminium bead complete with end caps and spacers, use linseed oil putty or equivalent.

Intumescent mastic

- 013 Ensure mastic to fire doors/windows is of a type of fire protection sealant to applicable Standard and approved by the Client's Representative.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Plastic Protection Channels:

- 014 Preformed proprietary protection channel are to suit particular glass thickness, and fitted securely to bottom edge of glass.

Condensation Channels:

- 015 Proprietary pre-formed PVC-u/metal condensation channel are to be complete with stop ends, glazing gaskets and proprietary fixings. Channel to be bedded in recommended sealant to bottom member of window.

Ventilated Glazing Beads:

- 016 Proprietary pre-formed PVC-u or aluminium ventilated glazing bead are to be complete with stop ends, glazing gaskets and proprietary fixings and fixed in accordance with manufacturer's technical data sheet.

Glass Locking System:

- 017 Proprietary plastic/metal body and clip and fixed in accordance with manufacturer's technical data sheet.

WORKMANSHIP

Glazing generally

- 018 Glass generally shall comply with applicable Standard. Undertake all glazing in accordance with the applicable Standards, the Glass and Glazing Federation Code of Practice and the current Building Regulations.
- 019 Ensure that glass/plastics, surround materials, primers, mastics, sealers and paints which are used together are compatible.
- 020 Glazing to be the responsibility of the unit manufacturer.
- 021 Safety Glass – to identify the grade of safety glass used, each pane should be indelibly marked so that the marking is visible after installation. The markings should include:
- The manufacturer's name or trade mark;
 - The product number for the type of glass;*
 - The impact performance classification to be to applicable Standards for:
 - toughened glass;
 - laminated glass:
 - heat soaked thermally toughened glass;
- 022 Fire Glass – all glazing units forming or part of a composite unit i.e. door, window, sidelight etc., should be manufactured to allow compliance with fire testing and rated accordingly to the component unit as a whole and comply with Building Control.
- 023 Accurately and squarely cut glass with clean, undisfigured and undamaged edges and surfaces, to size with a small clearance. Provide a clearance of 3mm on timber, 5mm on PVC-u windows all round between the edge of the double glazed unit and the frame to permit drainage and ventilation. Cut Georgina Wired glass to ensure that any edge is parallel to the alignment of the wires. Care shall be taken to ensure that the wires in adjacent panes line up either horizontally or vertically.
- 034 Ensure glass, except that bedded in patent glazing strip, is bedded back and front and around the perimeter with mastic neatly trimmed and cleaned off.
- 025 Ensure glazing is sprigged to wood, or fixed with aluminium, timber beads or PVC-u beads and security clips or double edged security tape.

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- 026 If gasket glazing is required, ensure the glazing gaskets and weather seals are extruded from EPDM (Ethylene Propylene Diene Monomer).
- 027 Install obscured glass in single glazing with the "rough" side to the inside of the Property. Install obscure glass to sealed double glazed units with the "rough" side to the inside of the unit and the obscure glass to the inside of the Property.
- 028 Seal and prime rebates and beads before glass is inserted.

Double glazing units

- 029 Glazing packers are to be in accordance with the applicable Standards and should not obstruct the drainage with profile specific bridging packers used. Use setting blocks and distance pieces so as to centralise the glass, unit or infill within the opening and ensure that it cannot move in the wind. Use setting blocks at the bottom edge of the frame. For fixed windows, position them as near the quarter points as possible. Where it is necessary to avoid undue deflection of the frame, place them nearer the sides, but never less than 85mm from the corner. Use setting blocks that are 3mm wider than the glass unit or infill and as thick as the designed edge clearance. Allow for toeing and healing.
- 030 Use setting blocks that are at least 25mm in length and approximately 2 No evenly spaced for each metre of major glass dimension to applicable Standard. For vertically pivoted windows, use setting chocks that are at least 75mm in length. Do not place blocks where these will inhibit drainage.
- 031 Use location blocks between the edges of the glass unit or infill and at the top and sides of the frame in an opening light.
- 032 Use distance pieces 25mm long and 3mm less in height than the rebate depth. Ensure the thickness is at least 3mm and such as to ensure that the glass is held firmly in the glazing rebate. Insert rigid PVC-u shims if necessary, to ensure that the distance pieces are a tight fit between the face of the glass and rebate. For beads which fit into continuous grooves, insert the first distance pieces 75mm from each corner, and the remainder at approximately 30mm centres. For beads fixed by screws or other studs, insert the distance pieces at the fixing points provided.
- 033 Composition of Double Glazing Units as tabled below:

DOUBLE GLAZING UNITS TO DOORS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	12mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated clear glass
Overall thickness of the units: Not less than 25.6mm		

DOUBLE GLAZING UNITS TO DOORS – OBSCURE SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	12mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated obscured pattern safety glass
Overall thickness of the units: Not less than 25.6mm		

DOUBLE GLAZING UNITS TO SIDELIGHTS – OBSCURE SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear low-E glass	14mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated obscured pattern safety glass
Overall thickness of the units: Not less than 24.8mm		

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

DOUBLE GLAZING UNITS TO SIDELIGHTS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear low-E glass	14mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated clear safety glass
Overall thickness of the units: Not less than 24.8mm		

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR FLOAT		
Pane material/thickness		
Inner pane 4mm clear low-E glass	16mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm clear glass
Overall thickness of the units: Not less than 24mm		

DOUBLE GLAZING UNITS TO WINDOWS – OBSCURE		
Pane material/thickness		
Inner pane 4mm clear low-E glass	16mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm obscured pattern group 4 glass
Overall thickness of the units: Not less than 24mm		

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear low-E glass	16mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm toughened clear glass
Overall thickness of the units: Not less than 24mm		

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	16mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated clear glass
Overall thickness of the units: Not less than 29.6mm		

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR FLOAT		
Pane material/thickness		
Inner pane 4mm clear low-E glass	20mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm clear glass
Overall thickness of the units: Not less than 28mm		

DOUBLE GLAZING UNITS TO WINDOWS – OBSCURE		
Pane material/thickness		
Inner pane 4mm clear low-E glass	20mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm obscured pattern group 4 glass
Overall thickness of the units: Not less than 28mm		

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear low-E glass	20mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 4mm toughened clear glass
Overall thickness of the units: Not less than 28mm		

DOUBLE GLAZING UNITS TO WINDOWS – CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	20mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6.8mm laminated clear glass
Overall thickness of the units: Not less than 33.6mm		

DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	12mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6mm clear Georgian Wire Fire Glass
Overall thickness of the units: Not less than 24.4mm		

DOUBLE FIRE GLAZING UNITS– OBSCURE SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear low-E glass	12mm thermally broken warm edge spacer bar with 90% argon fill	Outer pane 6mm Georgian Wire Fire Glass obscured pattern group 1
Overall thickness of the units: Not less than 24.4mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear glass	Stainless steel spacer bar with argon gas filling	Outer pane 11.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– TEXTURED/PATTERNED SAFETY		
Pane material/thickness		
Inner pane 4mm toughened textured/ patterned glass	Stainless steel spacer bar with argon gas filling	Outer pane 11.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– TEXTURED/PATTERNED SAFETY		
Pane material/thickness		
Inner pane 4mm toughened textured/ patterned glass	Stainless steel spacer bar with argon gas filling	Outer pane 11.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

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FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.8mm laminated clear (safety Class A) glass	Stainless steel spacer bar with argon gas filling	Outer pane 7.0mm internal fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY		
Pane material/thickness		
Inner pane 4mm toughened clear glass	Stainless steel spacer bar with argon gas filling	Outer pane 10.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– TEXTURED/PATTERNED SAFETY		
Pane material/thickness		
Inner pane 4mm toughened textured/patterned glass	Stainless steel spacer bar with argon gas filling	Outer pane 10.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY LOW –E HARD COAT		
Pane material/thickness		
Inner pane 4mm toughened low-E hard coat clear glass	Stainless steel spacer bar with argon gas filling	Outer pane 10.0mm safety fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

FIRE GLAZING, DOUBLE FIRE GLAZING UNITS– CLEAR SAFETY		
Pane material/thickness		
Inner pane 6.4mm laminated clear (safety Class B) glass	Stainless steel spacer bar with argon gas filling	Outer pane 7.0mm external fire grade glass fully UV stable, clear
Overall thickness of the units: Not less than 24.0mm		

Neoprene glazing gaskets

- 034 Fit glass to PVC-u windows using glazing gaskets appropriate to the window. Angle all glazing gaskets if possible, but in any event mitre all corners and comply with Clause 021 above.

Cleaning:

- 035 Remove cement and plaster based spillage whilst wet. Remove all smears and excess glazing materials. Leave glazing clean and free from scratches inside and out.

Damage:

- 036 Replace all glass and fixing materials broken or damaged before completion and redecorate.

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Fire Resistant Glazing

- 037 Fire resistant Glazing Cassette to Door Sets with cassette interlocking system with male/female connectors, 24.4mm double glazing unit comprising 6.8mm laminated clear low-E safety glass inner pane, 12mm thermally broken warm edge spacer bar with 90% argon fill, 6mm clear Georgian wired fire glass or 6mm Georgian wire fire glass obscure pattern group 1, fire retardant glazing sealant as intumescent aperture lining/filler, installed in accordance with UKAS accredited report for fire resistant glazing and in accordance with glazing manufacturer’s technical data sheet.
- 038 Fire resistant Glazing Cassette to Door Sets with cassette interlocking system with male/female connectors, 26mm double glazing unit comprising 6.8mm laminated clear low-E safety glass inner pane, 12mm thermally broken warm edge spacer bar with 90% argon fill, 6mm clear Georgian wired fire glass or 6mm Georgian wire fire glass obscure pattern group 1, fire retardant glazing sealant as intumescent aperture lining/filler, installed in accordance with UKAS accredited report for fire resistant glazing and in accordance with glazing manufacturer’s technical data sheet.
- 039 Fire resistant glazing to fanlights and sidelights with 24.4mm double glazing unit comprising 6.8mm laminated clear low-E safety glass inner pane, 12mm thermally broken warm edge spacer bar with 90% argon fill, 6mm clear Georgian wired fire glass or 6mm Georgian wire fire glass obscure pattern group 1, fire retardant glazing sealant as intumescent aperture lining/filler, installed in accordance with UKAS accredited report for fire resistant glazing and in accordance with glazing manufacturer’s technical data sheet, aluminium powder coated glazing bead extrusion with flexible intumescent glazing compound to entire length of glazing bead extrusion and fixing in accordance with the manufacturer’s technical data sheet.

Client’s current manufacturers/suppliers/products

- 040 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

PLUMBING

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

PLUMBING

GENERAL

Generally

- 001 Ensure all Materials comply with the requirements of the applicable water Utility Provider.
- 002 Use rust proofed ancillary and fixing Materials. Ensure all Materials in direct or indirect contact are compatible so as to prevent electrolytic or chemical corrosion.
- 003 Note that the Client's Properties may contain a variety of disposal systems manufactured from conventional materials and also a wide range of manufacturer's proprietary systems.
- 004 Seal any pipework entering a vertical service duct all round with intumescent sealant to prevent the passage of fire or smoke.

MATERIALS

Plastic rainwater gutters and pipes

- 005 Match the colour of the systems, the profile of gutters and the rainwater pipe jointing and fixing to the existing systems unless the Client's Representative Instructs otherwise.

Cast iron rainwater gutters and pipes

- 006 For gutters use half round or ogee. Match all new gutters and pipes to the existing system unless the Client's Representative Instructs otherwise. Time saver joints are to be used, flexi seal connectors are not to be used.

Aluminium rainwater gutters and pipes

- 007 Ensure aluminium rainwater disposal systems match the existing system.

Plastic soil and vent pipes

- 008 Ensure the colour and jointing and fixing match the existing pipework unless the Client's Representative Instructs otherwise.

Cast iron soil and vent pipes

- 009 Ensure the jointing and fixing methods match the existing pipework unless the Client's Representative Instructs otherwise. Time saver joints are to be used, flexi seal connectors are not to be used.

Plastic waste pipes, fittings and traps

- 010 Use PVC-u plastic to applicable Standard for soil/ventilating pipework and fittings. Use polypropylene plastic to applicable Standard for waste and warning pipework, fittings and traps. Fully protect any external polypropylene and ABS pipes and fittings from sunlight. Ensure waste pipes, fittings and traps match the existing waste systems unless the Client's Representative Instructs otherwise.

Copper waste pipes and fittings

- 011 Ensure the gauges of pipework and types of fittings match those of the relevant existing pipework.

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Plastic water supply pipes and fittings

012 Use blue polyethylene pipes with copper fittings for pipework laid underground for potable water supplies.

Copper water supply pipes and fittings

013 Use lead free capillary fittings for potable water supplies.

Fittings for lead supply pipes

014 Use lead to copper mechanical joint fittings for connecting dissimilar pipes to existing lead water services.

Overflow pipes and fittings

015 Ensure the pipework for overflows complies with the same requirements as for water supply pipework.

Solder

016 Do not use lead based solders or solders containing lead in Works associated with potable water supplies. Use tin/copper or tin/silver compositions instead.

Float valves

017 Use float operated valves.

Taps

018 Use chromium plated metal taps. For lavatory basins and sinks, use 1/2 inch taps; for baths, use 3/4 inch.

019 Taps to kitchen sinks for Persons with Disabilities use:

- deck pattern chromium plated kitchen sink mixer with metal handle lever action operation control with colour discs, left hand red for hot and right hand blue for cold;

020 Taps to baths for Persons with Disabilities use:

- deck pattern chromium plated bath pillar taps suitable for both high and low pressure with metal handle lever action operation control with colour discs, left hand red for hot and right hand blue for cold;

021 Taps to wash hand basins for Persons with Disabilities use:

- vertical pattern chromium plated basin taps with metal handle lever action operation control with colour discs, left hand red for hot and right hand blue for cold;

Sanitary fittings

022 Ensure all sanitary fittings are approved by the Client's Representative.

023 For lavatory basins and pedestals, to applicable Standard use white vitreous china with:

- size 560mm x 440mm, one tap hole with pedestal;
- wall brackets secured in accordance with the manufacturer's technical data sheet;
- chromium plated to applicable Standard deck mounted mono mixer, quarter turn lever action;
- chromium plated rotative clicker waste stopper;
- polypropylene trap, 76mm seal, with combined overflow; and
- all fittings necessary to connect to services and disposal systems.

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- 024 For hand rinse wash basins, to applicable Standard use white vitreous china with:
- size 360mm x 265mm, one tap hole without pedestal;
 - wall brackets secured in accordance with the manufacturer's technical data sheet;
 - chromium plated deck mounted mono mixer, quarter turn lever action;
 - chromium plated rotative clicker waste stopper;
 - polypropylene trap, 76mm seal, with combined overflow; and
 - all fittings necessary to connect to services and disposal systems.
- 025 For corner rinse wash basins, to applicable Standard use white vitreous china with:
- size 500mm x 400mm, one tap hole without pedestal;
 - wall brackets secured in accordance with the manufacturer's technical data sheet;
 - chromium plated deck mounted mono mixer, quarter turn lever action;
 - chromium plated rotative clicker waste stopper;
 - polypropylene trap, 76mm seal, with combined overflow; and
 - all fittings necessary to connect to services and disposal systems.
- 026 For baths, use heavy duty pressed steel to applicable Standard, with bolt on adjustable legs.
- 027 Supply baths with:
- 1700 mm rectangular pattern, single centre tap holes, twin handle grips and slip resistant base;
 - chromium plated deck pattern over bath/shower fitting comprising height adjustable lockable slide rail, shower bracket, fastening set, shower hose (minimum 1500mm) soap dish and adjustable head outlet
 - chromium plated deck mounted mono mixer to match mono basin mixer, quarter turn lever action;
 - chromium plated rotative clicker waste stopper;
 - DN 40 polypropylene shallow seal trap with combined overflow;
 - bolt on adjustable feet
 - galvanised mild steel floor plates to be provided under bath feet; and
 - all fittings necessary to connect to services and disposal systems.
- 028 Supply baths with:
- 1500 mm rectangular pattern, single centre tap holes, twin handle grips and slip resistant base;
 - chromium plated deck pattern over bath/shower fitting comprising height adjustable lockable slide rail, shower bracket, fastening set, shower hose (minimum 1500mm) soap dish and adjustable head outlet
 - chromium plated deck mounted mono mixer to match mono basin mixer, quarter turn lever action;
 - chromium plated rotative clicker waste stopper;
 - DN 40 polypropylene shallow seal trap with combined overflow;
 - bolt on adjustable feet
 - galvanised mild steel floor plates to be provided under bath feet; and
 - all fittings necessary to connect to services and disposal systems.
- 029 Where it not feasible to install a gravity over bath/shower mixer assembly, a deck mounted quarter turn lever action chromium plated bath filler mixer taps with maximum mixed water outlet temperature for bath fill of 48 degree C, an electric shower is also to be provided over the bath.
- 030 For WC pans to applicable Standard, use white vitreous china toilet pan, horizontal outlet, standard pan connector to applicable Standard to 'P', 'S' or turned 'P' coloured to match pan; and, thermoplastic Type 2 seat and cover to applicable Standard, with thermoplastic colour matched plastic hinges, buffers to be either synthetic or natural rubber or thermoplastic with a minimum of two integral distance pieces or a maximum of four buffers attached to underside of seat, seat colour black or white.

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- 031 For dual flush WC cisterns to applicable Standard, use white vitreous china type for use with close coupled suites. Ensure the cisterns are complete with:
- lid;
 - ball valve low pressure type;
 - siphon;
 - cistern to be dual flush 6 litres/4.5 litres capacity with dual flush button;
 - wall brackets;
 - cistern inlet connector to wc pan; and
 - all fittings necessary to connect to services, disposal systems and overflow.
- 032 For Close Coupled WC Pan and Cistern to applicable Standard use:
- White vitreous china pan to applicable Standard;
 - Thermoplastic Type 2 seat and cover to applicable Standard, with thermoplastic colour matched plastic hinges, buffers to be either synthetic or natural rubber or thermoplastic with a minimum of two integral distance pieces or a maximum of four buffers attached to underside of seat, seat colour black or white;
 - Standard pan connector to applicable Standard to 'P', 'S' or turned 'P' coloured to match pan;
 - White vitreous china cistern to applicable Standard with lid;
 - Dual flush 6 litres/4.5 litre capacity to applicable Standard;
 - Operating control, ball valve low pressure type to applicable Standard, diaphragm pattern of copper alloy/plastic construction with plastic float to applicable Standard;
 - Dual flush button operating mechanism, with cistern inlet connector to WC Pan;
 - Internal overflow into WC pan through the flush valve supplied by the manufacturer.
- 033 Provide Automatic WC Pan and Cistern use:
- Automatic WC shower toilet providing flushing, washing and warm air drying WRAS approved;
 - Combined WC/Bidet with addition of drying air to applicable Standard;
 - White vitreous china arrangement with low level wash down and horizontal outlet;
 - Seat and cover as supplied by manufacturer;
 - Pan connector, standard to applicable Standard 'S' trap (vertical fall) or 'P' trap (horizontal) white to match pan;
 - Cistern, as supplied by the manufacturer;
 - Flushing operation, as supplied by the manufacturer;
 - Operating control, as supplied by the manufacturer;
 - Water service, 15mm cold water service only with isolation valve, from storage or mains water supply;
 - Boiler capacity, as supplied by the manufacturer;
 - Cistern capacity, as supplied by the manufacturer;
 - Internal overflow into WC pan through the flush valve supplied by the manufacturer.;
 - Electrical services, 230/240V 1 Phase 50Hz AC earthed supply, Maximum Power 1300 watts, Load 10A, Rating IPX4
 - Installation, a fused spur is required for isolation, located in accordance with the applicable Standard for electrical installations;
 - Height, to be raised above floor level to enable easy transfer from wheelchair to WC pan.
- 034 Provide Bidet to applicable Standard use;
- Standard to applicable Standard;
 - Pedestal type in white vitreous china with over-rim supply;
 - Water supply fittings, pillar taps or centre set taps with pop up waste, chromium plated finish;
 - Standard waste, DN30 flush grated waste fitting, standard to applicable Standard, un-slotted tail, brass, with external parts chromium plated with solid brass back nut;
 - Standard 50mm (minimum) seal polypropylene trap DN30 kite marked to applicable Standard.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Stainless steel sinks

- 035 Provide stainless steel inset sinks to applicable Standard with single bowl, single drainer, 2 tap holes. Supply 0.9mm satin polish finish sinks with:
- deck pattern chromium plated sink mixer with metal handle control with colour discs, red for hot and blue for cold to ;
 - DN 40 chromium plated combined plug type waste and overflow unit with unslotted or slotted tail (for use with an appliance with overflow);
 - DN 40 polypropylene 76mm (minimum) seal trap to applicable Standard chrome plated sink waste chain and stay with black rubber or plastic plug; and
 - all fittings necessary to connect to services and disposal systems.

Shower trays and enclosures

- 036 Provide fibreglass level access shower trays to applicable Standard (CE Mark = EN14527-CL2) preferred optimum size 850mm x 1200mm (on site variations to be considered):
- Weight – loading of 380 kilos/60 stone;
 - Level access (no greater than 5mm above finished floor level at point of entry with rounded/bevelled lip);
 - Waste – shower trap with removable waste fitting (supplied as standard with shower tray) and installed in accordance with the manufacturer's technical data sheet;
 - Sealing – seal to be achieved between wall and shower with proprietary shower sealing tape, all other sealing as per manufacturer's technical data sheet and mould resistant sealant to applicable Standard low modulus; and
 - Workmanship – tray to be installed no greater than 5mm above finished floor level with rounded /bevelled lip at point of entry. For the avoidance of doubt the point of entry is the line where the finished floor and edge of shower tray butts.
- 037 Provide fibreglass or stone resin step in shower trays to applicable Standard (CE Mark = EN14527 CL2), preferred optimum size 850mm x 1200mm (on site variations to be considered):
- Weight – loading of 380 kilos/60 stone;
 - Step in tray (a maximum step of 85mm is recommended);
 - Waste – shower trap with removable waste fitting (supplied as standard with shower tray) and installed in accordance with the manufacturer's technical data sheet;
 - Sealing – seal to be achieved between wall and shower with proprietary shower sealing tape, all other sealing as per manufacturer's technical data sheet and mould resistant sealant to applicable Standard low modulus; and
 - Workmanship – tray to be installed no greater than 5mm above finished floor level with rounded /bevelled lip at point of entry. For the avoidance of doubt the point of entry is the line where the finished floor and edge of shower tray butts;
- 038 Provide fibreglass wet room former to applicable Standard (CE Mark = EN14527 CL2), preferred optimum size 850mm x 1200mm (on site variations to be considered):
- Weight – loading of 380 kilos/60 stone;
 - Fibreglass floor former with integral floor covering;
 - Waste – shower trap with removable waste fitting (supplied as standard with shower tray) and installed in accordance with the manufacturer's technical data sheet;
 - Sealing – seal to be achieved between wall and shower with proprietary shower sealing tape, all other sealing as per manufacturer's technical data sheet and mould resistant sealant to applicable Standard low modulus.

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- 039 Shower Tanking System, Liquid Applied Tanking To Floors:
- Acrylic based flexible waterproofing liquid applied in accordance with manufacturer's instructions as part of a shower tanking system.
 - Background: sand/cement screed.
 - Preparation: primed as recommended by manufacturer.
 - Area: to cover entire shower room floor.
- 040 Shower Tanking System, Liquid Applied Tanking To Walls:
- Acrylic based flexible waterproofing liquid applied in accordance with manufacturer's instructions as part of a shower tanking system.
 - Background: plaster skim.
 - Preparation: primed as recommended by manufacturer.
 - Area: to cover walls from floor to ceiling, a minimum of 150mm beyond dimensions of shower tray or former.
- 041 Shower Tanking System Polyester Tape:
- Reinforcement for junctions of walls, floors, shower bases, upstands, outlets, cracks and joints.
 - Applied in accordance with manufacturer's instructions as part of a shower tanking system.
- 042 Provide shower enclosure manufactured to applicable Standard (CE Mark = EN14428 CA-IR-DA)
- Half height bi-fold/tri-fold toughened glass/plastic enclosures which shall not break or shall break safely;
 - Powder coated aluminium frame and plastic parts;
 - All seals to be watertight with 180 degree rise and fall hinges;
 - Magnetic closing doors with locking handle and fitted seals;
 - Fitted with full height shower curtain and H track curtain rail, supplied with all necessary heavy duty clip, fixings and hooks;
 - Curtains to be durable polyester weighted by 50 grams to prevent swing;
 - Sealing – fit as manufacturer's technical data sheet to ensure all seals on moving parts are watertight when in operation. Fixed sealing undertaken using mould resistant sealant to applicable Standard low modulus.
- 043 Provide shower enclosure manufactured to applicable Standard (CE Mark = EN14428 CA-IR-DA)
- Half height bi-fold/tri-fold toughened glass/plastic enclosures which shall not break or shall break safely;
 - Polished chrome frame and plastic parts;
 - All seals to be watertight with 180 degree rise and fall hinges;
 - Magnetic closing doors with locking handle and fitted seals;
 - Fitted with full height shower curtain and H track curtain rail, supplied with all necessary heavy duty clip, fixings and hooks;
 - Curtains to be durable polyester weighted by 50 grams to prevent swing;
 - Sealing – fit as manufacturer's technical data sheet to ensure all seals on moving parts are watertight when in operation. Fixed sealing undertaken using mould resistant sealant to applicable Standard low modulus.
- 044 Provide shower enclosure manufactured to applicable Standard (CE Mark = EN14428 CA-IR-DA)
- Full height toughened glass/plastic enclosures with watertight door seals and magnetic closing doors and fitted seal;
 - Powder coated aluminium frame and plastic parts;
 - Sealing – fit as manufacturer's technical data sheet to ensure all seals on moving parts are watertight when in operation. Fixed sealing undertaken using mould resistant sealant to applicable Standard low modulus.

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- 045 Provide ABS Plastic grab rails:
- All rails shall be manufactured from ABS plastic (virtually indestructible plastic) and shall have a slip resistant grip with broad flanged fittings to be plastic welded to rail for fixing with non-corrosive screws to wall or floor;
 - All rails to have easy bends and no sharp corners;
 - Rails should contrast in colour and luminance with the background against which they are seen;
 - It is of the utmost importance that the wall construction should allow a secure fixing of grab rail to suit changing needs or specific needs of an individual;
 - The grab rail shall be 32mm to 35mm diameter fixed with a clearance between the rail and the wall of 50mm to 60mm with a good grip when wet;
 - The rail should not deteriorate when exposed to extremes of heat and cold;
 - Sizes to suit site conditions and left or right handing;
- 046 Provide Grab Rail - single or double folding rails:
- Manufactured from 32mm to 35mm diameter mild steel and coated with a white epoxide/polyester finish and fitted with a strongly constructed locking device to enable the rail to be locked in the vertical position;
 - Double folding rails shall be fitted with a toilet roll fitment;
 - Drop down rails should be of a type that can be pulled down by a person when seated on the WC;
 - They shall incorporate vertical support struts, set back from the front edge of the rail by at least half its projection from the wall so as not to impede wheelchair access;
 - Projection of rails shall vary according to need.
- 047 Provide Grab Rail - double folding rails with foot support:
- Manufactured from 32mm to 35mm diameter mild steel and coated with a white epoxide/polyester finish and to be used where the mechanical strength of the wall is doubtful;
 - In the down ward position the supporting leg shall take most of the applied load;
 - In the upright (Vertical) position the locking device shall enable the rail to be used as a HAND HOLD and shall not be considered as suitable as a GRAB RAIL when in the vertical position;
 - Projection of rails shall vary according to need.
- 048 Provide shower curtain tracks:
- Track may be straight, 'L' shaped or 'U' shaped;
 - Rail shall be manufactured from anodised aluminium;
 - Rail is to be easy to bend and supplied with all necessary fixing brackets and hooks;
- 049 Provide shower curtain:
- Curtain to be shower proof plastic with hem weighted by 50 grams to ensure correct hanging and supplied with all necessary clips and fixings
- 050 Provide shower seat:
- Seat to be manufactured to applicable Standard
 - Wall mounted seat with height adjustable support legs and be able to fold upwards when not in use;
 - Complete with fixed or detachable padded seat, back and arms for extra comfort;
 - Powder coated frame;
 - Stainless steel rawlbolt fixings to suit wall construction in accordance with the fixing manufacturer's technical data sheet;
 - Weight – not to exceed a loading of 254 kilos/40 stone;

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051 Padded Back Rest (for toilet seat):

- Type: Back rest for disabled toilet
- Materials:
 - Rail: 32 mm (nominal) diameter steel coated formed into shape with easy bends and no sharp corners, polyester powder coated finish.
 - Pad: Polyurethane foam, wipe clean and splash-proof
- Colour: White, unless recommended otherwise for visual contrast.
- Fixing: Broad flanged fittings fixed with non-corrosive screws as recommended by manufacturer and suitable for wall construction to ensure a secure fixing.
- To withstand a maximum test load of 135kg and rated load of 90kg
- Nominal dimensions:
 - Tube diameter: 32mm
- Flange centres: 400mm
- Flange diameter: 84mm
- Tube wall thickness: 1.5mm
- Projection from wall (with pad): 314mm
- Pad size: 280 mm wide x 140 mm high x 60 mm thick

052 Bath/Shower Screen:

- Type: 6mm toughened safety glass shower screen, tested to applicable Standard;
- Wall post and screen profile; polished aluminium
- Hinge; rise and fall mechanism – left or right fitting
- Nominal dimensions; 1500mm height x 800mm wide
- Fixing – Supplied with all necessary fixing brackets, seals, cover caps
- Sealing – fit as per manufactures technical data sheet to ensure all seals on moving parts are watertight when in operation. Fixed sealing undertaken using mould resistant sealant to applicable Standard low modulus

053 Bath/Shower 2 Panel Screen:

- Fixed panel and door screen used to allow door opening, due to closely fitted adjacent wash hand basin;
- Type: 6mm toughened safety glass shower screen, tested to applicable Standard
- Wall post and screen profile; polished aluminium
- Hinge; rise and fall mechanism – left or right fitting
- Nominal dimensions; 1500mm height x 1400mm wide
- Fixing – Supplied with all necessary fixing brackets, seals, cover caps
- Sealing – fit as per manufactures technical data sheet to ensure all seals on moving parts are watertight when in operation. Fixed sealing undertaken using mould resistant sealant to applicable Standard low modulus

054 Provide thermostatic shower mixing valve to applicable Standard BEAB Care, TMV2, YMV3 and WRAS approved:

- Thermostatic shower control to mix hot and cold water to the desired water temperature;
- Surface mounted shower control, with extended lever control to distinguish between flow and temperature for disabled use;
- Chrome plated finish;
- Temperature range, Thermostatic control range 35 to 45 degrees C;
- Inlet water supply temperatures, 15 degrees C Cold and 65 degrees C Hot;
- Maximum hot water system temperature: 60 degrees C;
- Automatic shut down within 3 seconds in the event of failure in the cold water supply;
- Multi-mode showerhead with a 1m (minimum) length slide bar and soap dish, 1.5m (minimum) length flexible hose with retaining ring and all necessary fittings for surface fixing;
- Minimum maintained pressure: 0.1bar;
- Maximum maintained pressure: 5.0 bar;
- Maximum static pressure: 10.0 bar;

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Tanks

- 055 Ensure tanks are complete with tightly fitting removable lids. Use moulded plastic tanks to applicable Standard. Ensure the tank is complete with a float valve and all fittings necessary to connect the services and overflow.

Copper cylinders

- 056 Ensure hot water storage copper cylinders are to applicable Standard Grade 3 factory insulated, fitted with sacrificial anodes and complete with:
- immersion heater boss, cap and washer screwed boxes; and
 - all fittings necessary to connect to the primary pipework supply and draw off pipework.

Combination hot water storage units

- 057 Provide indirect or direct combination tanks to applicable Standard as appropriate. Ensure the proprietary units are complete with:
- sacrificial anodes;
 - insulation;
 - float valve;
 - immersion heater boss, cap and washer, screwed boxes; and
 - all fittings necessary to connect to the primary supply, draw off and overflow pipework.

Insulation

- 058 Use preformed, fully flexible, closed cell elastomeric insulation fire rated as insulation for hot and cold pipework that meets the requirements of the Utility Provider.

Paint

- 059 Ensure paint used in repairs complies with the "Painting and Decorating" Section.

WORKMANSHIP

Water supply

- 060 Support pipework at centres recommended by the manufacturer with approved clips or brackets of a type to suit the background to which it is required to be fixed.
- 061 Ensure that pipes used in repairs are similar to the existing pipework, but repair lead pipework using appropriate plastic pipe and approved compression fittings. Do not use copper pipework for repairs to lead pipework. Use either compression or lead free solder capillary ring fittings.

Sanitary appliances

- 062 Properly install sanitary fittings. Take care to ensure that integral overflows are not obstructed with jointing compounds. Fix sanitary fittings securely to structure without taking support from pipe lines, level and plumb and fall to drain as intended, use jointing and bedding compounds as recommended by the manufacturers of appliances, accessories and pipes technical data sheets to form watertight joints between appliances and backgrounds (except cisterns) , and between appliances and discharge pipes, Ensure that noggins, bearers etc., necessary to support sanitary appliances and fittings are accurately positioned and securely fixed.
- 063 Isolate waste, taps and other fittings from the sanitary fittings with the appropriate flexible washers making an effective seal.
- 064 On cisterns, obtain from manufacturer, float operated valve matched to pressure of water supply, fix overflow pipe to falls and located to give visible warning of discharge.

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- 065 Assemble taps, fix securely, making a watertight seal with the appliance, a suitable set of flanged insert plug/sleeve and washers shall be fitted to each and every tap for securing tap in position and for anti-rotation purpose.
- 066 Assemble wastes and overflows to appliances, bed in waterproof joint compound and fix with a resilient washer between appliance and backnut.

Rainwater Harvesting- Design Criteria

- 067 The collection tank is to be buried. Rainwater is to enter the drainage system through sealed gullies and pass through a pre-filter to remove leaves and other debris prior to entering the collection tank. A submersible pump controlled by the monitoring and sensing panel is to deliver recycled rainwater on demand. The non-potable distribution pipework to the washing machine, cleaner’s tap, outside tap and toilets etc., must either be a boosted system or configured for a header tank in the loft, with mains supply back-up with monitors and sensors located in or adjacent to the header tank.
- 068 Rainwater harvesting systems must include an automatic switchover to the mains water back-up supply, upon depletion of the stored rain water.

Grey Water Recycling – Design Criteria

- 069 Waste water from baths, showers and washbasins collected by conventional pipework, is to be collected in a pre-treatment sedimentation tank to remove larger dirt particles. Water then is to pass to the aerobic treatment tank in which cleaning bacteria ensure that all bio-degradable substances are broken down. The water then passes onto a third tank, where an ultra-filtration membrane is to remove all particles larger than 0.00005 mm, (this includes viruses and bacteria) to disinfecting the recycled grey water. A fourth tank is to store the clean water from where it is pumped on demand under the control of monitors and sensors in the control panel. Recycled grey water may be used for toilet and urinal flushing, for laundry and general cleaning, and for outdoor use such as vehicle washing and garden irrigation. If there is insufficient space, then the tanks may be buried but with adequate arrangements for maintenance access.
- 070 Grey water harvesting systems must include an automatic switchover to the mains water back up supply, upon depletion of the stored grey water.

Client’s current manufacturers/suppliers/products

- 071 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

THERMOSTATIC MIXING VALVE MAINTENANCE

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

THERMOSTATIC MIXING VALVE MAINTENANCE

General Requirements

- 001 The Provider shall be deemed to have read the whole of this Specification together with the Client's requirements' and will be deemed to have included in his Tendered Rates for full compliance.
- 002 Provide a 24-hour, 365 days per year (366 for a leap year) responsive maintenance service for the period of the Service to allow for breakdown or malfunction of any appliance, or installation and the replacement of any defective or missing components or installation parts previously specified. This service is to ensure that the appliances and installations are left in a safe and fully operational condition. The details of any repair are to be noted by the engineer for registering on the Provider's database (as provided by the Client's Representative).

Asset Register

- 003 Ensure that all the asset registers are supplied to the Client's Representative during the first 12 months of the Contract Period.

Maintenance Reports

- 004 Ensure that, following all inspection visits, conditional reports shall be in electronic format, including all specialist reports and test equipment printouts, and uploaded onto the Client's IT system.

Manufacturer's Requirements

- 005 Where manufacturer's instructions exceed the requirements of this document they shall be adhered to in their entirety.

Access

- 006 Ensure that he undertakes a risk assessment and provides a method statement for his means of access to allow for inspection and testing.
- 007 All works shall be carried out in strict accordance with the requirements of "The Work at Height Regulations 2005".
- 008 Ensure that all Staff employed upon this Contract are suitable trained and experienced and competent to work at height.

Guidance

- 009 Refer to the Specification and to the British Standards Institution publications for detailed guidance. Other guidance is available from the HSE, NHS Estates, the Water Regulations Advisory Scheme and the Thermostatic Mixing Valve Manufacturer's Association.

Pay particular attention to:

- NHS Estates Health Guidance Note – 'SAFE' hot water and surface temperatures.
- Building Regulation Approved Documents
- Thermostatic Mixing Valve Manufacturer's Association Recommended Code of Practice for Safe Water Temperatures.
- HSE document L8: The prevention and control of legionellosis (including Legionnaires' disease).
- The Water Supply (Water Fittings) regulations.
- WRAS Water Regulations Guide.
- applicable Standard for 'Sanitary tap ware – low pressure thermostatic mixing valves'
- applicable Standard for Thermostatic Valves for use in care establishments.
- applicable Standard Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages.

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Minor Repairs

010 Carry out minor repairs, whilst testing, such as tightening joints, replacement of clips, etc., to achieve a pass status and make appliances safe to ensure compliance with applicable Standards

Periodic Inspections and Testing

011 Inspection and testing of thermostatic mixing valves must unless otherwise Instructed by the Client’s Representative be carried out in accordance with the requirements tabled below;

Item No.	Item	Frequency	Action	Notes
Installation Information				
1.	<p>The Provider shall examine records pertaining to each TMV.</p> <p>All TMVs should be identified by a unique asset number.</p> <p>In particular the Provider shall ensure the presence of the following information:</p> <p>‘As-fitted’ drawings Manufacturer’s installation and maintenance manual Commissioning and testing records. Maintenance records</p>			
Testing				
2.	Water Treatment	6 Monthly	<p>Measure temperature of water flow at normal flow rate and after allowing stabilisation.</p> <p>Repeat temperature test at approximately ¼ normal flow rate.</p> <p>Temperature range should be as required in Health Guidance Note ‘Safe’ hot water and surface temperatures (Section 3 Table 1).</p>	Use a digital thermometer of known accuracy, with a minimum refresh rate of 4 times per second.
3.	Fail Safe Action	6 Monthly	Isolate cold water supply. Ensure all hot water ceases to flow in time specified by manufacturer for valve type.	
4.	Flow Rate	6 Monthly	Measure flow rate. Compare flow to commissioning data and previous maintenance records.	Undertake maintenance as appropriate

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Item No.	Item	Frequency	Action	Notes
Routine & Responsive Maintenance				
5.	TMV – General	Annually	Examine for leaks. Examine for corrosion. Examine connections, hoses and outlets. Examine fixings. Descale in accordance with manufacturer’s instructions. Sterilise shower heads as required by legionella risk management plan.	
6.	Pipework	Annually	Examine for leaks. Examine hangers and supports, adjust as necessary. Examine for corrosion. Examine thermal insulation. Record hot and cold water temperatures.	
7.	Isolation Valves	6 Monthly	Examine for leaks. Test valves for free travel. Repack if necessary. Examine for corrosion.	
8.	Strainers	6 Monthly	Examine general medical condition. Clean strainers and filters.	
9.	Repairs		If repairs are necessary, all works shall be carried out in strict compliance with manufacturer’s recommendations and requirements. Upon completion of works the TMV shall be recommissioned in accordance with the manufacturer’s instructions. Record commissioning data.	

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Client’s current manufacturers/suppliers/products

012 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

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[complete table as appropriate]

BATHROOM RENEWALS

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

BATHROOM RENEWALS

GENERALLY

001 Applicable to ALL Properties and must be priced to cover the range of bathrooms being refurbished. Generally, Properties will be occupied during the course of the Works.

Bathroom Generally

002 Provide 14 days' notice, and agree programme with the Customer. When replacing the bathroom suite or working in the bathroom ensure that there is running water and a working toilet at the end of each working day (the bathroom is not to be of action over night – without the Customer's express permission - a functional bathroom, to suit the Customer's needs, must be provided at the end of each working day in each occupied Property).

003 Ascertain whether any of the external works of the kitchen are constructed from solid masonry, prefabricated aluminium, no-fines concrete or PRC concrete. If found to be of solid masonry, prefabricated aluminium, no-fines concrete or PRC concrete construction, the Provider is to allow for installing, where practical a dry lining/insulation system as specified in the External and Internal Retrofit Wall Insulation section of this Specification to these walls. The cost of which will be reimbursed at the appropriate rates in the Schedule of Rates. The Provider is to inspect the walls for signs of any water ingress and is to immediately report to the Client's Representative the nature, cause and extent of any water ingress damage.

004 This project comprises the replacement of existing sanitary fittings to bathrooms and toilets, and the replacement of wall tiling, some plastering repairs, and the replacement of wastes and pipework within the bathrooms and toilets, including the boxing in of pipes and in some cases new pipework to fittings that were not placed before.

005 There are also replacement electrical fittings and wiring.

006 The works need to be fully programmed, and carried out as quickly as possible, in order to reinstate all facilities as soon as is possible. The Client will wish to limit the number of Properties being worked on at any one time as below.

007 Whilst working in a bathroom please ensure the following;

- WC and washing facilities including hot and cold water at the end of the working day;
- Loss of electricity not exceeding two hours;
- Heating facilities must be maintained.

008 When programming/scheduling the Work, allow for a maximum of 5 working days from start to completion.

009 Agree a maximum number of bathrooms to be worked on at any one time before the works programme begins (to suit number of properties/contract period available). A bathroom must be 100% complete prior to commencing further bathrooms above the agreed maximum, and each completed bathroom must be signed off by the Client's Representative and the Customer.

010 Bathrooms which include a toilet shall have a new pedestal wash basin, bath and WC suite, fitted in the same location as existing plus shower added over the bath.

011 Where a bathroom and separate toilet is present a new bath and pedestal wash hand basin shall be fitted and a WC suite shall be fitted to the toilet (wherever possible, a small wash hand basin should be added to the separate WC if not already present.).

012 Where an additional separate WC is present a request shall be made to the Client's Representative for approval to proceed with its replacement as per the Price Framework.

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013 Installation shall also include taking delivery of and placing in position, for providing and fitting cover fillets including softwood bearers, support rails, cutting out holes for plumbing including wastes and hot and cold plumbing including isolation valves to all tap outlets and connecting and testing to all services.

014 Allow for cutting to allow passage of all heating and hot/cold water pipes and neatly seal around openings with sealant.

Access/Security

015 Where access is available, through the rear garden, rear access is to be used. Where access is from the front, ensure the front door is closed in order to maintain security of the Property at all times.

016 Works are to be restricted to the area of work, which in general will be the bathroom.

017 Where access is through the Property into the bathroom provide dust sheets to protect all floor coverings, including the hall, stairs and landing. These must be in place at all times when working within a Property.

Protection

018 Allow for protection of floor coverings, furniture and Customer's belongings throughout the duration of the Works. Include for moving all furniture, Customer's belongings and everything necessary in order to carry out the Works and minimise disturbance to the Customers as far as possible. On completion of the Works place all previously moved furniture and fittings in locations agreed with the Customers. Where access is to be gained through the Property, dust sheets must be used at all times during the Works to prevent any damage.

019 Accept responsibility for any damage to carpets or Customer's belongings therefore it is recommended the Provider undertakes a schedule of condition and agree this with the Customer prior to undertaking any Works. The Client brings to the Provider's attention that the usual claims are for damaged carpets. It is therefore considered prudent to take photographs of any damaged Customer's belongings within the vicinity of the Work, and agree the condition, prior to commencement.

Completion

020 On completion of all works thoroughly clean all surfaces throughout the bathroom including glazing internally/externally, floor coverings, ceramic wall tiles, joinery etc to a homemaker's standard.

021 All builders rubbish both internally and externally must be removed on completion of the Works.

022 Leave the bathroom area of Work in a clean and tidy condition and ensure that the Customer is satisfied with the Works.

023 **Note:** The following section describes works in detail, however not all items of Work will be applicable to each property – nor is the list to be considered exhaustive.

Renewal of Bathroom and fittings

024 Carefully strip out the complete bathroom, including all demolition - carefully remove existing sanitary fittings, service pipework within the room/s, waste and overflows, floor finishes, wall tiling, bathroom/toilet fittings and the like, make good all disturbance and dispose of all debris. When removing the sanitary ware, allow for carefully cutting out any boxings and finishes, where heating/service pipes pass through so as not to damage any services. Remove all wastes, traps, disconnect/isolate hot and cold water plumbing and strip back to suitable position and remove from site all unwanted material. Take care to carefully remove Customer's fittings and store to one side for reinstatement and re-fix on completion.

025 Where a bathroom's layout does not allow for the best working arrangements then any simple layout redesign is deemed to be included and must be as approved.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

026 Provide and install baths, basins and taps as described below;

The selected bathroom suite ranges are as follows:-

Baths	To be 1700 mm rectangular pattern enamelled steel bath with twin hand grips and slip resistant base
Bath Taps	To be deck mounted over bath shower mixer fitting comprising height adjustable lockable sliding rail, shower bracket, fastening set, shower hose (min 1500mm), soap dish and adjustable shower head outlet, quarter turn lever action to match mono type basin fitting, hot water supply to bath to be limited to a maximum of 46 degrees C by use of an in-line blending valve.
Basins	To be 560mm x 440mm lavatory basin with one tap hole with Pedestal
Taps	To be deck mounted mono type basin mixer tap, quarter turn lever action.
WC	To be Close – Coupled toilet pan, horizontal outlet, with push dual flush cistern
WC seat	To be thermoplastic type 2 seat and cover with thermoplastic colour matched plastic hinges
Toilet roll holders	Chrome fixed to wall (if not already supplied by Customer)

027 Bathrooms which include a toilet shall have a new pedestal wash basin, bath and WC suite, fitted in the same location as existing.

028 Where a bathroom and separate toilet is present a new bath and pedestal wash hand basin shall be fitted and a WC suite and wash hand basin shall be fitted to the toilet wherever possible – basin to be added if not presently available.

029 Service valves to hot and cold to all appliances to be accessible in all places. Allowance shall be made for all testing and leaving fittings working satisfactorily. All pipework to be boxed in. Full height tiling is required around the bath, and a waterproof seal shall be achieved.

030 **Note:** Where walls are dry-lined, allow appropriate plug and screws fittings for fixing back to masonry and DO NOT rely on wall plug fixings.

Bath

031 Provide and install a 1700mm rectangular pattern enamelled steel bath complete with twin hand grips and non-slip resistant base with over bath and shower mixer as specified below. Where an overbath shower mixer fitting cannot be provided, provide deck mounted mono type bath mixer tap, quarter turn lever action.

032 Include for altering hot and cold water supplies as necessary and connect to taps. (Do not include flexipipe connections). Include for extending pipework as reasonably expected.

033 Provide and fit shallow seal polypropylene trap, and DN40 mm waste and extend and connect to existing soil pipe or to discharge into external gully as appropriate. Include for all builders works, making good etc.

Shower Over Bath

034 In ALL bathrooms, the refurbishment Works are to include for a deck mounted overbath shower mixing fitting, or by means of a separate electric shower unit and the provision of a shower curtain, hot water supply to bath to be limited to a maximum of 46 degrees C by use of an in-line blending valve.

**M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS –
SPECIFICATION – VERSION 8**

- 035 Supply and install deck mounted over bath shower mixer fitting comprising height adjustable lockable sliding rail, shower bracket, fastening set, shower hose (min 1500mm), soap dish and adjustable shower head outlet, quarter turn lever action to match mono type basin fitting.
- 036 Provide and fix anodised aluminium curtain track and showerproof plastic weighted shower curtain.
- 037 Note: In certain situations where it is not possible to install the above shower mixer, an electric shower will be installed in accordance with the Specification below.
- 038 Supply and install new 8.7KW or 9.5KW (as specified by Client) electric shower unit to applicable Standard, BEAB, BEAB CARE, RNIB, CE marked and WRAS approved complete with installation set maximum temperature control, phased shut down, low pressure indicator, installation set timer setting, fixed sliding rail, twist and lock shower head mechanism, shower hose with adjustable shower head outlet and soap dish, including plugging walls as necessary, connect to water and electrical supplies including provision of shower circuit including mini-trunking or rigid PVC-u conduit chased to walls etc., incorporating RCBO protection, controlled with 45A DP ceiling switch with neon light or indicator flag, all adjustments to pipework, adjust electrical supply as necessary, fill, test, and undertake tests, provide certificate, and remove all waste.

Bath Panels and Ductings

- 039 Form new bath panels with 100mm toe recess upstands in order that panels can be removed without disturbing floor vinyls.
- 040 Bath panels to be white painted 6mm plywood on batten supports and to be in two sections, with smaller section adjacent to the tap end of the bath for easy access to pipework below the bath.
- 041 For each bathroom, allow one panel to side of bath, and one panel to end of bath and include for white PVC corner trim at junction of panels (DO NOT USE METAL TRIMS).
- 042 All surface run pipework within bathroom areas to be boxed in with plywood and battens, prior to wall tiling or decorations.

Basin

- 043 Provide and install a 560mm x 440mm lavatory basin with one tap hole and pedestal complete with a deck mounted mono type basin mixer tap, quarter turn lever action.
- 044 Provide and install a 560mm x 440mm lavatory basin with one tap hole and semi-pedestal to provide 700mm minimum knee space for wheelchair users, complete with a deck mounted mono type basin mixer tap, quarter turn lever action.
- 045 Include for altering hot and cold water supplies as necessary and connect to taps. (do not use any flexipipe connections). Include for extending pipework as reasonably expected..
- 046 Provide and fit isolation ball-a-fix or similar isolation valves prior to taps, in convenient location to allow isolation. Position of valves to be in easily accessible position.
- 047 Provide and fit 76 mm deep seal polypropylene trap and DN32 mm waste, and extend, and connect to existing soil pipe or to discharge into external gulley as appropriate. Include for all builders works, making good etc and testing.
- 048 Securely clip all supply/waste pipes to walls to prevent movement.

WC

- 049 The WC toilet pan and cistern shall be white, close coupled with horizontal outlet with push button dual flush cistern, seat and cover, fittings, waste adaptor and internal overflow. Connect toilet pan outlet to existing soil pipe waste.

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- 050 Include for altering/extending water supplies as necessary and connect to sanitary ware.
- 051 Provide and fit service valves prior to WC cistern float operated device in a convenient location to allow isolation. The position of the valves is to be in an easily accessible position.
- 052 Securely clip all supply/waste pipes to walls to prevent movement.

Fixtures and Fittings

- 053 At the start of the works the Customer's own existing bathroom fittings (mirror, bathroom cabinet, towel rail, toilet roll holder etc.,) are to be carefully removed and set aside for reuse and refitted in consultation with the Customer.
- 054 Where no existing Customer's own fittings are found, as a minimum a toilet roll holder shall be provided and fixed to the wall in a suitable location.

Glazed Tile Splashback - Bath

- 055 The perimeter of the bath at all junctions with the wall, including any adaptive make up boxings, shall be finished with full height tiling to all three sides of bath.
- 056 **Customers are to be offered four colours/sizes of tile for choice of tiles – One colour/size of tile choice per property bathroom**
- 057 Allow to hack off any existing glazed wall tiles and remove from site. Where walls are dry-lined allow for making good and applying skim coat. Where walls are plastered allow for re-plastering as required, finishing with skim coat and leave all smooth and even.
- 058 Supply and form full height tiling to sides of bath in 6.5mm white or coloured ceramic glazed tiles to colour/size of tile choice of Customers.
- 059 Wall tiling to be fixed with waterproof adhesive and neatly pointed in white cement. All exposed edges to be fitted with proprietary plastic rounded edge beading fitted during the course of tiling.
- 060 Seal all junctions between tiling and bath with white silicon rubber sealant smoothed into a neat bead. Ensure all surfaces are thoroughly cleaned with methylated spirit before application in order to ensure thorough adhesion.
- 061 NOTE: Allow for removing all fixtures and fittings and refix on completion of the works.

Glazed Tile Splashback - Basin

- 062 Tile splashbacks shall be at least 450mm high above washbasins.
- 063 Tile splash-back to be in same tiles as chosen by Customer in Clause 053 above.
- 064 Allow to hack off any existing glazed wall tiles and remove from site. Where walls are dry-lined allow for making good and applying skim coat. Where walls are plastered allow for re-plastering as required, finishing with skim coat and leave all smooth and even.
- 065 Where the basin is sited in front of a window ledge allowance is deemed to be included to incorporate that into the splash-back as appropriate.
- 066 Wall tiling is to be fixed with waterproof adhesive, and neatly pointed in white cement. All exposed edges to be fitted with proprietary plastic rounded edge beading fitted during the course of tiling.

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067 Seal all junctions between tiling and basin with white silicon rubber sealant smoothed into a neat bead. Ensure all surfaces are thoroughly cleaned with methylated spirit before application in order to ensure thorough adhesion.

068 NOTE: Allow for removing all fixtures and fittings and refix on completion of the Works.

Floor Coverings

069 All floor coverings to be 2mm thick anti slip vinyl sheet floor coverings to applicable Standard and to have a Pendulum test value (PTV or slip resistance value) (36+ (CoF) or above) as tested to applicable Standard and a Surface roughness (Rz) (20+µm (microns) or above) to applicable Standard. Floor covering to be complete with aluminium threshold strips at doors

070 Customers are to have a choice of colour from the 16 colour shades for the products.

071 Note: Include for coved 100mm high welded joint vinyl skirtings below bath panel toe upstands, set over cove formers and with coved cappings.

Vinyl on Solid Floor

072 Carefully take up existing floor coverings including all adhesives etc., and remove from site.

073 Prepare the solid floor and apply latex self-levelling compound. Provide and fully adhere the chosen floor covering. Ensure that it is fully adhered and hot weld all seems.

074 Floor covering to extend below WC's and wash hand basin pedestals.

075 Allow for cutting/fitting to allow passage of all heating and hot/cold water pipes and service, neatly seal around openings with sealant.

076 At junctions with skirting apply white silicone sealant. At junctions with plinth apply clear silicone finished neatly and smooth.

Vinyl on Solid Floor Where Ceramic Tiles Previously Fitted.

077 Carefully hack up existing ceramic tiles and remove from site. Allow for making good screed where damaged with proprietary epoxy repair. Apply latex self-levelling compound.

078 Provide and lay floor covering of choice as described in item 067 and above.

Vinyl on Suspended Timber Floors.

079 Carefully take up vinyl floor coverings including all adhesives, hardboards, fixings etc. and remove from site. Prepare the timber floor, make good as necessary and provide and lay 6mm plywood to applicable Standard or minimum thickness 3.2mm hardboard to applicable Standard in largest sections possible with staggered joints and neatly cut close butted to skirtings etc. Condition sheets by stacking in room in which they are to be fixed for not less than 72 hours with separators between each sheet. Secure hardboard to floor with 24mm divergent staples, commencing at the centre of each sheet, at 150mm grid centres over the area of each sheet and at 100mm centres along perimeter, set in 12mm from edge. Ensure that fastenings do not protrude.

080 Provide and lay new floor covering of choice all as described above in item 067 and above.

Existing Floor Coverings.

081 Where the existing vinyl/ceramic floor coverings are to be retained, allow for all protection of the floor coverings for the duration of the Works.

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082 Allow for any minor repairs (eg grouting tiles, sealants etc.,) on completion of the Works using hardboard with all joints taped.

083 A credit shall be made to the Client to reflect the difference in price as appropriate.

Electrical Works

084 All electrical work must be carried out to the current applicable Standards and Statutory Regulations. **All cabling to be concealed and NOT surface run, unless otherwise specified or approved.**

085 All relevant works to comply with Building Regulation's; the Provider must be suitably accredited, and works must be certified, and certificates electronically loaded onto the Clients Asset Management IT System.

Luminaires

086 In the bathroom of each dwelling the Provider shall supply and install an enclosed light fitting with white body finish complete with one 28W 2D lamp high frequency gear and clear prismatic diffuser IP65 rated.

Bathroom ventilation

087 Any existing bathroom extract fan shall be disconnected and removed.

088 All bathrooms shall be provided with a new extract ventilation fan. The fans shall be fitted with integral automatic back-draught shutters.

089 The fan shall be set for an extract rate of 15 litres/second.

090 Attention is drawn to the fact that the operation of the light-switch in an internal bathroom with no windows shall control the fan and such fans to have a 15 minute timer overrun. In bathrooms with windows the fan shall be controlled by a 15A DP switch with neon indicator or flag ceiling mounted

091 All new fans installed to discharge through walls shall be fitted with a wall liner and external grille. Where the unit is ceiling mounted the extract shall be ducted through the roof space with a pre-insulated duct and condensate pipe.

Immersion heaters and thermostats

092 All existing cylinder immersion heaters shall be checked for operation and fitted with the correct length, new rod combined thermostat and resettable safety cut-out to meet the requirements of the applicable Standards.

Equipotential bonding

093 Installation in accordance with applicable Standard: Connect the following metallic parts to the main earthing terminal, where they are extraneous-conductive parts to:

- metal water installation pipes;
- metal gas installation pipes, as near practical to the point of entry of the service into the premises and before any branch pipework where the meter is fitted externally. Where practicable the connection shall be made within 600mm of the meter outlet union where the meter is installed internally;
- central heating system pipework;
- other installation pipework (including oil and gas supply pipes) and ducting; and
- exposed metallic structural parts of the building.

094 Sizes of bonding conductors are as given in the applicable Standard.

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Supplementary equipotential bonding

- 095 Installation in accordance with applicable Standard: Within the zone formed by the main equipotential bonding, provide connections to:
- baths;
 - sinks;
 - exposed pipes; and
 - heating systems.
- 096 In locations containing a bath or shower, supplementary equipotential bonding is to comply with the applicable Standard
- 097 Sizes of supplementary equipotential bonding conductors are as given in the applicable Standard.
- 098 Electrical equipment and/or electrical circuits installed in a room containing a bath or shower shall have RCD protection, complying with the applicable Standard.
- 099 Where all electrical requirements in the dwelling to applicable Standard are met, supplementary equipotential bonding as Clause 092 may be omitted.
- 100 All Works in connection with the requirement above to be carried out in full compliance with both applicable Standard and the requirements of the local supply authority. It is the responsibility of the Contractor to establish the type of earthing system present at the site and include for all supply authority requirements.
- 101 All conductors bonded to pipes to be fixed using clamps with warning notices to applicable Standard requirements.
- 102 All electrical Work must be certified to British Standard on completion, including all wiring, fittings and making good etc., and relevant electrical installation or minor electrical installation works certificate shall be issued on completion.

Electrical Inspection and Test

- 103 As part of the undertaking of the survey and consultation on Customer choice, prior to undertaking any Works, carry out a full inspection on the electrical installation within the Property and provide a written report in the form of an Electrical Installation Condition Report. On completion of any alterations or Works provide "Minor Electrical Installation Works or Electrical Installation Certificate to the applicable Standard as applicable. ***(Not Applicable if Kitchen also being renewed in same Property)***

Spurs (Label)

- 104 Engrave/label all existing and new switched or fixed fused spurs identifying their function.

Switch face plates

- 105 Where retained, replace all existing switch face plates and pull cord switches with new.
- 106 All switch and socket fittings to be from one manufacturer.
- 107 Where none exists, supply and install a mains operated optical smoke detector in each of the circulations spaces and main habitable room with a mains operated heat detector in the kitchen
(Not Applicable if Kitchen also being renewed in same Property)

Builders Works

- 108 Include for all builders works in installing new electrical fittings. Builders works to include chasing, re-plastering, cutting out plasterboard and making good, and everything necessary in order that all new wiring is concealed and NOT surface run.

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Redecorations

- 109 Upon completion at the discretion of the Client's Representative, the complete bathroom, and all disturbed areas are to be fully redecorated, including all previously decorated areas, and any areas intended for decoration.

Ceilings

- 110 Prepare ceilings for decoration by washing down with sugar soap, removing all grease and dirt, scraping off all loose paint, stopping in cracks and imperfections and stabilising surfaces. Provide and apply two coats of brilliant white quick drying eggshell finish paint

Walls

- 111 Strip all wallpapers and thoroughly wash all walls, rake out and fill all cracks and minor surface imperfections, rub down to afford a smooth finish. Allow to size and hang 1200g lining paper. Provide and apply one mist coat and two coats of quick drying eggshell finish paint.
- 112 **Note:** If existing wall plaster is reasonable and lining paper not required – Client would prefer walls to be painted only and no lining paper.
- 113 Customers are to be offered a colour choice.

Joinery

- 114 Rub down all previous painted woodwork, scrape back loose paint and rub down to feather edge. Knot, prime and stop bare patched areas and rub down smooth. Fill all cracks and surface imperfections with flexible timber filler and rub down to afford a smooth finish.
- 115 Provide and apply one undercoat and one coat white full gloss interior paint to all internal faces of windows, skirtings, other previously painted surfaces and kitchen doors and frames room side
- 116 To all previously stained joinery lightly rub down and apply two coats of high gloss wood stain finish similar colour to existing.

Metal Pipes and Other Metal Work

- 117 Prepare all metal work including all exposed radiators, pipes, water pipes and all metal work etc by cleaning and applying two coats of satinwood paint generally same colour as background except for radiators which are to be brilliant white.

Miscellaneous Repairs

- 118 Miscellaneous repairs are included where applicable within the pricing schedule for each Property and will be subject to prior agreement, measurement and pricing in line with the tendered submission.

Bathrooms with Level Access Shower Tray

- 119 The requirements of the Specification for Bathrooms apply equally to Bathrooms with level access shower trays.
- 120 This project comprises the replacement of existing sanitary fittings to bathrooms and toilets, and the replacement of wall tiling, some plastering repairs, and the replacement of wastes and pipework within the bathrooms and toilets, including the boxing in of pipes and in some cases new pipework to fittings that were not placed before. There are also replacement electrical fittings and wiring.

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- 121 Demolition: Carefully remove existing sanitary fittings, service pipework within the room/s, waste and overflows, floor finishes, wall tiling, bathroom/toilet fittings and the like, make good all disturbance and dispose of all debris. Take down and set aside for reuse, any Customer's fittings or fixtures. Refix on completion.
- 122 Bathrooms with a level access shower tray in lieu of a bath are to be provided with the following:
- 123 Supply and install to timber floor front or corner entry level access shower tray complete with weighted full shower curtain as required, and ceiling secured track, tray recessed into floor boarding or sitting on floor joists, complete with gravity waste, make all necessary connections to waste pipe, seal joint between tray and wall with silicone sealant, and make good all finishes, all to be installed in accordance with the manufacturer's technical data sheet, and remove waste and debris.
- 124 Supply and form full height tiling to sides of shower tray in 6.5mm white or coloured ceramic glazed tiles to colour/size of tile choice of Customer as Clause 054.
- 125 Wall tiling to be fixed with waterproof adhesive and neatly pointed in white cement. All exposed edges to be fitted with proprietary plastic rounded edge beading fitted during the course of tiling.
- 126 Seal all junctions between tiling and shower tray with proprietary shower sealing tape and mould resistant sealant to applicable Standard low modulus smoothed into a neat bead. Ensure all surfaces are thoroughly cleaned with methylated spirit before application in order to ensure thorough adhesion.
- 127 Supply and install new 8.7KW or 9.5KW (as specified by Client) electric shower unit to applicable Standard, BEAB, BEAB CARE, RNIB, CE marked and WRAS approved complete with installation set maximum temperature control, phased shut down, low pressure indicator, installation set timer setting, fixed sliding rail, twist and lock shower head mechanism, shower hose with adjustable shower head outlet and soap dish, including plugging walls as necessary, connect to water and electrical supplies including provision of shower circuit including mini-trunking or rigid PVC-u conduit chased to walls etc., incorporating RCBO protection, controlled with 45A DP ceiling switch with neon light or indicator flag, all adjustments to pipework, adjust electrical supply as necessary, fill, test, and undertake tests, provide certificate, and remove all waste.
- 128 Supply and install new chromium plated thermostatic mechanical mixing shower valve to applicable Standard, BEAB CARE, TMV2 and WRAS approved complete with flow regulators, installation set maximum temperature control and fixed sliding rail, twist and lock shower head mechanism, shower hose with adjustable shower head outlet and soap dish including plugging walls as necessary, install service valves in an accessible position, extend hot and cold water supply pipework and fittings as necessary and connect to mixer, all builders work, fill test, and undertake tests and remove all waste.
- 129 The provision of a pumped waste if required will be reimbursed at the rates in the Schedule of Rates.
- 130 The provision of a pumped supply to the shower will be reimbursed at the rates in the Schedule of Rates.
- 131 The provision of a shower seat or wheelchair height soap dishes if required will be reimbursed at the rates in the Schedule of Rates

Creation of Wet Room

- 132 The requirements of the Specification for Bathrooms apply equally to Bathrooms which are converted to Wet Rooms.
- 133 Bathrooms which are to be converted to wet rooms are to be provided in addition to a new WC suite and wash hand basin with the following:
- 134 All walls are to be fully tiled in 6.5mm white or coloured ceramic glazed tiles to colour/size of tile choice of Customer.

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- 135 Wall tiling to be fixed with waterproof adhesive and neatly pointed in white cement. All exposed edges to be fitted with proprietary plastic rounded edge beading fitted during the course of tiling.
- 136 Seal all junctions between tiling and flooring upstand with white silicon rubber sealant smoothed into a neat bead. Ensure all surfaces are thoroughly cleaned with methylated spirit before application in order to ensure thorough adhesion.
- 137 The floor is to be screeded to falls and crossfalls to and including a new trapped floor drain complete with waste pipework.
- 138 All floor coverings to be 2mm thick anti slip safety sheet floor coverings to applicable Standard and to have a Pendulum test value (PTV or slip resistance value) (36+ (CoF) or above) as tested to applicable Standard and a Surface roughness (Rz) (20+µm (microns) or above) to applicable Standard to ensure complete waterproofing to room with 150mm upstands. Floor covering to be complete with aluminium threshold strips at doors
- 139 Customers are to have a choice of colour from up to 16 colour shades for the products.
- 140 Note: Include for coved 150mm high welded joint vinyl skirtings below bath panel toe upstands, set over cove formers and with coved cappings.
- 141 Supply and install new 8.7KW or 9.5KW (as specified by Client) electric shower unit to applicable Standard, BEAB, BEAB CARE, RNIB, CE marked and WRAS approved complete with advanced temperature stabiliser for constant temperature control, phased shut down, low pressure indicator, installation set timer setting, fixed sliding rail, twist and lock shower head mechanism, shower hose with adjustable shower head outlet and soap dish , including plugging walls as necessary, connect to water and electrical supplies including provision of shower circuit including mini-trunking or rigid PVC-u conduit chased to walls etc., incorporating RCBO protection, controlled with 45A DP ceiling switch with neon light or indicator flag, all adjustments to pipework, adjust electrical supply as necessary, fill, test, and undertake tests, provide certificate, and remove all waste.
- 142 Supply and install new chromium plated thermostatic mechanical mixing shower valve to applicable Standard, BEAB CARE, TMV2 and WRAS approved complete with flow regulators, installation set maximum temperature control and fixed sliding rail, twist and lock shower head mechanism, shower hose with adjustable shower head outlet and soap dish including plugging walls as necessary, install service valves in an accessible position, extend hot and cold water supply pipework and fittings as necessary and connect to mixer, all builders work, fill test, and undertake tests and remove all waste.
- 143 Provide and install weighted full shower curtain as required complete with ceiling secured track.
- 144 If Carer half screens are required these will be reimbursed at the rates in the Schedule of Rates.
- 145 The provision of a pumped waste if required will be reimbursed at the rates in the Schedule of Rates.
- 146 The provision of a pumped supply to the shower will be reimbursed at the rates in the Schedule of Rates.
- 147 The provision of a shower seat or wheelchair height soap dishes if required will be reimbursed at the rates in the Schedule of Rates

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Additional Requirements in respect of Disabled Adaptation Works

The following Paragraphs are to apply in addition to paragraph's 001 to 140

Respite Facility Requirements

- 148 A number of Properties have their own facilities which can be utilised as respite facilities. At these Properties it is not anticipated that there will be any need for respite facilities to be provided by the Provider.
- 149 Where Works are likely to be disruptive (e.g. replacing the only bathroom and toilet in the dwelling) the Customers will need to be out of the building at the key stages of work (normally strip out and up to carcasses going in). In these Properties there may be a need for the Client to help accommodate the Customers going out for day trips or short breaks to get the Provider through these key stages.
- 150 In addition to the above there are some Properties where the Customers live independently but suffer from mental health or learning difficulties. In these Properties it may be necessary (if Client cannot arrange for the Customer to visit family or be out for day) for the Provider to provide respite facilities at key parts of the project. This may be necessary to prevent the operatives from being distracted from the delivery of their work and to protect the Customers from injury due to possible lack of perception over risks. The reasonable cost of any respite care or facilities provided by the Provider will be reimbursed by the Client.

Generally:

- 151 Works should be delivered in line with the guidance set out by the Occupational Therapist in respect of the Works required to individual Properties.
- 152 Under no circumstances is the Provider to cold call to the Disabled Adaptation Properties. All access is to be arranged in advance of any visit to survey the Property or to undertake the Works.
- 153 Extensive disabled adaptations may be needed at some of the Properties. Where they are indicated the Provider must be prepared to accommodate specific needs for some Customers in their costing proposals and these are to be priced as an extra over addition or reduction to the Kitchen and Bathroom costs.
- 154 Customers' needs do change quite rapidly this is to be ascertained by the Occupational Therapist at the design consultation stage.
- 155 Make allowance in his Tendered rates for all meetings that may be required with the Occupational Therapists and Customers to discuss the requirements of the Disabled Adaptations to be undertaken.
- 156 Works will be ordered on an individual Property or shared house (communal works) basis for Disabled Adaptations

Access and Security:

- 157 Any dustsheets and or protection must be trip hazard free. For the Client's Properties the tolerance for trip and slip hazards is much less so all protection must be trip and slip hazard free. Edges and joints must be flush with the areas they are protecting and the materials used must be non-slip.

Completion:

- 158 Builders rubbish must all be cleared at the completion of each day's work and removed from the site and estate. If the Provider has a secured waste facility (skip) on site waste will only have to be removed to this point at the end of each day's work.

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Floor Coverings:

- 159 In areas where a continuous sheet floor is needed, the position of welded joints must be confirmed with the Client's Representative prior to floor covering being laid. Floors with welded up stands to skirtings and plinths or skirting formers may be needed at some schemes this is to be checked as part of the design of the kitchen, bathroom or wet room.

Renewal of Bathroom Fitments

- 160 The bathrooms often cater for a range of disabilities and vulnerabilities and may be larger than a standard bathroom. They often house specific bits of bathing equipment and in some instances tracks and hoist for lifting Customers. The Provider will have to liaise with the servicing or manufactures of the equipment if it is to be moved to enable the Works to be undertaken.
- 161 In all Properties, lever taps should be an option that is offered within the design.
- 162 Some Customers will need extra handrails and possibly walk in showers provided due to their reducing mobility or health. The extent and number of such installations is to be approved by the Client's Representative as part of the design approval process.
- 163 Some schemes may need multiple sinks, Bidets, and or raised height WC.
- 164 The bathroom designs/proposals must be approved by the Client's Representative.
- 165 WC seats to be solid construction (wood, PVC-u or similar approved). They are to be bolt fitted to WCs, all hinges and bolts to be heavy duty robust stainless steel or similar approved.

Other extra or specialist appliances to Bathrooms etc:

- 166 Appliances or equipment which is to be re used are to be set aside and carefully stored to refit unless otherwise directed by the Occupational Therapist. The Client SHALL NOT be held liable for repairs or replacement and extreme care shall be taken where appliances are to be re used. Where defects are noted and repairs are uneconomical, the Client's Representative should be advised for replacement.
- 167 All appliances to be plumbed in with isolating valves where none exist, connected and left in full working order.
- 168 If new appliances, hoists etc., are provided by the Provider Give full directions for use of new appliances with accompanying manufacturer's technical data sheet left on site.
- 169 If the Provider is Instructed by the Client's Representative to supply appliances, disability hoist, specialist baths or automatic wc's for the Customer then the cost of theses must be invoiced separately. All appliances instructed to be supplied will be reimbursed at the rates in the Schedule of Rates or in accordance with Paragraph 4.4 of the Price Framework Rules.

Thermostatic mixing valves:

- 170 Thermostatic mixing valves (TMV) will be needed to Properties (where required) and they must be offered at the design stage. TMV's are to be set to a maximum of 43 Centigrade. Each installation is to be certified by the Provider and confirmation of the temperature settings given as part of the hand over /sign off and Health and Safety file information.

Electrical works:

- 170 The Provider is to PAT test all existing electrical appliances that are included or used in the bathroom, this work is reimbursed at the rates in the Schedule of Rates.

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Redecorations:

- 171 A sachet of MGC or other equal and approved anti mould agent must be added to paint to be applied in the kitchens and bathrooms to supported housing. Ceilings to be white, walls to be coloured emulsion from applicable Standard colour index (selected range), Customer to confirm colour choice.

Client’s current manufacturers/suppliers/products

- 172 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

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Bathroom/Toilet Installation Example Check List
[Client to amend check list as appropriate]

Item	Work Description	Deemed included within All-in Bathroom Renewal Rates	Reimbursed through Schedule of Rates
	General		
1.0	Remove and dispose of existing sanitary fittings, flooring, wall tiles etc.	✓	
1.1	Patch plaster walls for decorations following strip out, area not exceeding 2m2	✓	
1.2	Protect existing windows and door. Apply protective tape to any PVC-u window frame.	✓	
	Plumbing	✓	
2.1	Provide plumbing to bath, wash hand basin and wc in bathroom. Provide plumbing to wash hand basin and wc in separate toilet.	✓	
2.2	Install bath, wash hand basin and wc in bathroom including service valves, mixer taps etc.	✓	
2.3	Install wash hand basin and wc in separate toilet including service valves, mixer taps etc.	✓	
2.4	Supply and fix new 42mm and 38mm white PVC-u waste from bath and wash hand basin into existing gullies or soil and vent pipes.	✓	
2.5	Supply and fix new 38mm white PVC-u waste from wash hand basin in separate toilet into existing gully or soil and vent pipe.	✓	
2.6	Reposition radiator, new heating pipework.		✓
2.7	Replace existing or fit new stopcock in existing position.		✓
2.8	Provide and install adjustable height shower rail.	✓	
2.9	Provide and install anodised aluminium curtain track and showerproof plastic weighted shower curtain.	✓	
2.10	Renewal of galvanised cold water storage cistern or tank in loft space with moulded 227 litre tank complete with lid and insulation as Clause 060 of Plumbing.		✓
2.11	Renewal of galvanised steel or lead cold water rising main with insulated copper pipework including all fittings, stop valves etc.		✓

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Item	Work Description	Deemed included within All-in Bathroom Renewal Rates	Reimbursed through Schedule of Rates
	Electrical		
3.0	As part of the survey and consultation on Customers choice, carry out a full inspection on the electrical installation within the property and provide a written report in the form of an Electrical Inspection Condition Report.		✓
3.1	Isolate, disconnect and remove existing fan spur and light switches. Strip out obsolete wiring.	✓	
3.2	Rewire power distribution back from existing consumer unit location. Utilise existing conduits where possible or chase in new PVC-u conduit, to facilitate minimum 10mm- plaster coverage.	✓	
3.3	Replace consumer unit in accordance with applicable Standards and IET On-Site Guide on receipt of Instruction from Client's Representative.		✓
3.4	Carry out all Code 1 and 2 recommendations to electrical installation outside of bathroom on receipt of Instruction from Client's Representative.		✓
3.5	On completion, all work is to be tested as laid down in applicable Standards and the current IET on-site guide. An electrical installation certificate or minor electrical installation works certificate will be provided as appropriate.	✓	
3.6	Installation of supplementary equipotential bonding.	✓	
3.7	Installation of main equipotential earth bond.	✓	
3.8	Supply and install enclosed light fitting with white body finish, 28w 2D lamp, high frequency gear and clear prismatic diffuser IP65 rated.	✓	
3.9	Provision of light switch.	✓	
3.10	Provide and install extract ventilation fan with integral automatic back-draught shutters.	✓	
3.11	Check operation of cylinder immersion heater.	✓	
3.12	Renew cylinder thermostat with combined rod cylinder thermostat and resettable safety cut out.	✓	
3.13	Provide and install ne 8.7KW electric shower complete with circuit, 20 amp fused pull switch, RCBO etc., and connect to electrical and water supplies.		✓
3.14	Provision of hard wired Smoke Detectors to dwelling if not existing or currently battery operate.		✓
3.15	Provision of Heat Detector to kitchen of not existing or currently battery operated.		✓

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Item	Work Description	Deemed included within All-in Bathroom Renewal Rates	Reimbursed through Schedule of Rates
	Wall tiling		
4.0	Remove existing wall tiling. Making good plaster as necessary prior to retiling this is addition to item 1.1.	✓	
4.1	Supply and install 6.5mm ceramic full height to three sides of bath. Tiling to be carried out to internal windowsills.	✓	
4.2	Supply and install 6.5mm ceramic wall tile splashback above wash hand basin. Tiling to be carried out to internal window sills.	✓	
4.3	White waterproof grout to tile areas and polish to smooth clean dust free finish.	✓	
4.4	Seal joint of the bath and wash hand basins and tile with white fungicidal silicone mastic.	✓	
4.5	Provide tile trim to all external angles.	✓	
	Flooring		
5.0	Uplift and dispose of existing floor covering regardless of floor area.	✓	
5.1	Prepare and level existing solid floor surface with self levelling screed regardless of floor area.	✓	
5.2	Boarded floors to be overlaid with 3.5mm hardboard pinned at 150mm centres regardless of floor area.	✓	
5.3	Supply and lay floor covering in accordance with flooring specification to include flooring under WC regardless of floor area.	✓	
5.4	Seal all junctions between flooring, and skirting with matching flexible sealant.	✓	
5.5	Provide coved former and coved upstand to bath panel.	✓	
	Decorating		
6.0	Prepare, undercoat and one gloss coat: - doors, architrave, skirting, radiators, window and all other internal joinery in bathroom and separate toilet any size.		✓
6.1	Ceilings to be thoroughly prepared and painted with 2 coats white vinyl emulsion in bathroom and separate toilet any size.		✓
6.2	Strip wall paper in bathroom and separate toilet any size.		✓

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Item	Work Description	Deemed included within All-in Bathroom Renewal Rates	Reimbursed through Schedule of Rates
6.3	Prepare walls for decorations in bathroom and separate toilet any size.		✓
6.4	Apply two coats of eggshell to walls in bathroom and separate toilet any size.		✓
6.5	Apply mist coat of eggshell to all new plaster work regardless of area.		✓
6.6	Line walls with minimum 1200 grade lining paper to manufacturer's technical data sheet.		✓
6.7	Make good pattern to ceiling any size area.		✓
6.8	Apply stain sealer coat to ceiling any size and walls where required.		✓
	Carpentry		
7.0	Install missing skirting to match existing regardless amount.	✓	
7.1	Construct non-removable boxing of pipework in any number of length/s with access panel/s if required.	✓	
7.2	Adjust internal door to bathroom and separate toilets (max 2) if required and service all furniture and fittings re hang if required.	✓	
7.3	Provide and install bath panel as specified.	✓	
	Insulation		
8.1	Installation of 65mm dry lining.		✓
8.2	Installation of minimum 270mm insulation to loft space.		✓

DOMESTIC CENTRAL HEATING INSTALLATIONS

PERFORMANCE SPECIFICATION FOR HEATING INSTALLATIONS

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

PERFORMANCE SPECIFICATION FOR HEATING INSTALLATIONS

SPECIAL CONDITIONS

Special Conditions

- 001 The following special conditions apply to all new boiler central heating and hot water services installations and boiler replacement and boiler renewal installations.
- 002 Retain GAS SAFE, OFTEC or HETAS registration All operatives, engineers and technicians shall be suitability qualified.
- 003 Provide a full list of the operatives who will be involved in the Contract prior to the commencement date. This list shall include the operatives' names, career history, qualifications, etc.
- 004 This information shall be updated as and when required throughout the duration of the Contract.
- 005 **Note that following completion of the works, a 24 hour, 7 days/week, including Public Holidays, emergency call-out service shall be provided for the duration of the 12 months Defects Liability Period.** The emergency call-out number shall be provided on a sticker placed on the boiler enclosure.
- 006 Provide written notification of all emergency call-outs giving details of faults/defects and response times which should be countersigned by the Customer.

Provider Design

- 007 Undertake Design responsibilities for the new domestic central heating and hot water services installations, or for the boiler replacement/renewal installations.
- 008 Provide a statement of skills, knowledge and experience which will cover:
- Membership of a relevant professional body.
 - Familiarity with the construction processes in the circumstances of the project and the impact of design on Health and Safety.
 - Awareness of relevant Health and Safety and fire safety legislation and appropriate risk assessment methods.
 - The Health and Safety practices of the designer for Design work carried out.
 - The people to be employed to carry out the work, their skills and training, this is likely to include external resources where necessary and is to be reviewed in association with the design requirements.
 - Technical facilities to support the Design, particularly in the circumstances of the project.
 - The method of communicating Design decisions.
 - How information and instructions will be communicated to the Customer's. Ideally this should be provided by a person with specific training, e.g. City and Guilds in Energy Advice.
 - This information shall be forwarded to the Client's Representative.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

INSTALL AND MAINTAIN REPLACEMENT GAS (WALL MOUNTED CONDENSING BOILER) CENTRAL HEATING SYSTEM

Replacement operations will be as follows and to include all labour and materials necessary for the completion of the installation

Design

- 009 Undertake an initial survey of each Property and prepare and submit the Design information for the replacement of the heating system in compliance with the Client's Specification.
- 010 Submit a completed "Survey Schedule and Cost Estimate" to the Client's Representative for clearance and approval.
- 011 Undertake all necessary Customer consultation.
- 012 Obtain all necessary statutory approvals; for the Works (including the payment all necessary fees and administration charges in connection therewith).

Removal of Existing System

- 013 Carefully draining down, disconnection and removal of the complete existing Client's and or Customer installed heating system; remove/seal off as necessary all pipe work thereto, remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and insert permanent ventilator and extend and make good plaster, skirting to match existing.
- 014 Remove all redundant radiators and exposed pipe work as necessary and remove the feed and expansion cistern, all pipe work, and insulation and any support platforms. The hot water cylinder, pipe work, immersion heaters, insulation and support stool are also to be removed. All existing electric cable, conduit and accessories shall be removed and all surfaces made good.

Replacement installation

- 015 Supply temporary heat (a minimum two 3 Kilowatt electric panel type heaters having time and temperature control; for the complete duration of the Works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.
- 016 Ensure that Customer's property and possessions are protected with the Property cleaned at the end of each working day and on completion of all of the Works.
- 017 Supply and install a gas wall mounted condensing boiler complete with fixing gig and all gas pipe work connections thereto, including any alterations to existing and all new heating pipe work, domestic hot and cold-water pipe work as applicable; all pipe work insulation, all condensate pipe work to waste or gully or to and including construction, if necessary, of a soak-a-way.
- 018 Supply and install a complete boiler flue to comply with applicable Standard, all in accordance with the boiler manufacturer's flue options where necessary, with a flue terminal wire guard if required, including forming all structural openings and all necessary builders work and making good.
- 019 Supply and install a fireproof ceiling above a boiler if located in a store or below stairs as required.
- 020 Supply and install eaves/guttering protection heat shields above flue terminal. Supply and install a plume kit.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

- 021 Supply and install in all habitable rooms a radiator to provide the calculated heat output required in each Property type, including grounds to stud walls where required. Rear halls and porches are not deemed to be a habitable room.
- 021A Supply and install new heating circulator complete with valves, including dedicated electrical circuit and flexible cable connection to the pump.
- 022 Thermostatic radiator valves to be fitted to all rooms fitted with a radiator except in rooms where a controlling room thermostat (standard or programmable is fitted).
- 023 Supply and install a lock shield radiator valve to all rooms fitted with a radiator, including an additional lock shield valve in lieu of a thermostatic valve where the room thermostat is fitted.
- 023A The control of space heating and hot water systems shall be provided with time and temperature control in accordance with the Client's Specification including electrical circuit and all connections to each item of control equipment.
- 024 Supply and install new feed and expansion cistern, complete with insulation jacket, support platform, lid, float valve, overflow and warning pipework.
- 025 Supply and install new hot water cylinder, complete with factory fitted foam insulation, 3kW immersion heater, cylinder stool including new dedicated electrical circuit having a heating boost switch and new flexible cable connection to the immersion heater.
- 026 Provide a tiled fire surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, with an electric inset focal point fire provided, including dedicated electrical circuit and flexible cable connection to the fire from DP switch concealed within the fabric of the building.
- 027 Undertake the Design, install and test all new dedicated electrical circuits in accordance with the applicable Standards for electrical installations for:
- Gas boiler installation including heating/hot water system control and all accessories;
 - Boiler house/compartments light circuit including bulkhead fitting and lamp where required;
 - Electric inset electric focal point fire circuit including flexible cable;
 - Electric immersion heater circuit including heating boost switch circuit and flexible cable;
- 028 Provide all labels where necessary, test and provide to the Client an EIC (Electrical Installation Certificate) for all Works completed.
- 029 Where necessary provide ventilated pipe casings to all gas pipe work in accordance with GSUIR.
- 030 Make good/replace as necessary insulation to all exposed pipe work in roof space and all necessary new insulation to pipelines in accordance with the Client's specification.
- 031 Provide all necessary pipe casings to pipe work where exposed. All pipe casings to be painted with 2 No. coats of undercoat and finished with one coat of white gloss paint.

Completion

- 032 On completion of the replacement installation of a boiler and hot water system, together with associated equipment such as pipe work, circulating pump, radiators and system controls, the Provider shall check the system for air locks and vent as necessary and the system and all equipment should be tested and commissioned in accordance with the manufacturer's technical data sheet.
- 033 Provide the fuel for testing.
- 034 The heating system is to be thoroughly cleaned and flushed out before the installation of a new boiler.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

- 035 During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.
- 036 Upload unto the Client's IT system, all test certificates and records as requested in the Client's specification.
- 037 Give the Customer sufficient information about the Property, including operational and maintenance instructions of the installed building services and controls and other details so that each Property can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances.
- 038 Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:
- How to make adjustments to the timing, temperature and flow control settings; and
 - What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life
- 039 Provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/booklets for each major component.
- 040 Notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning Works.
- 041 Upload the Health & Safety File to the Client's IT system in accordance with the current CDM (Construction Design Management) Regulations, on completion of the works.

Boiler Manufacturer's Warranty

- 042 The Work will also include the provision of a manufacturer providing evidence of a warranty for each boiler installed by the Provider.
- 043 The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.
- 044 The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the Provider but is transferable to the Client's new Provider either after the end date of this Contract or upon termination of the Contract.
- 045 The Client will undertake to have the warranted boiler installed under this Contract.
- 046 The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

Provider's Central Heating Warranty

- 047 The work will also include the provision of a Provider's warranty for each replacement central heating system installed by the Provider and this warranty must provide for the following features
- 048 The warranty guarantees the repair of all defects and any Customer's misunderstanding or abuse to the replacement central heating system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Routine and Responsive Maintenance Service

- 049 For the avoidance of doubt, the replacement central heating system installed under this part of the service, with immediate effect, is repaired by the Provider under the routine and response maintenance service of this Contract, however while the replacement central heating system is under the Provider's 12 month warranty, no payment will be made for the installation under the routine and responsive maintenance service during this time.
- 050 As part of the Provider's routine and responsive maintenance service of this Contract the Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer's warranty.

INSTALL AND MAINTAIN REPLACEMENT GAS (COMBINATION CONDENSING BOILER) CENTRAL HEATING SYSTEM

Replacement operations will be as follows and include all labour and materials necessary for the completion of the installation

Design

- 051 Undertake an initial survey of each Property and prepare and submit the Design information for the replacement of the heating system in compliance with the Client's Specification.
- 052 Submit a completed "Survey Schedule and Cost Estimate" to the Client's Representative for clearance and approval.
- 052A Undertake all necessary Customer consultation.
- 053 Obtain all necessary statutory approvals for the Works; (including the payment of all necessary fees and administration charges in connection therewith).

Removal of Existing System

- 054 Carefully draining down, disconnection and removal of the existing Client's and or Customer installed heating system; remove/seal off as necessary all pipe work thereto, remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and install a permanent ventilator and extend and make good plaster, skirting to match existing.
- 055 Remove all redundant radiators and exposed pipe work as necessary, remove the feed and expansion cistern, the cold water storage tank, all pipe work, and insulation and any support platforms. The hot water cylinder, pipe work, immersion heaters, insulation and support stool are also to be removed. All existing electric cable, conduit and accessories shall be removed and all surfaces made good.

Replacement installation

- 056 Supply temporary heat (a minimum of two 3 Kilowatt electric panel type heaters; having time and temperature controls); for the complete duration of works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.
- 057 Ensure that Customer's property is protected, and the Property cleaned at the end of each working day and on completion of all of the Works.
- 058 Supply and install a gas wall mounted combination boiler complete with fixing gig; all gas pipe work connections thereto, including any alterations to existing and all new heating pipe work and domestic hot and cold-water pipe work as applicable; pipe work insulation; all condensate pipe work to waste or gully or to and including construction, if necessary, of a soak-a-way.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

- 059 Supply and install complete boiler flue to comply with the applicable Standards, all in accordance with the boiler manufacturer's flue options; with a flue terminal wire guard if required, including forming all structural openings; all builders work and making good.
- 060 Supply and install a fireproof ceiling above a boiler if located in a store or below stairs as required.
- 061 Supply and install eaves/guttering protection heat shields above flue terminal. Supply and install a plume kit.
- 062 Supply and install in all habitable rooms a radiator to provide the calculated output required in each Property type; including grounds to stud walls where required.
- 063 Supply and install new heating circulator complete with valves, including dedicated electrical circuit and flexible cable connection to the pump.
- 064 Thermostatic radiator valves to be fitted to all rooms with a radiator except in rooms where a controlling room thermostat (standard or programmable is fitted).
- 065 Supply and install a lock shield radiator valve to all rooms fitted with a radiator, including an additional lock shield in lieu of a thermostatic valve where the room thermostat is fitted.
- 066 The control of space heating system shall be provided with time and temperature control in accordance with the Client's Specification including electrical circuit and all connections to each item of control equipment.
- 067 Replace the existing wc cistern valve with new high-pressure valve where required and include for installing a pressure reduction valve and pressure vessel where necessary.
- 068 Make good/replace as necessary insulation to all exposed pipe work in roof space and all necessary new insulation to pipelines, where applicable.
- 069 Supply and install a tiled surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, together with an electric inset focal point fire provided, including dedicated electrical circuit and flexible cable connection to the fire from DP switch concealed within the fabric of the building.
- 070 Undertake the design, install and test all new dedicated electrical circuits in accordance with in accordance with the applicable Standards for electrical installations for:
- Gas boiler installation including heating system control and all accessories;
 - Electric Boiler house/compartment light circuit including bulkhead fitting and lamp where required;
 - Electric inset electric focal point fire circuit including flexible cable;
- 071 Supply and install fireproof ceilings above boiler if located in a store or under stairs as required.
- 072 Supply and fix labels where necessary, test and upload unto the Client's IT system a EIC (Electrical Installation Certificate) for all Works completed.
- 073 Where necessary provide ventilated pipe casings to all gas pipe work in accordance with GSUIR.
- 074 Make good/replace as necessary insulation to all exposed pipework and all necessary new insulation to pipelines, in accordance with the Client's Specification.
- 075 Provide all necessary pipe casings to pipework where exposed. All pipe casings to be painted 2 No. coats of undercoat and 1 No. coat of white gloss paint.

Completion

- 076 On completion of the replacement installation of a boiler and hot water system, together with associated equipment such as pipe work, circulating pump, radiators and system controls, the Provider shall check the system for air locks and vent as necessary and the systems and all equipment shall be tested and commissioned in accordance with the manufacturer's technical data sheet.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

- 077 Provide the fuel for testing.
- 078 The heating system to be thoroughly cleaned and flushed out before installing a new boiler. During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.
- 079 Upload to the Client's IT system, all test certificates and records as requested in the Client's Specification.
- 080 Give the Customer sufficient information about the Property, including operational and maintenance instructions of the installed building services and controls and other details so that each Property can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances.
- 081 Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:
- How to make adjustments to the timing, temperature and flow control settings; and
 - What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life.
- 082 Provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturer's operational instructions/booklets for each major component.
- 083 Notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning works.
- 084 Upload the Health & Safety File to the Client's IT system in accordance with the current CDM (Construction Design Management) Regulations, on the completion of the Works.

Electrical Installations

- 085 Undertake as part of the installation of a new/replacement gas or oil fired or biomass central heating installation, checking and testing all electrical installations and fittings associated with the Heating Installations and Heating Appliances covered by this Contract, so as to ensure their safe operation.
- 086 All remedial work will comply fully with the applicable Standards for electrical installations.

Manufacturers Boiler Warranty

- 087 The work will also include the provision of a manufacturer providing evidence of a warranty for each boiler installed by the Provider.
- 088 The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.
- 089 The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the Provider but is transferable to the Client's new Provider either after the end date of this Contract or upon termination of the Contract.
- 090 The Client will undertake to have the warranted boiler installed under this Contract.
- 091 The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Provider’s Central Heating Warranty

- 092 The Work will also include the provision of a Providers warranty for each replacement central heating system installed by the Provider and this warranty must provide for the following features.
- 093 The warranty guarantees the repair of all defects and any Customer’s misunderstanding or abuse to the replacement central heating system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

Routine and Responsive Maintenance Service

- 094 For the avoidance of doubt, the replacement central heating system installed under this part of the service, with immediate effect, is repaired by the Provider under the routine and responsive maintenance service of this contract, however while the replacement central heating system is under the Provider’s 12 month warranty, no payment will be made for the installation under the routine and responsive maintenance service during this time.
- 095 As part of the Providers routine and responsive maintenance service of this Contract the Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer’s warranty.

INSTALL AND MAINTAIN REPLACEMENT GAS (CONDENSING SYSTEM BOILER) CENTRAL HEATING SYSTEM

Replacement operations will be as follows and include all labour and materials necessary for the completion of the installation

Design

- 096 Undertake an initial survey of each Property and prepare and submit the Design information for the replacement of the heating system in compliance with the Client’s Specification.
- 097 Submit a completed “Survey Schedule and Cost Estimate” to the Client for clearance and approval.
- 098 Undertake all necessary Customer consultation.
- 099 Obtain all necessary statutory approvals for the Works (including the payment of all necessary fees and administration charges in connection therewith).

Removal of Existing System

- 100 Carefully draining down, disconnection and removal of the complete existing Client’s and or Customer installed heating system; remove/seal off as necessary all pipe work thereto, remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and install a permanent ventilator and extend and make good plaster, skirting to match existing. The Provider shall remove all redundant radiators and exposed pipe work as necessary , remove the feed and expansion cistern, the cold water storage tank, all pipe work, and insulation and any support platforms. The hot water cylinder, pipe work, immersion heaters, insulation and support stool are also to be removed. All existing electrical cable, conduits and accessories shall be removed and all surfaces made good.

Replacement Installation

- 101 Supply temporary heat (a minimum of two 3 Kilowatt electric panel type heaters; having time and temperature controls: for the complete duration of Works and maintain Customer’s mains electricity supply, mains water supply and bathroom facilities at end of each working day.
- 102 Ensure that Customer’s property is protected and the Property cleaned at the end of each working day and on completion of all of the Works.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

- 103 Supply and install a Gas wall mounted system boiler complete with fixing gig; all gas pipe work connections thereto, including any alterations to existing and all new heating pipe work and domestic hot and cold water pipe work as applicable; pipe work insulation; all condensate pipe work to waste or gully or to and including construction, if necessary, of a soak-a-way.
- 104 Supply and install complete boiler flue to comply with applicable Standards, all in accordance with the boiler manufacturer's flue options; with a flue terminal wire guard if required; including forming all structural openings; all builders work and making good. Provide and install a plume kit.
- 105 Supply and install eaves/guttering protection heat shields above flue terminal.
- 106 Supply and install a fireproof ceiling above a boiler if located in a store or below stairs as required.
- 107 Supply and install in all habitable rooms a radiator to provide the calculated output required in each dwelling type; including grounds to stud walls where required.
- 108 Supply and install new heating circulator complete with valves, including dedicated electrical circuit and flexible cable connection to the pump.
- 109 Thermostatic radiator valves to be fitted to all rooms with a radiator except in rooms where a controlling room thermostat (standard or programmable is fitted).
- 110 Supply and install a lock shield radiator valve to all rooms fitted with a radiator, including an additional lock shield in lieu of a thermostatic valve where the room thermostat is fitted.
- 111 The control of space heating system shall be provided with time and temperature control in accordance with the Client's Specification including electrical circuit and all connections to each item of control equipment.
- 112 Make good/replace as necessary insulation to all exposed pipe work in roof space and all necessary new insulation to pipelines, where applicable.
- 113 Supply and install a tiled surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, together with an electric inset focal point fire provided, including dedicated electrical circuit and flexible cable connection to the fire from DP switch concealed within the fabric of the Property.
- 114 Design, install and test all new dedicated electrical circuits in accordance with the applicable Standards for electrical installations for:
- Gas boiler installation including space heating and system control and all accessories;
 - Electric Boiler house/compartment light circuit including bulkhead fitting and lamp where required;
 - Electric inset electric focal point fire circuit including flexible cable to fire ;
- 115 Supply and fix all labels where necessary, test and upload onto the Client's IT system an EIC (Electrical Installation Certificate) for all Works completed.
- 116 Where necessary provide ventilated pipe casings to all gas pipe work in accordance with GSUIR.
- 117 Make good/replace as necessary insulation to all exposed pipework and all necessary new insulation to pipelines, in accordance with the Client's specification.
- 118 Provide all necessary pipe casings to pipework where exposed. All pipe casings to be painted 2 No. coats of undercoat and 1 No. coat of white gloss paint.

Completion

- 119 On completion of the replacement installation of a boiler and hot water system, together with associated equipment such as pipe work, circulating pump, radiators and system controls, the Provider shall check the system for air locks and vent as necessary and the system and all equipment should be tested and commissioned in accordance with the manufacturer's technical data sheet.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

- 120 Provide the fuel for testing.
- 121 The heating system to be thoroughly cleaned and flushed out before installing a new boiler.
- 122 During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.
- 123 Provide and upload unto the Client's IT system, all test certificates and records as requested in the Client's Specification.
- 124 Provide the Customer sufficient information about the Property, including operational and maintenance instructions of the installed building services and controls and other details so that each Property can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances.
- 125 Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:
- How to make adjustments to the timing, temperature and flow control settings; and
 - What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life.
- 126 Provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/booklets for each major component.
- 127 Notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning works.
- 128 Upload the Health & Safety File to Client's IT system in accordance with the current CDM (Construction Design Management) Regulations, on the completion of the Works.

Manufacturers Boiler Warranty

- 130 The Work will also include the provision of a manufacturer providing evidence of a warranty for each boiler installed by the Provider.
- 131 The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.
- 132 The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the Provider but is transferable to the Client's new Provider either after the end date of this Contract or upon termination of the Contract.
- 133 The Client will undertake to have the warranted boiler installed under this Contract. The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

Provider's Central Heating Warranty

- 134 The Work will also include the provision of a Provider's warranty for each replacement central heating system installed by the Provider and this warranty must provide for the following features. The warranty guarantees the repair of all defects and any Customer's misunderstanding or abuse to the replacement central heating system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Routine and Responsive Maintenance Service

- 135 For the avoidance of doubt, the replacement central heating system installed under this part of the service, with immediate effect, is repaired by the Provider under the routine and responsive maintenance service of this contract, however while the replacement central heating system is under the Providers 12 month warranty, no payment will be made for the installation under the routine and response maintenance service during this time.
- 136 As part of the Provider's routine and responsive maintenance service of this Contract the Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer's warranty.

INSTALL AND MAINTAIN REPLACEMENT OIL (CONDENSING BOILER) CENTRAL HEATING SYSTEM

Replacement operations will be as follows and to include all labour and materials necessary for the completion of the installation

Design

- 137 Undertake an initial survey of each Property and prepare and submit the Design information for the replacement of the heating system in compliance with the Client's Specification.
- 138 Submit a completed "Survey Schedule and Cost Estimate" to the Client's Representative for clearance and approval.
- 139 Undertake all necessary Customer consultation.
- 140 Obtain all necessary statutory approvals; for the Works (including the payment all necessary fees and administration charges in connection therewith).

Removal of Existing System

- 141 Carefully draining down, disconnection and removal of the complete existing Client's and or Customer installed heating system; remove/seal off as necessary all pipe work thereto, remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and insert permanent ventilator and extend and make good plaster, skirting to match existing where required.
- 142 Remove all redundant radiators and existing pipe work as necessary and remove the feed and expansion cistern, all pipe work, and insulation and any support platforms. The hot water cylinder, pipework, immersion heater, insulation and support stool are also to be disconnected and removed. All electric cable, conduits and accessories shall be removed and all surfaces made good.
- 143 Undertake the breaking up and removal of existing concrete/paving slabs boiler house/cabinet bases and existing installed concrete/paving slabs oil storage tank bases either installed by the Client and or a Customer.

Replacement installation

- 144 Supply temporary heat (a minimum of two 3 Kilowatt electric panel type heaters having time and temperature control) for the complete duration of the works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.
- 145 Ensure that Customer's property and possessions are protected and the Property cleaned at the end of each working day and on completion of all of the Works.
- 146 Supply and install an oil fired condensing boiler (outdoor type) complete with concrete base; oil pipe work connections thereto; including any alterations to existing and all new heating pipe work, domestic hot and cold water pipe work as applicable; all pipe work insulation, all condensate pipe work to waste or gully or to and including construction, if necessary, of a soak-a-way.

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- 147 Supply and install a complete low level boiler flue assembly to comply with applicable Standard, all in accordance with the boiler manufacturer's installation instructions, with all flue extensions; bends; supports and a flue terminal wire guard if required. Supply and install a plume kit.
- 148 Supply and install in all habitable rooms a radiator to provide the calculated heat output required in each Property type, including grounds to stud walls if required. Rear halls and porches are not deemed to be a habitable room.
- 149 Supply and install new heating circulator complete with valves, including dedicated electrical circuit and flexible cable connection to the pump.
- 150 Thermostatic radiator valves to be fitted to all rooms fitted with a radiator except in rooms where a controlling room thermostat (standard or programmable is fitted).
- 151 Supply and install a lock shield radiator valve to all rooms fitted with a radiator, including an additional lock shield valve in lieu of a thermostatic valve where the room thermostat is fitted.
- 152 The control of space heating and hot water systems shall be provided with time and temperature control in accordance with the Client's Specification including electrical circuit and all connections to each item of control equipment.
- 153 Supply and install new feed and expansion cistern, complete with insulation jacket, support platform, lid, float valve, overflow and warning pipework.
- 154 Supply and install new hot water cylinder, complete with factory fitted foam insulation, 3kW immersion heater, cylinder stool including new dedicated electrical circuit having a heating boost switch and new flexible cable connection to the immersion heater.
- 155 Supply and install a new bunded oil storage tank in accordance with the Client's Specification; and form base.
- 156 Supply and install oil supply pipe laid in 450 deep trench including breaking/taking up and reinstating paving or concrete of any type and/or grassed topsoil; backfill and disposal of surplus spoil, granular bed/haunching/surround; galvanised or 150 diameter PVC-u ducting including all necessary fittings, filter shut off valve, de- aeration device, and fire valve. Provide an external plastic coated galvanised steel casing to fire valve and/or de- aeration device.
- 157 Supply and install a tiled fire surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, with an electric inset focal point fire provided, including dedicated electrical circuit and flexible cable connection to the fire; from DP switch concealed within the fabric of the Property.
- 158 Undertake the Design, install and test all new dedicated electrical circuits in accordance with the applicable Standards for electrical installations for:
- Oil boiler installation including heating/hot water system control and all accessories;
 - Boiler house/compartment light circuit including bulkhead fitting and lamp where required;
 - Electric inset electric focal point fire circuit including flexible cable to fire;
 - Electric immersion heater circuit including heating boost switch circuit and flexible cable ;
- 159 Supply and fix all labels where necessary, test and upload onto the Client's IT system an EIC (Electrical Installation Certificate) for all works completed.
- 160 Make good/replace as necessary insulation to all exposed pipe work in roof space and all necessary new insulation to pipelines in accordance with the Client's Specification.
- 161 Supply and install all necessary pipe casings to pipe work where exposed. All pipe casings to be painted with 2 No. coats of under coat and finished with one coat of white gloss paint.

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Completion

- 162 On completion of the replacement installation of a boiler and hot water system, together with associated equipment such as pipe work, circulating pump, radiators and system controls, the Provider shall check the system for air locks and vent as necessary and the system and all equipment should be tested and commissioned in accordance with the manufacturer's technical data sheet.
- 163 Provide the fuel for testing.
- 164 The heating system to be thoroughly cleaned and flushed out before installing a new boiler
- 165 During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.
- 166 Upload unto the Client's IT system, all test certificates and records as requested in the Client's Specification.
- 167 Provide the Customer sufficient information about the Property, including operational and maintenance instructions of the installed building services and controls and other details so that each Property can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances.
- 168 Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:
- How to make adjustments to the timing, temperature and flow control settings; and
 - What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life.
- 169 Provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/booklets for each major component.
- 170 Notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning works.
- 171 Upload the Health & Safety File to the Client's IT system, in accordance with the current CDM (Construction Design Management) Regulations and issued to the Client's Representative on the completion of the Works.

Boiler Manufacturer's Warranty

- 172 The Work will also include the provision of a manufacturer providing evidence of a warranty for each boiler installed by the Provider.
- 173 The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.
- 174 The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the Provider but is transferable to the Client's new Provider either after the end date of this Contract or upon termination of the Contract.
- 175 The Client will undertake to have the warranted boiler installed under this Contract.
- 176 The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

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Provider's Central Heating Warranty

- 177 The work will also include the provision of a Provider's warranty for each replacement central heating system installed by the Provider and this warranty must provide for the following features.
- 178 The warranty guarantees the repair of all defects and any Customer's misundertand or abuse to the replacement central heating system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

Routine and Responsive Maintenance Service

- 179 For the avoidance of doubt, the replacement central heating system installed under this part of the service, with immediate effect, is repaired by the Provider under the routine and responsive maintenance service of this contract, however while the replacement central heating system is under the Provider's 12 month warranty, no payment will be made for the installation under the routine and responsive maintenance service during this time.
- 180 As part of the Providers routine and responsive maintenance service of this Contract the Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer's warranty.

INSTALL AND MAINTAIN REPLACEMENT WOOD PELLET BOILER CENTRAL HEATING SYSTEM

Replacement operations will be as follows and to include all labour and materials necessary for the completion of the installation

Design

- 181 Undertake initial survey of each Property and prepare and submit the Design information for the replacement of the heating system in compliance with the Client's Specification.
- 182 Submit a completed "Survey Schedule and Cost Estimate" to the Client's Representative for clearance and approval.
- 183 Undertake all necessary Customer consultation.
- 184 Obtain all necessary statutory approvals for the Works (including the payment all necessary fees and administration charges in connection therewith).

Removal of Existing System

- 185 Carefully draining down, disconnection and removal of the complete existing heating system; remove/seal off as necessary all pipe work thereto, remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and insert permanent ventilator and extend and make good plaster, skirting to match existing.
- 186 Remove all redundant radiators and existing pipe work as necessary and remove the feed and expansion cistern, all pipe work, and insulation and any support platforms. The hot water cylinder, pipe work, immersion heaters, insulation and support stool are also to be removed. All existing electric cable, conduits and accessories shall be removed and all surfaces made good.

Replacement installation

- 187 Supply temporary heat (a minimum of two 3 Kilowatt electric panel type heaters having time and temperature control); for the complete duration of the works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.

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- 188 Ensure that Customer's Property and possessions are protected and the Property cleaned at the end of each working day and on completion of all of the Works.
- 189 Supply and install an Outdoor Wood Pellet boiler in accordance with the Client's Specification; including all alterations to existing and all new heating pipework; and domestic hot and cold water pipework as applicable; pipework insulation; all condensate pipework to waste or gully or to and including construction if necessary of a soak-away.
- 190 Form a base for the boiler with either a concrete or pre-cast concrete flags.
- 191 Where a remote boiler is proposed include for the following; 450 deep trench excavation including breaking/taking up and reinstating paving or concrete of any type and/or grassed topsoil; backfill and disposal of surplus spoil, granular bed/haunching/surround; 150 diameter PVC-u ducting; pipe work; pipe work insulation and electrical cable; automatic air separator complete with A.A.V. and vertical flue support bracket.
- 192 Supply and install manufacturer's recommended vertical flue complete with anti-downdraft cowl. Vertical flues shall be complete with all bends and fittings as necessary as specified and approved by the boiler manufacturers and installed in strict accordance with their instructions.
- 193 Supply and install in all habitable rooms a radiator to provide the calculated heat output required in each Property type, including grounds to stud walls if required. Rear halls and porches are not deemed to be a habitable room.
- 194 Supply and install new circulator complete with valves, including a dedicated electrical circuit and flexible cable connection to the pump.
- 195 Thermostatic radiator valves to be fitted to all rooms fitted with a radiator except in rooms where a controlling room thermostat (standard or programmable is fitted).
- 196 Supply and install a lock shield radiator valve to all rooms fitted with a radiator, including an additional lock shield valve in lieu of a thermostatic valve where the room thermostat is fitted.
- 197 The control of space heating and hot water systems shall be provided with time and temperature control in accordance with the Client's Specification including electrical circuit and all connections to each item of control equipment.
- 198 Supply and install new feed and expansion cistern, complete with insulation jacket, support platform, lid, float valve, overflow and warning pipework.
- 199 Supply and install new hot water cylinder, complete with factory fitted foam insulation, 3kW immersion heater, cylinder stool including new dedicated electrical circuit having a heating boost switch and new flexible cable connection to the immersion heater.
- 200 Supply and install a tiled fire surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, with an electric inset focal point fire provided, including dedicated electrical circuit and flexible cable connection to the fire from DP switch concealed within the fabric of the Property.
- 201 Undertake the Design, install and test all new dedicated electrical circuits in accordance with the applicable Standards for electrical installations for:
- Wood Pellet boiler installation including heating/hot water system control and all accessories;
 - Boiler house/compartment light circuit including bulkhead fitting and lamp where required;
 - Electric inset focal point fire circuit including flexible cable to fire;
 - Electric immersion heater circuit including heating boost switch circuit and flexible cable;
- 202 Supply and fix all labels where necessary, test and upload onto the Client's IT system an EIC (Electrical Installation Certificate) for all Works completed.
- 203 Make good/replace as necessary insulation to all exposed pipe work in roof space and all necessary new insulation to pipelines in accordance with the Client's Specification.

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204 Supply and install all necessary pipe casings to pipe work where exposed. All pipe casings to be painted with 2 No. coats of under coat and finished with one coat of white gloss paint.

Completion

205 On completion of the replacement installation of a boiler and hot water system, together with associated equipment such as pipe work, circulating pump, radiators and system controls, the Provider shall check the system for air locks and vent as necessary and the system and all equipment should be commissioned in accordance with the manufacturer's technical data sheet.

206 Provide the fuel for testing.

207 The heating system to be thoroughly cleaned and flushed out before installing a new boiler.

208 During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.

209 Upload unto the Client's IT system, all test certificates and records as requested in the Client's Specification.

210 Provide the Customer with sufficient information about the Property, including operational and maintenance instructions of the installed building services and controls and other details so that each Property can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances.

211 Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:

- How to make adjustments to the timing, temperature and flow control settings; and
- What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life

212 Provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/booklets for each major component.

213 Notify in writing to the local Building Authority and the Client confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning works.

214 Upload the Health & Safety File to the Client's IT system, in accordance with the current CDM (Construction Design Management) Regulations, on the completion of the Works.

Boiler Manufacturer's Warranty

215 The Work will also include the provision of a manufacturer providing evidence of a warranty for each boiler installed by the Provider.

216 The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.

217 The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the Provider but is transferable to the Client's new Provider either after the end date of this Contract or upon termination of the Contract.

218 The Client will undertake to have the warranted boiler installed under this Contract.

219 The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

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Provider's Central Heating Warranty

- 220 The Work will also include the provision of a Provider's warranty for each replacement central heating system installed by the Provider and this warranty must provide for the following features.
- 221 The warranty guarantees the repair of all defects and any Customer's misunderstanding or abuse to the replacement central heating system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

Routine and Responsive Maintenance Service

- 222 For the avoidance of doubt, the replacement central heating system installed under this part of the service, with immediate effect, is repaired by the Provider under the routine and responsive maintenance service of this contract, however while the replacement central heating system is under the Providers 12 month warranty, no payment will be made for the installation under the routine and responsive maintenance service during this time.
- 223 As part of the Provider's routine and responsive maintenance service of this contract the Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer's warranty.

REPLACEMENT OF EXISTING BOILER (ANY TYPE) WITH OR WITHOUT CONTROLS

Replacement operations will be as follows and to include all labour and materials necessary for the completion of the installation

Design

- 224 Undertake an initial survey of each Property and prepare and submit the Design information for the replacement of the heating boiler in compliance with the Client's Specification. The Provider shall submit a completed "Survey Schedule and Cost Estimate" to the Client's Representative for clearance and approval by the Client's Representative.
- 225 Undertake all necessary Customer consultation.
- 226 Obtain all necessary statutory approvals for the Works (including the payment of all necessary fees and administration charges in connection therewith).

Removal of Existing Boiler

- 227 Carefully draining down, disconnection and removal of the existing Client's and/or Customer installed heating boiler (any type); boiler pipework connections, boiler electrical connections remove/seal off as necessary all pipe work thereto, and make good all works.
- 228 Break up and remove existing concrete/paving slabs boiler house/cabinet bases and existing concrete or paving slabs oil storage tank bases either installed by the Client and/or Customer.

New Boiler Installation (any type) with no controls

- 229 Supply temporary heat (a minimum of two 3 Kilowatt electric panel type heaters having time and temperature control; for the complete duration of the Works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.
- 230 Ensure that Customer's property and possessions are protected and the Property cleaned at the end of each working day and on completion of all of the Works.

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- 231 Supply and install a gas condensing boiler any type, oil fired condensing boiler any type or biomass boiler (outdoor type) complete with boiler fixing gig where applicable, concrete base for outdoor type boiler; oil pipe work connections thereto; including any alterations to existing and all new heating pipe work, domestic hot and cold water pipe work as applicable; all pipe work insulation, all condensate pipe work to waste or gully or to and including construction, if necessary, of a soak-a-way.
- 232 Supply and install a complete low level boiler flue assembly to comply with applicable Standard, all in accordance with the boiler manufacturer's installation instructions, with all flue extensions; bends; supports and a flue terminal wire guard if required. Supply and install a plume kit.
- 233 Supply and install if required a new replacement bunded oil storage tank in accordance with the Client's Specification and form base.
- 234 Include for the gas carcass to be replaced if required from the existing meter cupboard to the gas boiler in all cases and shall extend the carcass to the cooker position in the Kitchen and re-connect the Customer's natural gas cooker appliance including stability chain if not already fitted. If the Customer has an electric cooker, then the gas supply is to be capped off at this point.
- 235 Supply and install if required oil supply pipe laid in 450 deep trench including breaking/taking up and reinstating paving or concrete of any type and/or grassed topsoil; backfill and disposal of surplus spoil, granular bed/haunching/surround; galvanised or 150 diameter PVC-u ducting including all necessary fittings, system filters, shut off valve, de- aeration device, and fire valve provide an external plastic coated galvanised steel casing to fire valve and/or de- aeration device where required.

New Boiler Installation with controls

- 236 Notwithstanding the above identified works for boiler replacement systems with no controls; the following additional works are to be included in the all-in rate for boiler replacement (any type) with controls;
- a) Disconnect and remove existing heating control system equipment and components excluding electrical wiring, and provide and install new replacement programmer, motorised valves, room thermostat, hot water control thermostat, providing new final connections to all control system equipment in accordance with Client's Specification.
 - b) Disconnect existing heating circulator pump excluding electrical wiring and replace with new circulator including valves, providing new final connection to circulator in accordance with Client's Specification.
 - c) Disconnect and remove all existing thermostatic radiator valves to all radiators and replace with new valves in accordance with the Client's Specification.
- 237 All works are to be in accordance with the Client's Specification.

Completion

- 238 On completion of the replacement of a boiler (any Type) (with or with no controls); the Provider shall check the system for air locks and vent as necessary and the system and all equipment should be tested and commissioned in accordance with the manufacturer's technical data sheet.
- 239 Provide the fuel for testing.
- 240 The existing heating system is to be thoroughly cleaned and flushed out before installing a new boiler.
- 241 During the final filling of the system, a chemical water treatment inhibitor meeting the boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.
- 242 Upload to the Client's IT system, all test records and certificates in the Client's Specification.

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- 243 Provide the Customer with sufficient information about the boiler, including operational and maintenance instructions of the installed building services and controls and other details so that each boiler can be operated and maintained in an energy efficient manner to use no more fuel than is reasonable in the circumstances. Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the system efficiently to include:
- How to make adjustments to the timing, temperature and flow control settings; and
 - What routine maintenance is necessary to enable each system to be maintained at reasonable efficiency throughout their service life.
- 244 Provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/ booklets for each major component. The Provider shall perform all duties and carry out all requirements described in Client's Service Information.
- 245 Notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning works.
- 246 Upload the Health & Safety File to the Client's IT system in accordance with the current CDM (Construction Design Management) Regulations, on the completion of the Works.

Boiler Manufacturer's Warranty

- 247 The Work will also include the provision of a manufacturer's warranty for each boiler installed by the Provider. The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 10 years from the date of installation of the boiler.
- 248 The warranty shall be given by the manufacturer directly to the Client and the manufacturer agrees that from the commencement date to the end of the warranty period of the agreement, labour to carry out any repairs is provided by the service but is transferable to the Client's new Provider either after the end date of this Contract or upon termination of the Contract.
- 249 The Client will undertake to have the warranted boiler installed under this Contract.
- 250 The Client will undertake to have the warranted boiler serviced annually either under this Contract or a subsequent contract.

Provider's Defects Liability Period

- 251 The Work will also include the provision of a Providers defects liability period for each boiler replaced by the Provider during which time the Provider will repair all breakdowns and rectify all faults caused by Customer's misunderstanding and/or abuse to the boiler and system at no cost to the Client (including the cost of all parts, labour and any other charges) **for a period of 12 months from the date of installation of the replacement heating system.**

Routine and Responsive Maintenance Service

- 252 For the avoidance of doubt, the replacement boiler installed under this part of the service and the central heating system, with immediate effect, is repaired by the Provider under the routine and responsive maintenance service of this contract, however while the boiler renewal system is under the **Provider's 12 month defects liability period**, no payment will be made for the installation under the routine and responsive maintenance service during this time.
- 253 As part of the Provider's routine and responsive maintenance service of this contract the Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the boiler manufacturer under the boiler manufacturer's warranty.

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Initial Survey

- 254 Following instruction, the Provider shall include for an initial survey of the Property. Access arrangements shall be made direct with the Customer.
- 255 The initial survey for replacement installations will be for the purposes of determining the:
- Information for heat loss calculations, i.e. room/window dimensions, wall construction, number of external walls, cavity wall insulation etc.
 - Layout for radiators, pipework routes, etc.
 - Location of boiler (and cylinder if appropriate).
 - Size and adequacy of pressure of incoming water main.
 - Location of cold water main stopcock.
 - Location for cable routes and adequacy of equipotential bonding.
 - Number and location of extract fans, flues and chimneys.
 - Thickness of existing roof space insulation.
 - Condition of CWS cistern and Bye Law 30 compliance.
 - Condition of insulation to domestic pipe work in roof space.
 - Any dwelling condensation problems.
 - Window frame type: material, glazing type, and condition and if draught proofed.
 - Solid wall, if any.
 - Any other roof insulation and its thickness, e.g. flat roofs.
 - Customer installed appliances
 - LPG or natural gas cooker installation

Continuity of Services

- 256 The Provider will leave the Properties with all services in proper working order at the end of each working day. Under no circumstances shall Customer's be without the use of these services and facilities overnight.
- 257 Ensure that an alternative form of heating is available for the Customer during the period of works. The alternative form of heating will be a minimum of **Two 3kw electric floor standing panel heaters max** (in line with requirements on Gas Breakdowns), with time and temperature controls.

Elderly and Vulnerable Customer's

- 258 Special care and consideration must be given when planning and executing Work in Properties occupied by elderly or vulnerable Customer's. This may include, but is not limited to: temporary decant or respite arrangements, enhanced or reduced working hours, additional temporary heating etc.

Gas and Electrical Supplies

- 259 Under **no circumstances** must work be started in any Property that is not fitted with all services and meters etc. Arranging for the gas supply and where an electrical supply and meters may be required is the Provider's responsibility and the Utility Provider's should be notified of this before the Properties are programmed.
- 260 However, the Provider after seeking the Client's Representative's approval will make his own arrangements to have the supply of gas put on to a property. This will be paid for as an extra to the Contract on an individual basis providing supporting documentation is submitted with the Valuation.

Electrical Work

- 261 All electrical work must be carried out by an NICEIC, ECA Provider, or be registered with an approved licence to practice system, an example of which is SPARKSAFE, and who must issue a current approved IET Electrical Installation Completion (EIC) certificate for each individual installation.
- 262 Where all the electrical requirements in the dwelling of the applicable Standard for electrical installations are met, supplementary equipotential bonding may be omitted. Therefore, before work of any nature proceeds in the Property the electrical installation must be tested.

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- 263 No installation will be accepted for payment unless such certificate is provided. Equally a note must be made on the certificate that all bonding has been completed in accordance with the latest edition (Edition number to be stated) of the applicable Standard for electrical installations.
- 264 Inspect the loft space of the dwelling and establish the depth of insulation existing, if below the minimum requirements of 270mm, the Provider is to report the actual depth to the Client’s Representative who will determine what further action is required. The cost of upgrading any insulation, loft hatch insulation and insulated catwalks will be reimbursed at the rates in the Schedule of Rates, these rates are deemed to include the cost of moving and reinstating any Customer content stored in the loft.

DESIGN PROCESS

Design Criteria

- 265 The Design criteria for the replacement of the central heating installation, boiler replacement or boiler renewal is as follows.
- 266 The replacement heating system shall be Designed with due consideration to the installation, commissioning, operation, maintenance and repair of components, appliances, and the system. Heating systems shall be designed to achieve and maintain the following minimum room temperatures when the ambient external temperature is -4°C, the heating flow being 82° (max) and temperature difference across the pumped system 11° (max), with the circulating pump running and the air change rate is as detailed below.

Habitable Room	Room Temperature	Air
Living Room	21°C	1.5
Dining Room	21°C	1.5
Kitchen/Dining Room	21°C	2
Bed Sitting Room	21°C	1.5
Circulating spaces	18°C	1.5
Bathrooms	23°C	3
WC’s	23°C	2
Kitchens	18°C	2
Bedrooms	18°C	N/A
Mobility (Standard)	21°C throughout	As rooms above

- 267 Where extract fans are fitted, the Provider shall allow for 60 l/s for Kitchens with an extract fan or 30//s with a cooker hood and 15 l/s for Bathrooms.
- 268 A rear hall or a porch are not deemed to be habitable rooms.
- 269 With regard to heat loss calculations, these shall be calculated in accordance with Chartered Institute of Building Services Engineers Environmental Guide A, and applicable Standard with the following factors shall be allowed.
1. The Provider is to inspect the loft space of the Property and establish the depth of insulation existing, if below the minimum requirements of 270mm, the Provider is to report the actual depth to the Client’s Representative who will determine what further action is required. The cost of upgrading any insulation, loft hatch insulation and insulated catwalks will be reimbursed at the rates in the Schedule of Rates, these rates are deemed to include the cost of moving and reinstating any Customer content stored in the loft.
 2. Radiators shall be fitted under windows where possible and in all cases on exterior walls.
 3. A 10% contingency shall be allowed on the total system design to allow for general heating and pipe losses.
 4. It shall be assumed that adjacent properties are heated to 10°C for heat loss calculation purposes.

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5. A 3kW hot water load shall be allowed for when sizing the boiler.
6. Calculations for the heating pipe sizes should not exceed 1.5 m/s to ensure quiet operation.

All heat loss calculations shall be forwarded as part of the Design Information to the Client's Representative.

Conditions of Temperature Guarantee – For information only as existing systems

- 270 The temperature in any room or other area will be ascertained by a mercury in glass thermometer suspended at a point 1.5m from the flow in the centre of the room or other area.
- 271 When the outside temperature is not less than -4°C the system is to be guaranteed to achieve the heating standards described above, provided the following conditions are satisfied:
1. The internal volume of any room or other area served by one radiator must not exceed 1450 cubic feet (42 cubic metres). In a room which exceeds 1450 cubic feet (42 cubic metres) in volume, more than one radiator will be required in order to obtain the heating standards referred to.
 2. The system must have been operated continuously for not less than 24 hours and must continue to operate fully with clock controller overridden and air temperature and hot water thermostatic controls correctly set and the boiler flow temperatures set at 180°F (82°C).
 3. There must not be more than the specified air change per hour in any room or other area.

Design Information

- 272 The Provider shall submit details of the initial survey.
1. An electronic scaled working drawing layout of each Property type, identifying each floor space, showing radiator positions and sizes together with proposed, valves, pipe sizes, pipework routes, cold water and domestic hot water services, control system and electrical cable routes. The location of the boiler and cylinder (if applicable) shall also be included on the drawing.
 2. Heat loss calculations.
- 273 Obtain written agreement from the Client to the Design proposals before site works can start.
- 274 Failure of the Provider to provide working drawings, schedules and calculations may lead to additional time and costs being incurred by the Client which shall be passed on to the Provider to bear.
- 275 The approval by the Client's Representative of such drawings, schedules and calculations covers only the general principles of the Work concerned and does not absolve the Provider from carrying out the Works in accordance with the Specification and good engineering practice.
- 276 The Client's Representative shall have the right to change the Provider's Design with no financial implications to the Client. The Provider is to comply with all Customer requirements with regard to radiator location in each room at no financial implication to the Client. The Provider is to explain the full extent of the works i.e. radiator positions, pipework routes, boiler position, controls, and all other mechanical services contained within the Contract to the Customer and then request the Customer to sign the Customer Agreement Form. The Customer Agreement Form shall be produced by the Provider and submitted to the Client for approval at the pre-contract meeting.
- 277 In Void Properties the Provider is to allow for further attendance. This is to include, contacting new Customer's and making arrangements for testing and commissioning.
- 278 When these documents have been forwarded through to the Client's Representative, a completion certificate for the Works will be issued. The defects liability period will run from the date of the Client's certificate.

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Regulations and Standards

- 279 The Design and installation of new heating and hot water systems shall comply with all appropriate Regulations, applicable Standards and Codes of Practice.
- 280 In particular, the Design of the system shall be in accordance with applicable Standard: Specification for forced circulation hot water central heating systems for domestic premises:
- 281 The Works shall comply with the Gas Safety (Installation and Use) Regulations including all amendments and shall also be in accordance with the manufacturer's technical data sheet and Building Regulations and amendments and Technical Booklet F1.
- 282 With regard to implementation of the Works, the Provider shall also take into account the following Health and Safety Regulations.
- Management of Health and Safety at Work Regulations 1999
 - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013
 - Manual Handling Operations Regulations 1992 as amended 2002.
 - The Control of Substances Harmful to Health Regulations 2002 (COSHH)
 - The Provision and Use of Work Equipment Regulations 1998 (PUWER).
 - Electricity at Work Regulations 1989.
 - Construction (Health, Safety and Welfare) Regulations 1998.
- 283 Electrical works shall be in accordance with the applicable Standard for electrical installations and The Electricity Safety, Quality and Continuity Regulations (ESQCR).

STANDARD SPECIFICATION

General Preamble

- 284 Where Properties are occupied during the Works the Provider shall take all reasonable steps to ensure that inconvenience and disturbance to the Customers is minimised.
- 285 Once Work commences in a Property it must be continuous without interruption until completion.
- 286 Allow for protection of all fixtures and fittings including carpets. Move, take up, refit and replace all furniture, fittings and fixtures as may be necessary to execute the Works. Re-position items of furniture and appliances at the end of each working day whether Work is completed or not.
- 287 Protect and maintain existing services at all times, inform the Customer's prior to disconnection and adaptation Works, which are to be for the minimum period possible. No services are to be left disconnected overnight.
- 288 Make good to all adjacent structures and surfaces disturbed during the Works, whether specifically mentioned or not. Any damage caused by carelessness or want of skill on **the part of the Provider shall be immediately made good at the Provider's expense.**
- 289 All carpets, floor coverings, underlay, hardboard, floorboards, etc (excluding laminated wood flooring) to be properly and professionally re-fitted on completion of the installation.
- 290 Materials or tools must not be stored within the Property including communal areas or gardens.

PERFORMANCE SPECIFICATION

BOILERS

- 291 The Provider shall design for and install boilers which are ErP A+++ rated high efficiency with evidence of a Low No-x rating condensing boiler as manufactured by a manufacturer to be approved by the Client's Representative.

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- 292 Boilers shall be sized by the Provider to suit. All boilers are to be fitted according to manufacturer's technical data sheet and compression type fittings shall be used to facilitate easy removal for repair. The Provider shall include for filling loop and the optional pipe cover accessory as supplied by the boiler manufacturer.
- 293 All boilers shall carry a minimum ten year's manufacturer's guarantee with a minimum ten year parts and labour warranty and this shall be arranged to run from the date of the completion certificate. The Provider is to provide a boiler installation record secured to the inside of the lower casing giving the Provider's name and address and the date of installation.
- 294 The heating installation shall be cleansed through the use of a permanent in-line magnetic filter to ensure effective magnetic filtration.
- 295 Servicing: The filter shall be accessible to carry out a visual inspection of the canister chamber to ensure all system debris has been successfully removed during boiler servicing.
- 296 The Client's preferred option is for an open vented system to be Designed and installed where appropriate. The Provider shall obtain the Client's Representative's approval for a sealed system Design and installation.
- 297 Supply and install the boiler in an agreed position with the Client's Representative, on an external wall to the outside and in accordance with the manufacturer's technical data sheet.
- 298 Size the boiler in accordance with the following:
- Total of all radiator outputs
 - Total of all pipework losses
 - Hot water load (minimum 3kW to be allowed)
- 299 Total the above and add 20% to the load for intermittent heating before selecting the appropriate size boiler.
- 300 Supply and install an additional expansion vessel of appropriate size if the system volume is beyond that which can be accommodated by the built in expansion vessel.
- 301 Supply and install a complete boiler flue system in accordance with the manufacturer's technical data sheet and applicable Standard. The Provider shall terminate the flue a suitable location and supply and install a flue terminal guard as necessary.
- 302 **BOILER, GAS FIRED CONDENSING CONVENTIONAL TYPE**
Standard: To applicable Standard, High Efficient **ErP** A+++ rated
Low NOX classification
Type: Wall Mounted
Casing Finish: Vitreous Enamel
Controls/Accessories: All as per boiler manufacturer
Heat Exchanger: Stainless Steel
Boiler Flue: To applicable Standard and in accordance with manufacturer's flue options
Commissioning of gas fired boiler to be carried out by boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client
- 303 **BOILER, GAS FIRED CONDENSING COMBINATION TYPE**
Standard: To applicable Standard, High Efficient **ErP** A+++ rated
Low NOX classification
Type: Wall Mounted
Casing Finish: Vitreous Enamel
Controls/Accessories: All as per boiler manufacturer
Heat Exchanger: Stainless Steel
Boiler Flue: To applicable Standard and in accordance with manufacturer's flue options
Commissioning of gas fired boiler to be carried out by boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client

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- 304 BOILER, GAS FIRED CONDENSING SYSTEM TYPE
Standard: To applicable Standard Low NOX classification
Type: Wall Mounted
Casing Finish: Vitreous Enamel
Controls/Accessories: All as per boiler manufacturer
Heat Exchanger: Stainless Steel
Boiler Flue: To applicable Standard and in accordance with manufacturer's flue options
Commissioning of gas boiler to be carried out by boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client
- 305 BOILER, OIL FIRED CONDENSING CONVENTIONAL TYPE
Standard: TO applicable Standard, High Efficient ErP A+++ rated
Type: Floor Mounted
Casing finish: Mild steel
Controls/Accessories: All as per boiler manufacturer
Boiler Flue: To applicable Standard and in accordance with manufacturer's flue options
Commissioning of oil fired boiler to be carried out by boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client
- 306 BOILER, OIL FIRED CONDENSING OUTDOOR TYPE
Standard: To applicable Standard and OFS A100, High Efficient ErP A+++ rated
Type: Floor mounted, outdoor with patented weather proof casing
IP Rating: IPX4
Controls/Accessories: All as per boiler manufacturer
Boiler Flue: To applicable Standard and in accordance with manufacturer's flue options
Commissioning of oil fired boiler to be carried out by boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client.
- 307 BOILER, WOOD PELLET
Standard: To applicable Standard
Type: Floor mounted, outdoor with patented weatherproof case, enclosing the boiler and 100kg hopper
IP Rating: IPX4
Controls: Low pellet level sensor with warning beacon, high limit thermostat, back burning protection, fuel overload, combustion control, modulation control, frost protection and safety valve
Boiler Flue: To applicable Standard and in accordance with manufacturer's flue options
Commissioning of wood pellet boiler to be carried out by the boiler manufacturer's representative
Boiler manufacturer to provide a 10 year parts and warranty to the Client.
- 308 OIL STORAGE TANKS, PLASTIC
Standard: To applicable Standard, and constructed and certified to OFTEC standard OFS T100
Type: Horizontal bunded oil fuel storage tank
Capacity: The capacity of the oil tank shall be in accordance with applicable Standard: Table 2
Accessories: All as per tank manufacturer
Oil Supply: Top outlet option
Location: To applicable Standard, and current Building Regulations on a suitable concrete base
Domestic Oil Tank Bases Construction and Design: To Client's standard requirements
Where a tank of a lesser capacity is required due to limited space, **any cost adjustment is deemed to be included.**
- 309 FIRE WALLS FOR OIL STORAGE TANKS
Standard: To applicable Standard Method: The tank should be protected in one of the following ways:
- a) Isolating the tank, including any integral bund, by placing it at a distance from any building or other potential source of fire or;
 - b) Protecting the tank, including any integral bund, by a physical barrier.

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Where the above criteria for distance cannot be met, and where steel stand physical barrier screens are required, certification will be required that the screen panels satisfies the performance requirements specified in applicable Standard Clause 5, for a non-loading beating fire wall with a fire resistance of 30 minutes and shall be installed in accordance with the manufacturer's technical data sheet.

Where it is necessary to provide panel type fire walls, any cost adjustment is deemed to be included.

- 310 OIL SUPPLY (TIGER OIL DE-AERATOR)
Standard: To applicable Standard
System Type: Single pipe system, with de-aerator device, bottom of oil storage tank below or level with burner
Location: To be fitted to be fitted externally to the boiler in accordance with applicable Standard and the manufacturer's installation instructions.
Installation: The assembly to be fully concealed in a manufactured enclosure of suitable size constructed from powder coated mild sheet steel, plugged and securely fixed to a wall.
- 311 OIL FILTER
Standard: To applicable Standard
Location: To applicable Standard, and as specified by the appliance manufacturer
Installation: To be fitted on the oil supply pipe between the isolating valve and the appliance.
- 312 FIRE VALVE
Standard: To applicable Standard
Compliance: Fire valves shall comply with OFTEC Standard OFS E101
Installation: Where the boiler is positioned externally outside the building, the valve body shall be fitted at least 1m away from the appliance with its sensor over the burner. The fire valve assembly to be fully concealed in a manufactured enclosure of suitable size constructed from powder coated mild sheet steel, plugged and securely fixed to a wall.
- 313 OIL MONITORING SYSTEM
Standard: To applicable Standard
Type: Two parts, comprising a tank mounted transmitter and a plug in receiver with integral antenna located in the dwelling
Power Supply: Receiver 230 – 240V/ 1/50Hz
Transmitter: 3V Lithium cell
Battery Life: 10 years (estimated life)
Communication: Wireless to applicable Standard
Transmitter: To monitor the level of fuel inside the tank and relay the data via a secure wireless connection to the receiver unit
Receiver Unit: The receiver unit shall be securely fixed to an electrical socket outlet plate and connected a galvanised wall mounted fixing box, spurred off the kitchen ring main circuit.
- 314 GUARD FOR PIPELINES
Pipelines: Exposed on external walls to be fully concealed by covering with a powder coated mild sheet steel box section profile of suitable size, flanged, plugged and securely fixed to the wall.
- 315 GUARD FOR EXTERNALLY LOCATED FIRE VALVE ASSEMBLY
Installation: For externally located heating appliances, the oil supply should be cut off at least ONE m away from the appliance. The fire valve assembly to be fully concealed in a manufactured enclosure of suitable size constructed from powder coated mild steel sheet, plugged and securely fixed to the wall.
- 316 GUARD FOR EXTERNALLY LOCATED TIGER OIL DE-AERATOR
Installation: The tiger oil de-aerator is to be installed externally to the boiler cabinet all in accordance with applicable Standard and to the manufacturer's technical data sheet. The assembly to be fully concealed in a manufactured enclosure of suitable size constructed from powder coated mild sheet steel, plugged and securely fixed to the boiler cabinet.

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317 SYSTEM CIRCULATION

Space heating systems and domestic hot water primary circuits should have fully pumped circulation. If the boiler manufacturer's technical data sheet advises installation of a bypass, an automatic bypass valve should be provided and the manufacturer's technical data sheet on minimum pipe length followed.

CIRCULATING PUMP

Standard: To applicable Standards

System: For Low temperature hot water heating system

EEI Rating: = 0.23

System Resistance: The flow rate shall be sufficient to circulate the maximum boiler output against the system resistance

Installation: To be installed in a readily accessible position in accordance the manufacturer's installation technical data sheet;

Maintenance: Provide 2No. pump valves to enable removal/replacement without need to drain down
Electrical Supply: 230 – 240V 1/50Hz

- 318 Supply and install adequate ventilation in accordance with the manufacturer's technical data sheet and applicable Standards.
- 319 Supply and install high- and low-level ventilation grilles when the boiler is installed within a cupboard. Such grilles shall be suitably sized in accordance with manufacturer's technical data sheet.
- 320 Show the position of the boiler on the working drawings.
- 321 Supply and install a 15 mm galvanized steel pipe from the pressure relief valve on the boiler and run it to outside to discharge in a safe location. The Provider shall show the position of the boiler on the working drawings.
- 322 Supply, install and deliver a pipe cover accessory.
- 323 Supply and install in the cold-water mains supply prior to entering the boiler, a branch connecting with a filling loop which connects between the cold mains and the heating flow. The filling loop shall complete with all valves in accordance with Water Regulations and manufacturer's technical data sheet. The filing loop is to be located in an accessible place.

Radiators

- 324 All radiators are to be the steel panel convector type to applicable Standards to achieve the required design temperatures listed in 027 and shall be installed by way of brackets. Radiators shall be round top, with four BSP connections.
- 325 Radiators shall, be fitted below windows to give a clearance of not less than 25mm from the underside of the sill to the top of the radiator, with a minimum clearance from the underside of the radiator to the finished floor level not be more than 150mm, or less than 100mm.
- 326 The length of the radiator must be such that it is not greater than the width of the window opening and not less than 100mm within the width of the of the window opening.
- 327 Radiators shall not be positioned back to back on internal walls.
- 328 Radiator fixings shall be arranged to suit the wall construction.
- 329 All valves will be watertight and connected to radiators with PTFE tape unless manufacturer's technical data sheet state otherwise.

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- 330 Each radiator shall be fitted with a chrome plated thermostatic radiator valve (except in room where room stat fitted) and 15mm back seating type lock shield valve. The lock shield radiator valve cover shall be screwed down. Radiator connections shall be at the bottom and opposite ends. A brass air release valve is to be fitted on the flow side top connection.
- 331 A drain off tapping shall be fitted at every lowest point in the system.
- 332 All radiators installed in any specific project shall be selected from the same radiator manufacturer's approved list.
- 333 Reflective foil shall be fitted behind all radiators on external walls. The foil shall be cut neatly, 25mm smaller than radiator dimensions and fixed in accordance with manufacturer's technical data sheet behind the radiator-fixing bracket.
- 334 In dwellings which previously had radiators installed the new radiators are to be the same size to match existing.
- 335 If no cylinder is to be installed, a suitably sized radiator is to be installed in the airing cupboard as required.
- 336 Two no air vent keys are to be left with each installation except for sealed system installations where no keys are to be left.
- 337 The radiators shall be supplied with a good priming coat and left for the Customer's to decorate. Where radiators are found to be scratched or damaged, the Provider shall replace the same at no extra cost to the Contract.
- 338 The Provider shall show all radiator positions, numbered with a radiator schedule showing the individual radiator number, radiator height, radiator length, radiator type, radiator output and type of connection on the Provider's working drawing.

Pipes and Fittings

- 339 All heating, primary, cold, hot, mains water pipework and gas pipework shall be installed in applicable Standard Table X light gauge copper with fitted brass or copper integral solder ring capillary type joints and general pipework fittings to applicable Standard, all Kite mark certified.
- 340 All fittings and solder used shall be lead-free and carry the UP or SS lead-free mark. Do not use formed bends on exposed pipework, except for small offsets. Form changes of direction with radius fittings.
- 341 All pipes to be of even bore, clean and smooth throughout, commercially straight and free from grooving, blistering or other surface marks and free from any corrosive oxide etc. All ends shall be cut square and all burrs removed with a reamer to restore the bore.
- 342 Easy sweep fittings are to be used. Square tees and elbows shall not be accepted. Union joints shall be provided as necessary to permit easy removal of all apparatus.
- 343 All pipework shall be supported at a minimum of 900 mm centres, at high or low level, with either screw on brackets or white plastic clips with one screw per clip.
- 344 Spacing for copper pipelines to be fixed securely and true to line at the following maximum centres:
- | | |
|------------------------|---------------------------------------|
| 15mm and 22mm pipe OD: | 1200mm horizontal and 1800mm vertical |
| 28mm and 28mm pipe OD: | 1800mm horizontal and 2400mm vertical |
| 35mm and 42mm pipe OD: | 2400mm horizontal and 3000mm vertical |
- 345 Heating pipework routes shall, where possible be at skirting level and shall be arranged in a neat and orderly manner and concealed where possible. Pipework through walls shall be sleeved. Additional supports to be located within 150mm of connections, junctions and changes of direction.

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- 346 In Properties with solid floors, heating pipework shall be run in the upper floor voids with pipe drops to lower floor radiators. Pipes drops to be fully encased in plywood pipe casing from ceiling to skirting level, painted two coats of undercoat and finished with on coat white gloss paint. The Provider shall include for carefully lifting and replacing floorboards. Any flooring damaged is deemed to be replaced at the Provider's expense. All pipes to be sleeved where they pass through masonry or concrete. The maximum notch depth shall be 25mm and located between 0.07 and 0.25 of span from support. Notches within the central 2 quarters of span are not allowed.
- 347 Sleeves are to be of suitable size to allow free expansion of the pipework. Sleeves shall be cut square at each end and shall be of sufficient length to finish flush with the finished face of wall or ceiling, and 6mm proud of the finished surface of floors. All excessive gaps between the inside surface of the sleeves, and pipes passing through boiler house walls shall be filled with fire resistant materials. The weight of pipework shall not be borne by the sleeves. It is the Provider's responsibility to ensure that pipes are not bedded in by making good.
- 348 No pipes shall be run in concrete screeds or in floors overlaid with sound insulation materials, ie insulated floating floors.
- 349 The run of pipework shall be in accordance with the layout indicated on the drawings supplied by the Provider for approval.
- 350 The actual run of pipework shall be approved by the Client's Representative before such Work is put in hand, and all pipes shall be installed in a neat and workman-like manner. Pipes shall be laid to graded falls as necessary to facilitate draining and venting, adequately supported with provision for expansion and brackets suitably placed. Vertical pipes shall be dropped plumb and all lines shall be parallel to each other. Pipework shall be installed without springing or forcing.
- 351 All pipes shall follow the contour of the Property. Where pipes enter floors or ceilings, they shall be taken in square. All pipes and fittings shall be kept at least 150 mm away from the lighting or power cables, conduits etc.
- 352 Make all provision necessary to allow full expansion and contraction of all pipework and apparatus. Failure to make such provision, which results in damage to the installation or to the Property and its contents, shall be held to be the responsibility of the Provider, who must make good all damage free of cost to the Client.
- 353 Supply and install the heating flow and return pipework from the boiler to the pump and motorised valve complete with all isolating valves. From the motorised valves the heating shall split to feed the hot water cylinder and radiators within each room, as shown on the Provider's working drawings.
- 354 Flush out the heating services at least twice prior to filling and adding inhibitor to the system.
- 355 Connect to the existing hot water service, cold feed and open vent serving the dwelling. All the above pipework will be shown on the Provider's working drawings.
- 356 Supply and install a cold water main from the nearest existing point to feed the boiler in 15 mm pipe as shown on the Provider's working drawing if a system boiler is installed. All the above pipework shall be shown on the Provider's working drawings.
- 357 Supply and install at low points of the heating system, a lock shield type drain cock to applicable Standard, to enabling each Heating and HWS system to be drained down when required.

Natural Gas Supplies

- 358 The natural gas supply to all appliances will conform strictly to applicable Standard.
- 359 Include for the gas carcass to be replaced from the meter position to the gas boiler in all cases. In addition, they shall extend the carcass to the cooker position in the kitchen and re-connect the Customer's gas cooker appliance including stability device if not already fitted. If the Customer has an electric cooker then the gas supply is to be capped off at this point.

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- 360 Ensure that the supplies are of sufficient size (minimum 22mm to boiler, 22mm to the cooker position, to supply the volume of gas required to allow the appliances to function effectively and in accordance with the manufacturer's technical data sheet. The new gas carcass is to be run from the existing gas meter position.
- 361 Supply and install a bayonet fitting 600 mm from finished floor level on the gas supply to the cooker. The Provider is to connect the cooker to the new gas supply with approved new flexible connector.
- 362 Undertake soundness checks, smoke and spillage tests. The Client may provide a representative on occasions to be present at tests.
- 363 Provide the Client's Representative with a signed certificate of the gas safety checks and gas pressure test within the operation and maintenance manuals.
- 364 All the above shall be shown on the Provider's working drawings.
- 365 Test for soundness and purge in accordance with applicable Standard.
- 366 Upon completion the gas pipework is to be pressure tested (may be witnessed on occasions by the Client's Representative) for 15 minutes at a pressure of 20mbar.

Hot Water Storage Requirements

- 367 Standard: To applicable Standard
1. Vented copper hot water storage cylinders should comply with the heat loss and heat exchanger requirements;
 2. Hot water storage combination units should comply with the applicable Standard;
 3. Primary storage systems should meet the insulation requirements of the Hot Water Association Performance specification for thermal stores;
 4. Unvented hot water storage system products should comply with applicable Standard or an equivalent standard as set out by an accredited test body such as the British Board of Agreement, the Water Research Council, or KIWA;
- 368 Heat Loss: The standing loss for all hot water storage vessels an a), b), c) and d) should not exceed where:
 $V = 1.15 \times (0.2 + 0.051V^{2/3})$ kWh/day where V is the volume of the cylinder
- 369 Labelling: All hot water vessels should carry a label with the following information
1. type of vessel (vented, combination unit types or thermal store);
 2. nominal capacity in litres;
 3. standing heat loss in kWh/day;
 4. heat exchanger performance in kW;
 5. reference to product compliance with relevant applicable Standard and logos of accreditation bodies as required.
 6. Storage capacity: To C.I.B.S.E. Guide G. For domestic installations a cylinder of approximately 120 litres (min) is usually adequate.
- 370 The new units will be complete with sacrificial anodes and adequate thermal insulation of the CFC reduced type and comply with the Water By-Laws.
- 371 The cylinders to be fitted on a new stool.
- 372 Supply and install 750mm long immersion heater facility rated at 3kW and thermostat to applicable Standard.
- 373 Supply and install a new 22mm gate valve on the cold feed, heating flow and return pipework to the cylinder.
- 374 Indicate the position of the cylinder on the working drawings.

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SYSTEM CONTROLS

TIME CONTROL OF SPACE AND WATER HEATING

375 The control of space heating and hot water systems shall be provided with time and temperature controls as follows:

1. 2 channel programmer with separate timing to each circuit
2. for Properties with a total usable floor area greater than 150 m², timing of the separate space heating zones can be achieved with separate timing to each circuit
3. where the hot water is produced instantaneously, such as with a combination boiler, time control is only required for space heating zones

TEMPERATURE CONTROL OF SPACE HEATING

376 Separate temperature control of zones within the Property should be provided by:

1. room thermostats
2. individual radiator controls such as thermostatic radiator valves (TRVs) on all radiators other than in the reference room (with thermostat)

TEMPERATURE CONTROL OF DOMESTIC HOT WATER

377 Domestic hot water systems should be provided with a cylinder thermostat, immersed type in BSP outlet on storage vessel, to control the zone valve

378 Room thermostats shall be positioned as follows:

- In a hallway.
- 1800mm above floor level.
- Away from radiators or direct heat source, direct sunlight, external doors or draughts.

379 A wiring centre shall be provided and be located as shown on the Providers drawings.

380 Where fitted, the HWS cylinder shall incorporate a immersed type cylinder thermostat inserted in a pocket on the cylinder and set at 60°C.

381 The automatic pump overrun period should be set to 20 seconds.

382 An automatic bypass will be fitted to all systems including combination boilers should the boiler manufacturer's technical data sheet advise that this is a requirement of the installation.

383 A frost thermostat is to be provided if the boiler is located in a position where frost damage may occur.

384 Final connection to the boiler shall be carried out by the Provider.

385 The above controls shall be shown on the Provider's working drawings.

ELECTRICAL INSTALLATION

386 Provide the electrical installation associated with the replacement heating installations. This shall include the following electrical circuits from a new metallic consumer to be located in the existing meter cupboard. Where due to space restrictions the new consumer unit cannot be fitted in the existing cupboard; the Provider shall install the consumer unit in a separate wooden meter enclosure. **The cost of the enclosure will be deemed to be included in the costs:**

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- 387 Provision of new dedicated electrical circuit fitted to the new hot water storage cylinder immersion heater, including new flexible cable connection. The Provider shall allow for replacing the existing heater face plate switch in the dwelling where necessary with a heating boost switch with timed settings.
- 388 Provision of dedicated electrical circuit for the heating boiler including system control wiring and all necessary accessories. The Provider shall provide and install where required a bulkhead light fitting to assist with all necessary maintenance or breakdown call outs.
- 389 Provision of dedicated electrical circuit for the electric focal point inset fire, including a 20A DP switch fitted adjacent fire on chimney breast, with flexible connection concealed within the fabric of the Property to connect to inset fire.
- 390 Electric Direct Acting Day Rate Focal Inset Fire
Standard: To applicable Standard
Approval : BEAB/CE MARK
Type: Direct Acting Electric Inset Fire, to fit chimney opening
Heater Type: Fan Convection
Max Heat Output: 2kW
Coal Bed: One piece with switchable choice for flame effect independent of heat source
Noise: Fan noise suppressed to 50dB max, when in operation
Lights: LED bulbs for long life and low energy consumption
Controls: ON/OFF switch with multiple heat settings and thermostat control
Fixing: To be securely fixed to hearth or surround
- 391 Cables shall be installed above ceilings, below floors and should be concealed in walls.
- 392 Cables concealed in masonry walls should be enclosed in conduit.
- 393 Cables should be withdrawable through either continuous conduit, or where it not feasible to conceal the cable system, through the provision of a continuous trunking system.
- 394 Cables should be installed without joints other than at equipment and terminal fittings. **JUNCTION BOXES ARE NOT PERMITTED.**
- 395 Cables must be protected, supported and fixed to the requirements of the applicable Standards for electrical installations and all other Regulatory Requirements.
- 396 Cables should be sleeved passing through masonry walls with conduit bushed at both ends.
- 397 Cables installed across floor joists should be threaded through holes neatly bored in joists at least 50mm from floor or ceiling.
- 398 PVC insulated cables must not come into contact with polystyrene insulation or organic timber preservative.
- 399 Cables concealed within a wall or partition must comply with the applicable Standards for electrical installations.
- 400 All routing of trunking shall be done in a workmanlike manner and shall be arranged to be unobtrusive in terms of its layout.
- 401 All cabling used for final connections to boilers or hot water service cylinders shall be multi core heat resistant EP rubber insulated or HOFR sheathed flexible cable or heat resistant PVC flexible cable.
- 402 The Provider shall include for upgrading earth and supplementary equipotential bonding to the new system in accordance with the applicable Standards for electrical installations.
- 403 Equipotential earthing shall be completed where necessary back to the main consumer unit and the Utility Provider's incoming cut out.

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404 All control wiring associated with the installation shall be supplied and installed by the Provider.

Recommended Minimum Standards for Insulation of Pipework in Wet Central Heating Systems

405 Standard: To applicable Standards

406 Pipes should be insulated to comply with the maximum permissible heat loss, and labelled accordingly, as follows:

1. Primary circulation pipes for heating an hot water circuits wherever they pass outside the heated living space or through voids which communicate with and are ventilated from unheated spaces
2. Primary circulation pipes for domestic hot water circuits should be insulated throughout their length, subject only to practical constraints imposed by the need to penetrate joists and other structural elements
3. All pipes connected to hot water storage vessels, including the vent pipe, should be insulated for at least 1 m from their points of connection to the cylinder (or they should be insulated up to the point where they become concealed)
4. If secondary circulation is used, all pipes kept hot by that circulation should be insulated.
5. Extra provision may need to be made to protect heating and hot water pipe work in unheated areas against freezing

407 Where insulation is labelled as complying, it must not exceed the following heat loss levels:

Pipe Outside Diameter	Maximum Heat Loss*
8mm	7.06W/m
10mm	7.23W/m
12mm	7.35W/m
15mm	7.89W/m
22mm	9.12W/m
28mm	10.07W/m
35mm	11.08W/m
42mm	12.19W/m
54mm	14.12W/m

408 * In accessing the thickness of insulation required, standardised conditions should be assumed in all compliance calculations, based on a horizontal pipe at 60°C in still air at 15°C.

409 All pipework running under ground floor suspended floors, through unheated areas (ducts, cupboards, or in loft spaces shall be provided with rigid pipe insulation and where necessary frost protection. All primary flow and return pipework and all pipework within airing cupboards shall also be insulated.

410 All insulation shall be Class 1, minimum 25mm thick nitrile rubber (CFC and HCFC free), all suitable for Class A1, and shall be fitted after testing. Mineral fibre insulation shall not be acceptable.

411 All slit lengths and butt joints shall be glued together using the adhesive recommended by the manufacturer, so that no pipe fitting or valve/cock is kept uninsulated.

Feed and Expansion Cistern

412 Supply and install a plastic 18 litre feed and expansion cistern in accordance with the current Water Regulations if an open vented system is to be used. The Provider shall supply and install purpose made lids and insulation jacket for the feed and expansion cistern. The Provider shall supply and install overflows of suitable size to the feed and expansion cistern and discharge it in an appropriate location.

413 Supply and install an open vent and cold feed to the heating system in accordance with the boiler manufacturer’s technical data sheet.

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- 414 Connect boiler to cold main supply via a combined filling/double check valve kit. Ensure that the flexible link is not left in position and to comply with the current Water By-laws.
- 415 Supply and install a suitable wooden frame and support the feed and expansion cistern. The frame shall transfer all the live load to the roof trusses or surrounding walls. The framework shall be made from 50mm x 25mm wood battens with a minimum of four cross supports. The feed and expansion cistern shall be sited on 25mm marine plywood

Safety Discharge

- 416 Where a safety discharge pipe is fitted, this shall be fitted to the manufacturer's technical data sheet and shall be arranged to discharge externally in a safe location and timed back to the wall.

Condensate Discharge

- 417 Wherever possible, the condensate pipe shall be routed and terminated so the condensate drains away from the boiler under gravity to a suitable internal water discharge point such as an internal soil and vent stack, internal kitchen, bathroom or washing machine waste water pipe of similar.
- 418 Where it is not possible, so that the condensate drains away from the boiler under gravity, the Provider shall provide for the installation of a condensate pump to drain the condensate away to a suitable water discharge point in accordance with the boiler manufacturer's technical data sheet. **Where a condensate pump is required by Design it shall be deemed to be included in the costs.**
- 419 Where no other discharge method is possible, the use of an externally run condensate discharge drainage pipe terminating at a suitable water discharge point or purpose-designed soak away may be considered. The pipe shall be run internally as far as possible before going externally, and the pipe diameter shall be increased to 32mm before it passes through the wall to the exterior. The pipe should take the shortest and least exposed route to the discharge point and shall fall as steeply as possible away from the boiler with no horizontal runs in which condensate might stand. The use of fittings and shall be kept to a minimum and any internal burrs on cut pipe work should be removed so that the internal pipe section is as smooth as possible. Where the pipe terminates over an open drain or gully, the pipe should terminate below the grating level, in order to minimise the wind chill at the open end.
- 420 The external condensate discharge pipe shall be insulated using suitable waterproof and weather resistant pipe insulation.

Flues and Guards

- 421 Supply and install all flues and guards associated with the required appliances and these shall be fitted in accordance with manufacturer's technical data sheet. This shall include all associated builders work and making good.
- 422 Provide for of all access equipment on properties of two storeys or below.
- 423 The room sealed combination boiler flues shall be sited 200 mm down from the soffit outside.
- 424 A suitable terminal guard shall be fitted where flue terminals are less than 2m above ground level.
- 425 Weathering slates where required shall be manufactured from milled lead to applicable Standard.
- 426 These requirements must be applied for any boiler manufacturer's flue option.

Ventilation

- 427 Provide all necessary ventilation to comply with the Regulations and Standards. Ventilation provision shall be identified as necessary on the design drawings.

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Combustion and Ventilation Requirements

428 The provision of combustion and ventilation requirements for the central heating boilers must comply completely with applicable Standards whichever of the following is required.

Compartments for Boilers

429 Where the design requires a boiler to be located in a bedroom, the Provider shall provide and fit a suitable compartment to enclose the boiler installation and all pipe work etc; and provide the necessary boiler compartment ventilation in accordance with applicable Standards.

430 **The cost of the compartment for the boiler is deemed to be included in the unit rate for that Property type.**

Existing Heating Appliances and Installations

431 Carefully draining down, disconnection and removal of all existing Client and or Customer installed heating and hot water appliances and associated appliances and making good. This shall include properties with partial heating systems, combined hot water/cold water storage and expansion tank packs, etc., and include removal of:

- All redundant pipework and electrical cables and making good to all disturbed surfaces.
- All oil tanks, any physical barriers, concrete bases, support walls, boiler cabinets and external oil fuel pipework.
- Removal of the existing hot water storage tank or cylinder and associated redundant pipework.
- Removal of the gas carcass within the Property.
- Removal of the existing heating system in its entirety.
- Removal of existing controls and wiring.

432 Remove all solid fuel open fires and room heaters, brick up flue apertures, render and set, fix plaster vent with a permanent ventilator, renew skirting, make good to all disturbed surfaces clear away, and leave ready for redecoration.

Existing Equipment Removal Prior to Boiler Upgrade

433 The items detailed herein apply in general terms and are intended to be indicative of Works that may be required dependent upon the extent of the boiler replacement and any system upgrade. They are not intended to be carried out regardless of the Works required.

434 Remove and make good:

1. All types of solid fuel appliances
2. All types of electric heating and hot water appliances
3. All types of old gas heating & hot water appliances
4. All types of fireplace surround and hearths.
5. Fix terracotta vent cap and louvre air brick to any redundant solid fuel chimney
6. Carefully remove any Customer's own appliances including fires, wall heaters, circulators and multipoint water heaters and return them to the tenant
7. Any pipework, flues, fittings, ducting etc, associated with the above

Existing Chimneys

435 The Provider is to be responsible for arranging and including within his tendered rates for the thorough sweeping of all existing chimneys and providing a certificate to that effect.

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Tiled Surrounds

- 436 The existing tiled hearth and surround is to be removed. The opening is to be bricked up and plastered to feather in with existing plasterwork on the chimney breast. A permanent ventilator is to be fitted in this new brickwork. The chimney is to be capped and the hearth made good.

Builder's Work

- 437 The Provider shall be responsible for undertaking all builders work in connection with the installation, including holes, making good decorations to match existing following the removal of redundant equipment and after the installation of new equipment.

438 Detailed Requirements on Builders Work

1. Make good to all ceilings and walls to plaster finish and to match existing decorations as closely as possible
2. Remove all redundant tank supports from cupboards and make good.
3. Remove any coal bunkers made redundant by the heating installation, bag any coal up and return to the customer.
4. Any disturbed areas around chases cut for ducts across solid floors for pipework are to be tiled together with the duct covers to match existing floor tiles as near as practical.
5. Any areas, where boilers, tiled hearths and warm air units and circulators have been removed, will be made good to the following standard:
 - Straighten and level floor and provide and install floor tiling to match existing everywhere the floor finish has been disturbed;
 - Make good all holes and cracks and opening left in walls and ceilings and around fireplaces to plaster finish and to match existing decorations as closely as possible; and
 - Should a warm air unit be removed from a compartment and the compartment is such that the door does not go to floor level, then a false floor consisting of batten and 22 mm plywood will be built in that compartment at the lower level of the door.
6. Any chimneys and flues made redundant as a result of removing appliances are to be:
 - Thoroughly swept;
 - Have a terracotta vent terminal supplied and fitted on top of the chimney;
 - The base of the chimney is to be permanently sealed and a suitable air vent is to be fitted above the base to ensure the chimney is vented at all times; and
 - Any flue that is not part of the structure of the property and had the sole purposes of providing flue arrangements for a removed gas appliance is to be removed in its entirety. Weathered where necessary and all holes left as a result of this removal are to be made good to match existing.
7. Wherever floor boards are lifted, they are to be replaced if damaged and all boards are to be screwed and countersunk into position. Should a laminate or other similar floor construction be encountered then the Customer must be advised that they should make their own arrangements to have such floor lifted prior to works commencing. Alternatively the Provider may lift the flooring upon the Customer signing a disclaimer to the effect that neither the Client nor the Provider is responsible for any damage that may arise or for the floor's reinstatement.
8. Any plaster damaged or holes left in ceilings as a result of removing any cylinders or associated pipework are to be made good to plaster finish.
9. All ducting, grilles, register and vents that can be removed practically whenever a warm air unit is replaced shall be removed and made good to the required standards.
10. Alterations to compartments that are to be utilised for boilers are to be allowed for, this is also to include removal of architrave, door handles or any shelves or shelving of any construction.

Hot press/Airing/Cylinder Cupboards

- 439 Adapt existing cupboard to accommodate new cylinder, pipe work and any necessary ancillary heating equipment where necessary, this is to include removal of the architrave and door, and re-fixing and any alterations or re-fixing of existing shelving as necessary.

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Health and Safety File

- 440 During the pre-construction phase, the principal designer shall prepare a health and safety file appropriate to the characteristics of the project.
- 441 The file must contain information about the current project likely to be needed to ensure health and safety during any subsequent Work, such as maintenance, cleaning, refurbishment or demolition.
- 442 When preparing the health and safety file, information on the following should be considered for inclusion:
- A brief description of the Work carried out;
 - Any hazards that have not been eliminated through the design and construction processes, and how they have been addressed (e.g. surveys or other information concerning asbestos or contaminated land);
 - Key structural principles (e.g. bracing, sources of substantial stored energy – including pre or post tensioned members) and safe working loads for floors and roofs;
 - Hazardous materials used (e.g. lead paints and special coatings);
 - Information regarding the removal or dismantling of installed plant and equipment (e.g. any special arrangements for lifting such equipment);
 - Health and safety information about equipment provided for cleaning or maintaining the structure;
 - The nature, location and markings of significant services, including underground cables, gas/oil supply equipment; fire-fighting equipment etc.,; and
 - Information and as built drawings of the Property, its plant and equipment (e.g. the means of safe access to and from service voids and fire doors).
- 443 There should be enough detail to allow the likely risks to be identified and addressed by those carrying out the Work.
- 444 However, the level of detail should be proportionate to the risks.
- 445 The file should **not** include things that will be of no help when planning future construction work such as pre-construction information, the construction phase plan, contractual documents, safety method statements etc.
- 446 Information must be in a convenient form, clear, concise and easily understandable.
- 447 The Provider shall upload onto the Client's IT system the Health and Safety File on completion of the works.

Scaffolding and other means of access

- 448 Provide, erect, maintain and dismantle on completion tower scaffolding. Include for gaining access, ladders, boards and physical ties where necessary. The cost of scaffolding is only reimbursed when provided on properties above two storeys.
- 449 All scaffolding works are to be agreed by the Client's Representative prior to erection. In multi occupancy Properties, the Provider's customer liaison officer is to notify all Customer's 48 hours prior to erection of scaffolding.

Cold Water Storage Tank

- 450 Where the existing tank is defective; the Client's Representative may provide an Order to renew the cold water storage tank with a new, 227 litres capacity actual to be constructed of plastic material; to include new ball valve and float, lid, Byelaw 30 kit and insulation jacket; allow for draining down/chlorination and refilling system; alterations and re-connecting pipe work and overflow, remove old tank and test on completion.

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SAP Ratings and Energy Performance Certificate

- 451 Upon completion of the installation the Provider is to provide an Energy Performance Certificate for the Property.

MAINTENANCE OF SYSTEMS

Boiler Label

- 452 The Provider is to supply a self-adhesive label and fit the label to each boiler on completion. The label shall contain the following information:

1. Provider's name.
2. Provider's phone number.
3. Provider's emergency call out number.
4. Date of installation of system.
5. Gas safe registration number.
6. Signature of commissioning engineer.

- 453 A sample of the label shall be submitted for approval at the pre-contract meeting.

Defects Liability Period

- 454 Accept responsibility for both the new boiler and the heating system within each Property with the exception of any previously installed gas fires and gas cooker from the date of completion of each section of Works.

- 455 Accept liability for all defects until the end of the 12 months defects liability period and all defects are corrected. Any faults that occur during the defects period on the new and existing mechanical plant and equipment shall be repaired at the Provider's own expense.

- 456 Any nuisance calls made by Customer's for not operating the system correctly shall be at the Provider's own expense for attendance to such calls.

- 457 Provide a repair service line that is open 24 hours. The Provider must respond within 2 hours to all breakdown calls 24 hours a day. Calls can come from any of the following sources (Call Centre, On-Call Officer or Client. The number of the service line is to be given to the Client's Representative at the pre-contract meeting.)

- 458 Provide and forward a report to the Client's IT system within one day of any fault being reported to the Provider with the following information.

1. Date and time of which the fault is reported to Provider.
2. Date and time the Provider arrived to rectify fault.
3. Date and time the fault was rectified
4. Description of fault.
5. Materials used in rectifying the fault.
6. Name of Customer.
7. Address of the Customer.
8. Signature of the Customer and printed name.
9. Signature of the fitter and printed name.

- 459 The Client shall not accept a delay of more than 12 hours to repair any part of the heating or hot water system.

- 460 If the Provider fails to meet the 12 hour repair time the Client reserves the right to have the repair effected by another Client Party and a counter charge shall be levied against the Provider.

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Annual Service

- 461 Appliances installed by the Provider are to be inspected, tested, serviced and landlord safety certified during the defects liability period at no additional cost to the Client.

System Preparation and Water Treatment

- 462 Standard: To applicable Standards
- a) Central heating systems should be thoroughly cleaned and flushed out before installing a new boiler
 - b) During final filling of the system, a chemical water treatment inhibitor meeting boiler manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge
 - c) The Provider should also refer to the boiler manufacturer's installation instructions for appropriate treatment products and special requirements for individual boiler models
 - d) Where the mains total water hardness exceeds 200 parts per million, provision should be made to treat the feed water to water heaters and the hot water circuit of combination boilers to reduce the rate of accumulation of lime scale.

Commissioning

- 463 On completion of the installation of a boiler and hot water storage system, together with associated equipment such as pipe work, pumps and controls, the equipment shall be commissioned in accordance with the manufacturer's technical data sheet. These technical data sheets will be specific to the particular boiler or hot water storage system. The Provider should give a full explanation of the system and its operation to the Customer, including the manufacturer's user manuals where provided.
- 464 If the Provider carries out any Works on the hot and cold water services within each Property then the Provider shall chlorinate all hot and cold water services in accordance with applicable Standards, HSG 70 and the current edition of the Water Regulations. Prior to chlorination the Provider shall flush out all hot and cold water services.
- 465 Record the services chlorinated during the works on the Client's Chlorination Certificate.
- 466 To ensure adequate cleaning of replacement systems the Provider will flush out the heating flow and return pipework and radiators prior to connection to the boiler at least twice, and power flush with a recommended descaling/flushing agent.
- 467 The replacement boiler is to be isolated from the system until the system water is clean, in accordance with the manufacturer's technical data sheet.
- 468 An analysis/purity test of the heating circuit water will form part of the post inspection quality checks and the Client's Representative will select samples to be taken throughout the duration of the works and sent to the water treatment provider for independent testing and reports forwarded to the Client's Representative.
- 469 The filling loop is to be removed and capped and secured with a spring clip or pipe clip adjacent to mains feed and heating circuit connections.
- 470 It is the Provider's responsibility to give one week's prior notice to the Client's Representative of when the flushing of the new system will take place in each Property. The Provider will also provide a certificate stating that the flushing was undertaken in accordance with both the boiler manufacturer's and the flushing agent manufacturer's technical data sheet.
- 471 Upon completion of the pipework installations, the installations shall be filled with clean water and then subjected to a hydraulic pressure test and the Provider shall upload onto the Client's IT system the Hydraulic Test Certificate.

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- 472 Heating and HWS primary systems shall be subjected to a test pressure of 6.0 bar or twice the working head. HWS and cold water service pipework shall be subjected to a test pressure of one and a half times the working head. The test periods shall not be less than 30 minutes. All the above pressure tests shall be recorded on the Client's Hydraulic Test Certificate.
- 473 After the hydraulic tests have been carried out to the satisfaction of the Client's Representative, each system is to be heat tested in accordance with the Client's Specification.
- 474 Boiler burner pressure, functional checks and all flame supervision devices should be checked as recommended in the manufacturer's installation instructions. The whole system should be balanced to provide an even temperature distribution.
- 475 Test and regulate the systems to the satisfaction of the Client's Representative with the Heat Test uploaded onto the Client's IT system.
- 476 Upload onto the Client's IT system an EIC (Electrical Installation Certificate) for the electrical installation within each dwelling.
- 477 Test the Gas installations.
- 478 Rectify any defects of workmanship, materials, performance or other irregularities which become apparent during the tests at the Provider's expense.
- 479 All tests may be carried out to the satisfaction of the Client's Representative.
- 480 Unless otherwise indicated, the Provider is to give a minimum notice of one week prior to site tests in order that the Client's Representative at their discretion, may be present at such tests.
- 481 On completing the testing of the system within each Property the Provider shall upload onto the Client's IT system a landlord's safety record and a service/maintenance check list to be passed to the Client's Representative within 24 hours of the tests being completed within each Property.
- 482 Notify immediately the Client's Representative of any Customer installed appliance.
- 483 Provide the whole of the testing equipment required.
- 484 Upload onto the Client's IT system the following test certificates and records for each dwelling completed.
- Gas Landlords Gas Safety Record (CP12)
 - Oil Landlord Safety Record (CD12)
 - Electrical Installation Certificate (EIC)
 - Boiler Commissioning Certificate
 - Benchmark Booklet (copy of)
 - Hydraulic Test Certificate
 - Heat Test Certificate
 - Chlorination Certificate where works have been carried out to hot and cold water services
 - Record of Analysis/Purity test record from water treatment provider
 - ErP Package Label
 - Notice of application to Building Control Authority for all necessary approvals
 - Notice from Provider to Building Control Authority confirming fixed building services have been properly commissioned
 - Manufacturer's Warranty Form
 - Customer Agreement Form for the works to be undertaken (To be provided by the Provider)
 - Customer Satisfaction Sheet (To be provided by the Provider)

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485 The Client’s Representative will carry out post inspection quality check on all systems installed. The Client’s Representative and the boiler manufacturer will be present during the commissioning of a number of the initial systems and will be making random inspection to monitor commissioning procedures.

Customer’s Instructions

486 Ensure the manufacturer's installation and servicing instructions and user instructions are left with the Customer following completion of the work.

487 In addition to the manufacturer’s technical data sheet, an A4 size laminated sheet giving simple clear basic instructions and guidance should be included.

488 Thoroughly explain and demonstrate to the Customer the operation of the system and check their understanding.

489 Ensure that the system is set up ready for the Customer’s own requirements. The Customer should be asked about their lifestyle and heating requirements, rather than the "standard" heating pattern being imposed.

490 In instances where the Customer’s first language is not English or alternatively where there are communications difficulties, the Client shall be advised.

Client’s current manufacturers/suppliers/products

491 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

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REPLACEMENT HEATING INSTALLATION: Example Check List
[Client to amend as appropriate]

Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
	General		
1.0	Removal of all Client's and or Customer installed existing appliances (gas, oil, LPG, warm air, solid fuel, electrical) and making good. This shall include properties with partial heating systems, complete heating systems, combined hot/cold water storage and expansion vessel packs , etc., Removal of gas and or oil fuel pipelines, oil tanks, concrete/paving slabs boiler house bases and oil tank bases etc.,	✓	
1.1	Patch plaster walls for decorations following strip out, total area not exceeding 2m2.	✓	
1.2	Removal of all redundant pipework and cables and make good to all disturbed surfaces.	✓	
1.3	Removal of the existing hot water storage tank or cylinder and associated redundant pipework where required.	✓	
1.4	Removal of the gas carcass within the Property.	✓	
1.5	Removal of the cold water supply pipework serving the sink, bath and basin and any hot water pipework servicing washing machines and dishwashers.	✓	
1.6	Removal of the existing heating and hot water system in its entirety.	✓	
1.7	Removal of all existing control equipment and associated wiring and accessories.	✓	
1.8	Removal of gas fires which are to be isolated and the gas supply capped, bricking up flue apertures, render and set, fixing plaster vent with permanent ventilator, renewing skirting, making good to all disturbed surfaces clearing away, and leave ready for redecoration.	✓	
1.9	Fitting of restraint chains to gas cookers		✓
1.10	All builders work in connection with the installation, including holes, making good decorations to match existing following the removal of redundant equipment and after the installation of new equipment.	✓	
1.11	Undertake all surveys, prepare working drawings, prepare all calculations, prepare radiator schedules, obtain Customer's approval, obtain Client's Representative's approval. The Provider shall carry out all necessary Customer consultation.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
	Hot and Cold Water Plumbing		
2.1	Connect to the existing hot water service, cold feed and open vent serving the Property. All the above pipework will be shown on the Provider's working drawings.	✓	
2.2	Supply and install a cold water main from the nearest existing point to feed the boiler in 15 mm pipe as shown on the Provider's working drawing if a system boiler is installed.	✓	
	Heating Plumbing		
3.1	Supply and install the heating flow and return pipework from the boiler to the pump, motorised valves and magnetic filter as shown on the Providers drawings. From the motorised valve the heating shall split to feed the hot water cylinder and radiators within each room, as shown on the Provider's working drawings.	✓	
3.2	Supply and install at low points of the heating system, a lock shield drain cock to applicable Standards, complete with loose keys.	✓	
	Gas Plumbing		
4.1	The gas carcassing to be replaced to the new appliance from the meter position in all cases. In addition, they shall extend the carcass to the cooker position and re-connect the Customer's own appliance including stability device if not already fitted. If the Customer has an electric cooker then the gas supply is to be capped off at this point. The Provider is to ensure that the supplies are of sufficient size, to supply the volume of gas required to allow the appliances to function effectively and in accordance with the manufacturer's technical data sheet.	✓	
4.2	Supply and install a bayonet fitting 600 mm from finished floor level on the gas supply to the cooker.	✓	
4.3	Install a gas cock prior to the cooker for isolation purposes.	✓	
	Boilers		
5.1	Install any type of boiler which are to be SEDBUK A rated high efficiency with evidence of a Low No-x rating condensing boiler as manufactured by a manufacturer approved by the Client's Representative.	✓	
5.2	Supply and install in the cold water mains supply prior to entering the boiler, a branch connecting with a filling loop which connects between the cold mains and the heating flow. The filling loop shall be complete with all valves in accordance with Water Regulations and manufacturer's technical data sheet.	✓	
5.3	Provide a minimum ten year's manufacturer's guarantee with a minimum ten-year parts and labour warranty and this shall be arranged to run from the date of the completion certificate.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
5.4	Provide a boiler installation record secured to the inside of the lower casing giving the Provider's name and address and the date of installation.	✓	
5.5	All new boilers are to be fitted with a "magnetic filter" on the return pipe to the boiler in accordance with manufacturer's technical data sheet.	✓	
5.6	Supply and install a complete boiler flue system in accordance with the manufacturer's technical data sheet and applicable Standards. The Provider shall terminate the flue at a suitable location and supply and install a flue terminal guard as necessary. Supply and install plume kit.	✓	
5.7	Supply and install adequate ventilation in accordance with the manufacturer's technical data sheet and applicable Standards.	✓	
5.8	Supply and install high-and low-level ventilation grilles when the boiler is installed within a cupboard. Such grilles shall be suitably sized in accordance with manufacturer's requirements.	✓	
5.9	Supply and install an additional expansion vessel of appropriate size if the system volume is beyond that which can be accommodated by the built in expansion vessel.	✓	
5.10	Supply and install a 15 mm galvanized steel pipe from the pressure relief valve on the boiler and run it to outside to discharge in a safe location.	✓	
5.11	Supply, install and deliver a pipe cover accessory.	✓	
5.12	Where necessary supply and install a safety discharge pipe, this shall be fitted in accordance with the manufacturer's technical data sheet and shall be arranged to discharge externally in a safe location and tied back to the wall.	✓	
5.13	Supply and install all condense pipes which shall be preferably run internally and terminated in accordance with the manufacturer's technical data sheet and recommendations. If run externally they must be secure and lagged with external waterproof lagging of 19mm thick to applicable Standards.	✓	
5.14	Supply and install all flues and condensation drain pipes associated with the required appliances and which shall be fitted in accordance with manufacturer's technical data sheet. This shall include all associated builders work and making good.	✓	
5.15	Provider shall also include for the provision of all access equipment on Properties of two storeys or below.	✓	
5.16	The Provider shall include for a suitable terminal guard to be fitted where flue terminals are less than 2m above ground level.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
	Radiators		
6.1	Supply and install radiators complete with brackets and be fitted with a chrome plated thermostatic radiator valve (except in room where room stat fitted) and 15mm type chrome lock shield isolating valve. Radiator connections shall be at the bottom and opposite ends. Air release valve are to be fitted on the flow side top connections.	✓	
6.2	Supply and install reflective foil to be fitted behind all radiators on external walls. The foil shall be cut neatly, 25mm smaller than radiator dimensions and fixed in accordance with manufacturer's technical data sheet and recommendations behind the radiator-fixing bracket.	✓	
6.3	Supply and install a drain off tapping fitted at lowest point in the system.	✓	
6.4	The radiators shall be supplied with a good priming coat.	✓	
	Cylinders		
7.1	Where a system boiler is provided, the Provider shall include a new high recovery foam insulated indirect cylinder of appropriate size for dwelling (minimum storage capacity 120 litres). The cylinder shall be pre insulated of an appropriate grade for the installation The cylinder shall be located in the existing hot press. The Provider shall include for a 22mm cold feed to this cylinder from the main storage tank and for a 22mm vent pipe.	✓	
7.2	Supply and install a 750mm long immersion heater facility rated at 3kW and thermostat to applicable Standards and heater booster switch.	✓	
7.3	Supply and install a new 22mm gate valve on the cold feed, heating flow and return pipework to the cylinder.	✓	
	Controls		
8.1	Supply and install programmer to incorporate a manual override facility and to be an electro-mechanical programmer and be located in the kitchen, wireless programmers may also be installed if approved by the Client's Representative	✓	
8.2	Supply and install 22mm motorised valves complete with actuator motor to be located as shown on the Providers drawings complete with isolating valves.	✓	
8.3	Supply and install room thermostat. A wireless room thermostat may also be installed if approved by the Client's Representative.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
8.4	Supply and install wiring centre in accordance with the manufacturer's installation instructions to be located as shown on the Provider's drawings.	✓	
8.5	Supply and install an immersed cylinder thermostat set at 60°C in a cylinder provided pocket.	✓	
8.6	Supply and install an automatic bypass to be fitted to all systems including combination boilers should the boiler manufacturer's technical data sheet advise that this is a requirement of the installation.	✓	
8.7	Supply and install a frost thermostat to be provided if the boiler is located in a position where frost damage may occur.	✓	
8.8	Supply and install a heating pump in an accessible location. The pump shall be sized to provide the correct flow rate against the system resistance.	✓	
	Insulation		
9.1	Supply and install insulation to all pipework running under ground floor suspended floors, through unheated areas (ducts, cupboards, or in loft spaces in accordance with the Client's Specification. All primary pipework and pipework within hot presses shall also be insulated.	✓	
	Water storage Tanks		
10.1	Supply and install a plastic 18 litre feed and expansion cistern in accordance with the current Water Regulations if an open vented system is to be used.	✓	
10.2	Supply and install purpose made lids and insulation jacket for the feed and expansion cistern.	✓	
10.3	Supply and install overflows of suitable size to the feed and expansion cistern and discharge it in an appropriate location.	✓	
10.4	Supply and install an open vent and cold feed to the heating system in accordance with the boiler manufacturer's technical data sheet.	✓	
10.5	Supply and install a framework to support the feed and expansion cistern. The framework shall transfer all the live load to the floor or surrounding walls. The framework shall be made from timber with a minimum of four cross supports. The feed and expansion cistern shall be sited on 25mm marine plywood.	✓	

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
	Electrical Installation		
11.1	Supply and install if required a new electrical circuit from consumer unit and connect to the new immersion heater via a heater booster switch.	✓	
11.2	If a new consumer unit is required this will be a surface non-combustible unit with lid, and complete with: main control switch to applicable Standards; sufficient RCBO's to accommodate all the sub-circuits scheduled for the Property; a minimum of 20% spare ways for future capacity; and each protective device to be permanently labelled to identify each circuit and rating.		✓
11.3	Provision of new electrical circuit and connect to Boiler any type and system control equipment and accessories.	✓	
11.4	Circuit wiring shall be carried out using 2.5mm ² PVC/PVC insulated cables. All routing of trunking shall be done in a workmanlike manner and shall be arranged to be unobtrusive in terms of its layout.	✓	
11.5	Supply and install final connections for boilers, heating circulators, electric inset fire and immersion heater which shall be heat resisting 3 core 2.5mm ² butyl. Include for the upgrading of supplementary earth bonding to a new system in accordance with the applicable Standards for electrical installations.	✓	
11.6	Earth bonding shall be completed where necessary back to the main consumer unit or meter.	✓	
11.7	All control wiring associated with the installation shall be supplied and installed by the Provider.	✓	
	Commissioning and Testing		
12.1	If any Works are undertaken on the hot and cold water Services within each Property then the Provider shall chlorinate all hot and cold water services in accordance with applicable Standards, HSG 70 and to the current edition of the Water Regulations. Prior to chlorination the Provider shall flush out all hot and cold water services. The services chlorinated during the works are to be recorded on the Client's Chlorination Certificate.	✓	
12.2	Flush out the heating flow and return pipework and radiators prior to connection to the boiler at least twice, with the boiler manufacturer's recommended descaling/flushing agent and power flushing machine. The Provider will also provide a certificate stating that the flushing was undertaken in accordance with both the boiler manufacturer's and the flushing agent manufacturer's technical data sheet.	✓	

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
12.3	The filling loop is to be removed and capped and secured with a spring clip or pipe clip adjacent to mains feed and heating circuit connections.	✓	
12.4	Upon completion of the pipework installations, water pipework shall be filled with clean water and then subjected to a hydraulic pressure test and the Provider shall complete the Client's Hydraulic Test Certificate.	✓	
12.5	Heating and HWS primary systems shall be subjected to a test pressure of 6.0 bar or twice the working head. HWS and cold water service pipework shall be subjected to a test pressure of one and a half times the working head. The test periods shall not be less than 30 minutes. All the above pressure tests shall be recorded on the Client's Hydraulic Test Certificate.	✓	
12.6	After the hydraulic tests have been carried out to the satisfaction of the Client's Representative, each system is to be cleaned and dosed and a heat test shall be carried out.	✓	
12.7	Main burner pressure, gas rate, functional checks and flame supervision device should be checked as recommended in the manufacturer's installation instructions. The whole system should be balanced to provide an even temperature distribution.	✓	
12.8	The Provider shall regulate the systems to the satisfaction of the Client's Representative and the results shall be recorded on the Client's Commissioning Certificate and Heat Test Certificate.	✓	
12.9	The Provider shall upload onto the Client's IT system an Electrical Installation Certificate for the electrical installation within each dwelling.	✓	
12.10	Upload onto the Client's IT system a signed certificate of the gas safety checks and gas pressure test within the operation and maintenance manuals.	✓	
12.11	Test for soundness and purge in accordance with applicable Standards and certify.	✓	
12.12	Upon completion the gas pipework is to be pressure tested (may be witnessed by the Client's Representative) for 15 minutes at a pressure of 20mbar.	✓	
12.13	Flush out the heating services at least twice prior to filling and adding inhibitor to the system.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
12.14	At the time of commissioning following the successful cleaning of the system the Provider will add the boiler manufacturer's recommended corrosion inhibitor approved by the Client's Representative, dosed in accordance with the manufacturer's technical data sheet, into the heating system after the system has been tested.	✓	
	Customer's Instructions		
13.1	Ensure the manufacturer's installation and servicing instructions and user instructions are left with a responsible person on site together with an A4 size laminated sheet giving simple clear basic instructions and guidance.	✓	
13.2	Supply a radiator vent key and for thoroughly explaining to the Customer, demonstrating the operation of the system and checking their understanding.	✓	
13.3	Ensure that the system is set up ready for the Customer's own requirements. The Customer should be asked about their lifestyle and heating requirements, rather than the "standard" heating pattern being imposed.	✓	
13.4	In instances where the Customer's first language is not English or alternatively where there are communications difficulties, the Client's Representative shall be advised.	✓	
	Health & Safety File		
14.1	During the pre-construction phase, the principal designer shall prepare a health and safety file appropriate to the characteristics of the project which shall contain information relating to the project which is likely to be needed during any subsequent project to ensure the health and safety of any person. The information required per Scheme shall be agreed with the Client's Representative prior to commencing the Works:	✓	
	Scaffolding		
15.1	Provide, erect, maintain and dismantle on completion tower scaffolding. Include for gaining access, ladders, boards and physical ties where necessary.	✓	
15.2	The cost of scaffolding is only reimbursed when provided on Properties above two storeys.		✓
	SAP Ratings and Energy Performance Certificate		
16.1	Upon completion of the heating installation the Provider is to provide an Energy Performance Certificate for the Property.	✓	

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Item	Work Description	Deemed included within All-in Central Heating Renewal Rates	Reimbursed through Schedule of Rates
Maintenance of System			
17.1	Supply a self-adhesive label and fit the label to each boiler on completion. The label shall contain the information listed in clause 196:	✓	
17.2	Accept responsibility for both the new boiler and the heating system within each Property with the exception of any previously installed gas fires and gas cooker from the date of completion of each section of Works.	✓	
17.3	Accept liability for all defects until the end of the 12 months defects liability period and all defects are corrected. Any faults that occur during the defects period on the new and existing mechanical plant and equipment shall be repaired at the Provider's own expense.	✓	
17.4	Provide a repair service line that is open 24 hours. The Provider must respond within 2 hours to all breakdown calls 24 hours a day. Calls can come from any of the following sources (Call Centre, On-Call Officer or Client. The number of the service line is to be given to Client at the pre-contract meeting.)	✓	
17.5	Provide a report sheet to the Client within one day of a fault being reported to the Provider with the information listed in clause 202.	✓	

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

REPLACEMENT BOILER (WITHOUT AND WITH CONTROLS): Example Check List

[Client to amend as appropriate]

Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
	General		
1.0	Removal of Client's and or Customer installed existing boiler of any type and boiler flue and making good.	✓	
1.1	Patch plaster walls for decorations following strip out, total area not exceeding 2m2.	✓	
1.2	Removal of all redundant pipework and cables where required and make good to all disturbed surfaces.	✓	
1.3	Removal of existing control equipment, wiring and accessories.	✓	
1.4	All builders work in connection with the installation, including holes, making good decorations to match existing following the removal of redundant equipment and after the installation of new equipment.	✓	
1.5	Undertake all surveys, prepare working drawings, prepare all calculations, obtain Customer's approval, obtain Client's Representative's approval. The Provider shall carry out all necessary Customer consultation.	✓	
	Hot and Cold Water Plumbing		
2.1	Connect to the existing hot water service, cold feed and open vent serving the dwelling. All the above pipework will be shown on the Provider's working drawings.	✓	
2.2	Supply and install if necessary a cold water main from the nearest existing point to feed the boiler in 15 mm pipe as shown on the Provider's working drawing if a system boiler is installed.	✓	
	Heating Plumbing		
3.1	Supply and install or modify the heating flow and return pipework from the boiler to the pump and motorised valves and magnetic filter, as shown on the Providers drawings. From the motorised valves the heating shall split to feed the hot water cylinder and radiators within each room, as shown on the Provider's working drawings.	✓	
3.2	Supply and install at low points of the heating system, a Lock shield drain cock to applicable Standards, complete with loose keys.	✓	

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Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
	Gas Plumbing		
4.1	The gas carcassing to be replaced to the new appliance from the meter position in all cases. In addition, the Provider shall extend the carcass to the cooker position and reconnect the Customer's cooker including stability device if not already fitted. If the Customer has an electric cooker then the gas supply is to capped off at this point. The Provider is to ensure that the supplies are of sufficient size, to supply the volume of gas required to allow the appliances to function effectively and in accordance with the manufacturer's technical data sheet.	✓	
4.2	Supply and install a bayonet fitting 600 mm from finished floor level on the gas supply to the cooker.	✓	
	Boilers etc		
5.1	Install boilers which are SEDBUK A rated high efficiency with evidence of a Low No-x rating condensing boiler as manufactured by a manufacturer approved by the Client's Representative.	✓	
5.2	Supply and install in the cold water mains supply prior to entering the boiler, a branch connecting with a filling loop which connects between the cold mains and the heating flow. The filling loop shall complete with all valves in accordance with Water Regulations and manufacturer's technical data sheet and recommendations.	✓	
5.3	Provide a minimum ten year's manufacturer's guarantee with a minimum ten-year parts and labour warranty and this shall be arranged to run from the date of the completion certificate.	✓	
5.4	Provide a boiler installation record secured to the inside of the lower casing giving the Provider's name and address and the date of installation.	✓	
5.5	All new boilers are to be fitted with a magna-filter on return pipe.	✓	
5.6	Supply and install a complete boiler flue system in accordance with the manufacturer's technical data sheet and applicable Standards. The Provider shall terminate the flue a suitable location and supply and install a flue terminal guard as necessary.	✓	
5.7	Supply and install adequate ventilation in accordance with the manufacturer's technical data sheet and applicable Standards.	✓	
5.8	Supply and install high and low level ventilation grilles when the boiler is installed within a cupboard. Such grilles shall be suitably sized in accordance with manufacturer's requirements.	✓	

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Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
5.9	Supply and install an additional expansion vessel of appropriate size if the system volume is beyond that which can be accommodated by the built in expansion vessel.	✓	
5.10	Supply and install a 15 mm galvanized steel pipe from the pressure relief valve on the boiler and run it to outside to discharge in a safe location.	✓	
5.11	Supply and install a pipe cover accessory.	✓	
5.12	Where necessary supply and install a safety discharge pipe, this shall be fitted to the manufacturer's technical data sheet and shall be arranged to discharge externally in a safe location and tied back to the wall.	✓	
5.13	Supply and install all condense pipes which shall be preferably run internally and terminated in accordance with the manufacturer's technical data sheet and recommendations. If run externally they must be secure and lagged with external waterproof lagging of 19mm thick to applicable applicable Standards.	✓	
5.14	Supply and install all flues and condensation drain pipes associated with the required appliances and which shall be fitted in accordance with manufacturer's technical data sheet. This shall include all associated builders work and making good.	✓	
5.15	Provider shall also include for the provision of all access equipment on Properties of two storeys or below.	✓	
5.16	The Provider shall include for a suitable terminal guard to be fitted where flue terminals are less than 2m above ground floor level.	✓	
	Controls		
6.1	Supply and install programmer to incorporate a manual override facility and to be an electro-mechanical programmer and be located in the kitchen, wireless programmers may also be installed if approved by the Client's Representative.	✓	
6.2	Supply and install 22mm motorised valves with isolating valves complete with actuator motor to be located as shown on the Providers drawings.	✓	
6.3	Supply and install room thermostat A wireless room thermostat may also be installed if approved by the Client's Representative.	✓	

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Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
6.4	Supply and install wiring centre in accordance with the manufacturer's to be located as shown on the Providers drawings.	✓	
6.5	Supply and install an immersed cylinder thermostat set at 60°C in a hot water cylinder provided pocket.	✓	
6.6	Supply and install an automatic bypass to be fitted to all systems including combination boilers should the boiler manufacturer's technical data sheet advise that this is a requirement of the installation.	✓	
6.7	Supply and install a frost thermostat to be provided if the boiler is located in a position where frost damage may occur.	✓	
6.8	Supply and install a heating pump in an accessible location. The pump shall be sized to provide the correct flow rate against the system resistance.	✓	
	Insulation		
7.1	Supply and install insulation to all pipework running under ground floor suspended floors, through unheated areas (ducts, cupboards, or in loft spaces shall be provided with rigid pipe insulation. All primary pipework and pipework within airing cupboards shall also be insulated.		✓
	Water storage Tanks		
8.1	If the existing cold water storage tank is defective, renew tank with new 227 litres actual and constructed of a plastic material acceptable to the Client's Representative, include for new ball valve and float, lid, Byelaw 30 kit and rigid insulation, allow for turning water on/off, draining/refilling system, adjusting and connecting pipework and overflow, remove old tank and test on completion.		✓
	Electrical Installation		
9.1	Re-connect existing switched connection fused connection to new boiler of any type.	✓	
9.2	Circuit wiring shall be carried out using 2.5mm ² PVC/PVC insulated cables All routing of trunking shall be done in a workmanlike manner and shall be arranged to be unobtrusive in terms of its layout.	✓	
9.3	Supply and install final connections to boiler and system control equipment which shall be heat resisting 3 core 2.5mm ² butyl Include for upgrading where necessary the supplementary earth bonding in accordance with the applicable Standards for electrical installations.	✓	

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Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
9.4	Earth bonding shall be completed where necessary back to the main consumer unit or meter.	✓	
9.5	All existing control wiring associated with the installation shall be retained and final connections to equipment shall be provided by the Provider.	✓	
	Commissioning and Testing		
10.1	If any works are undertaken on the hot and cold water services within each dwelling then the Provider shall chlorinate all hot and cold water services in accordance with applicable Standards, HSG 70 and the current edition of the Water Regulations. Prior to chlorination the Provider shall flush out all hot and cold water services. The services chlorinated during the works are to be recorded on the Client's Chlorination Certificate.		✓
10.2	Flush out the heating flow and return pipework and radiators prior to connection to the boiler at least twice, with the boiler manufacturer's recommended descaling/flushing agent and power flushing machine. The Provider will also provide a certificate stating that the flushing was undertaken in accordance with both the boiler manufacturer's and the flushing agent manufacturer's technical data sheet.	✓	
10.3	The filling loop is to be removed and capped and secured with a spring clip or pipe clip adjacent to mains feed and heating circuit connections.	✓	
10.4	Upon completion of the pipework installations, water pipework shall be filled with clean water and then subjected to a hydraulic pressure test and the Provider shall complete the Client's Hydraulic Test Certificate.	✓	
10.5	Heating and HWS primary systems shall be subjected to a test pressure of 6.0 bar or twice the working head. HWS and cold water service pipework shall be subjected to a test pressure of one and a half times the working head. The test periods shall not be less than 30 minutes. All the above pressure tests on the Client's Hydraulic Test Certificate shall be uploaded onto the Client's IT system.	✓	
10.6	After the hydraulic tests have been carried out to the satisfaction of the Client's Representative, each system is to be cleaned and dosed and a heat test shall be carried out.	✓	

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Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
10.7	Main burner pressure, gas rate, functional checks and flame supervision device should be checked as recommended in the Manufacturer’s installation technical data sheet. The whole system should be balanced to provide an even temperature distribution.	✓	
10.8	The Provider shall regulate the systems to the satisfaction of the Client’s Representative and the results shall be recorded on the Client’s Commissioning Certificate and Heat Test Certificate.	✓	
10.9	The Provider shall upload onto the Client’s IT system an Electric Test Certificate for the electrical installation within each dwelling.	✓	
10.10	Upload onto the Client’s IT system with a signed certificate of the gas safety checks and gas pressure test within the operation and maintenance manuals.	✓	
10.11	Test for soundness and purge in accordance with applicable Standards and certify.	✓	
10.12	Upon completion the gas pipework is to be pressure tested (may be witnessed by the Client’s Representative) for 15 minutes at a pressure of 20mbar.	✓	
10.13	Flush out the heating services at least twice prior to filling and adding inhibitor to the system.	✓	
10.14	At the time of commissioning following the successful cleaning of the system the Provider will add the boiler manufacturer’s recommended corrosion inhibitor approved by the Client’s Representative, dosed in accordance with the manufacturer’s technical data sheet, into the heating system after the system has been tested.	✓	
	Customer’s Instructions		
11.1	Ensure the manufacturer’s installation and servicing instructions and user instructions are left with a responsible person on site together with an A4 size laminated sheet giving simple clear basic instructions and guidance.	✓	
11.2	Ensure that the system is set up ready for the Customer’s own requirements. The Customer should be asked about their lifestyle and heating requirements, rather than the "standard" heating pattern being imposed.	✓	
11.3	In instances where the Customer’s first language is not English or alternatively where there are communications difficulties, the Client’s Representative shall be advised.	✓	

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Item	Work Description	Deemed included within All-in Boiler Renewal Rates	Reimbursed through Schedule of Rates
	Health & Safety File		
12.1	During the pre-construction phase, the principal designer shall prepare a health and safety file appropriate to the characteristics of the project which shall contain information relating to the project to ensure the health and safety of any person. The information required per Scheme shall be agreed with the Client's Representative prior to commence to commence the works.	✓	
	Scaffolding		
13.1	Provide, erect, maintain and dismantle on completion tower scaffolding. Include for gaining access, ladders, boards and physical ties where necessary.	✓	
13.2	The cost of scaffolding is only reimbursed when provided on Properties above two storeys.		✓
	SAP Ratings and Energy Performance Certificate		
14.1	Upon completion of the installation the Provider is to provide an Energy Performance Certificate for the dwelling.	✓	
	Maintenance of System		
15.1	Supply a self-adhesive label and fit the label to each boiler on completion. The label shall contain the information listed in clause 196.	✓	
15.2	Accept responsibility for the new boiler from the date of completion of each section of works.	✓	
15.3	Accept liability for all defects until the end of the 12 months defects liability period and all defects are corrected. Any faults that occur during the defects period on the new and existing mechanical plant and equipment shall be repaired at the Provider's own expense.	✓	
15.4	Provide a repair service line that is open 24 hours. The Provider must respond within 2 hours to all breakdown calls 24 hours a day. Calls can come from any of the following sources (Call Centre, On-Call Officer or Client. The number of the service line is to be given to Client's Representative at the pre-contract meeting.)	✓	
15.5	Provide a report sheet to the Client within one day of a fault being reported to the Provider with the information listed in clause 202.	✓	

ELECTRICAL WORKS

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

ELECTRICAL WORKS

GENERAL

Regulations

- 001 All electrical Works must be carried out in accordance with the applicable Standard - Requirements for Electrical Installations IET Wiring Regulations co-published by the British Standards Institution ("BSI") and the Institution of Engineering and Technology ("IET").

Equipotential bonding

- 002 Standard: To applicable Standard
General: Connect the following metallic parts to the main earthing terminal, where they are extraneous-conductive parts to:
- metal water installation pipes;
 - metal gas installation pipes, as near practical to the point of entry of the service into the premises and before any branch pipework where the meter is fitted externally.
 - Where practicable the connection shall be made within 600mm of the meter outlet union where the meter is installed internally;
 - central heating system pipework;
 - other installation pipework (including oil and gas supply pipes) and ducting; and
 - exposed metallic structural parts of the building.
- 003 Sizes of bonding conductors are given in applicable Standard.

Supplementary equipotential bonding

- 003 Standard: To applicable Standard
- 004 General: Within the zone formed by the main equipotential bonding, provide connections to:
- baths;
 - sinks;
 - exposed pipes; and
 - heating systems.
- 005 In locations containing a bath or shower, supplementary equipotential bonding is to comply with applicable Standard
- 006 Sizes of supplementary equipotential bonding conductors are given in applicable Standards.
- 007 Electrical equipment and/or electrical circuits installed in a room containing a bath or shower shall have RCD protection, complying with applicable Standards.
- 008 Where all electrical requirements in the dwelling to the applicable Standard for electrical installations are met, supplementary equipotential bonding as Clause 003 may be omitted.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

MATERIALS

Earth Electrode

- 009 Standard: to applicable Standard
General: Conductive part, which may be embedded in the soil or in a specific conductive medium, in contact with the earth;
Materials: Copper, with hardened steel driving cap, hardened steel tip and phosphor bronze coupling screws;
Mechanical protection: Each earth electrode shall be protected from mechanical damage by enclosing in a heavy duty cast-iron box with lid or a heavy duty concrete box with lid. The earth lead shall be enclosed, where exposed in heavy gauge galvanised steel conduit. Permanent labels to applicable Standard indelibly marked "Safety Electrical Earth Do Not Remove" shall be attached to the earth lead at both the meter cupboard and at the electrical electrode.

Conduit/trunking/ducting

- 010 Do not use surface conduit or trunking without an Instruction to do so from the Client's Representative.

Steel Conduit and fittings

- 011 Standard: to applicable Standard
Type: Plain threadable rigid conduit;
Size: In accordance with applicable Standard;
Fittings: Circular boxes shall be malleable cast-iron;
Finish: Class 4 hot dipped galvanised;
Mounting/support: Conduit shall be secured to surfaces using galvanised steel clips/saddles;
Mounting/support: Conduit shall be secured to surfaces using galvanised steel clips/saddles
Installation: Use maximum practical lengths to minimise number of joints. Form bends by machine and remove burrs from cut ends. Use bends and or/junction boxes at changes of direction. Elbows or tees shall not be used without the consent of the Client's Representative. Conduit system to be secured using brass screws and fibre/plastic plug. Boxes must be fixed independently of conduit. Tightly screw all joints to ensure electrical continuity, with no thread showing. All threads to be treated with rust inhibiting paint. Use expansion couplings where conduit crosses movement joints in structure. Make secure connections to boxes, trunking etc., with screwed coupling and provide rubber bushes at open ends.

PVC-u conduits and fittings

- 012 Ensure PVC-u conduits and fittings comply with the following:
- strength: heavy gauge super high impact;
 - shape/colour: round, white;
 - jointing: push fit and solvent welded;
 - fittings: standard;
 - mounting/support: screw the conduit to surfaces using the conduit manufacturer's clips/saddles;
 - use maximum practical straight lengths to minimise number of joints;
 - use proprietary bends and/or junction boxes at changes of direction;
 - do not use elbows, tees or site formed bends without the approval of the Client's Representative;
 - secure the conduit system using boxes, plated screws and fibre/plastic plugs;
 - fix boxes independently of the conduit; and
 - form secure joints, using expansion couplings where recommended by the manufacturer and connectors at equipment and terminal fittings.

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PVC-u surface cornice trunking system

- 013 Use PVC-u surface cornice trunking in conjunction with mini trunking for the mechanical protection of sub-mains cables and final circuit cables in accessible locations at ceiling level, where approved by the Client’s Representative. Ensure the trunking complies with the following:
- fittings: use the manufacturer’s standard fittings;
 - colour: white;
 - mounting/support: secure to surfaces using plated screws and fibre/plastic plugs; and
 - use proprietary units to form junctions and changes of direction wherever possible.

PVC-u surface mini-trunking system

- 014 Use PVC-u surface mini-trunking for the mechanical protection of final circuit cables in accessible locations. Ensure the trunking complies with the following:
- fittings: use the manufacturer’s standard fittings;
 - colour: white;
 - mounting/support: secure to surfaces using plated screws and fibre/plastic plugs; and
 - use proprietary units to form junctions and changes of direction wherever possible.

Fire stopping of trunking/ducting

- 015 Seal trunking/ducting internally with firmly packed rock fibre or intumescent type material supplied by the trunking/duct manufacturer.

Cables generally

- 016 Ensure cables are BASEC certified. Use cables in the locations and for the uses specified in the table below:

Location/Use:	Cable Type:
General (includes central heating, ventilation and smoke detector systems)	PVC insulated and sheathed
Conduit system (complete)	PVC insulated and sheathed or PVC insulated only
Sub-mains distribution	PVC split concentric
Sub-mains distribution armoured and PVC sheathed	PVC insulated, PVC sheathed, steel wire armour and PVC sheathed
Fire alarm system	PVC insulated and sheathed
Immersion heater (final connection)	EP rubber/HOFR sheath, Heat resistant PVC flexible cable

PVC-u insulated and sheathed cables and PVC-u insulated split concentric cables

- 017 Colour code cables for identification.

Electrical accessories generally (wall mounted)

- 018 Ensure wall mounted accessories for the connection and control of power, lighting and low voltage equipment are:
- manufactured using white moulded plastic;
 - complete with surface or flush type mounting box except where specified otherwise;
 - from the same manufacturer in a single installation; and
 - marked to show their function where they are a control switch for e.g. an immersion heater, a cooker, a refrigerator, a washing machine or a circulating pump etc.,.
- 019 Ensure metal boxes for flush mounting switches and sockets are manufactured from galvanised steel complete with an earth terminal.
- 020 Fix all boxes using brass screws, fibre or plastic plugs.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Electrical accessories generally (ceiling mounted)

- 021 Ensure ceiling mounted accessories for the connection and control of power, lighting and low voltage equipment:
- are manufactured using white moulded plastic;
 - are complete with mounting box where required;
 - are from the same manufacturer where used in a single installation;
 - are fixed with brass or sheradised screws, with fibre or plastic plugs as required; and
 - in conduit systems have a white insulated break-ring between the ceiling roses and cord switches and the respective terminal boxes.

Consumer unit

- 022 Ensure consumer units:
- have a surface non-combustible pattern unit complete with lid;
 - have a main switch of 80/100 amp DP rating;
 - are fitted with RCBO's to applicable Standard;
 - located adjacent to the meter at the incoming supply position; and
 - have each way permanently labelled to identify the circuit and rating.
- 023 In installations without Protective Multiple Earthing it must be a surface non-combustible unit complete with lid, fitted with RCBO's to applicable Standard and must be labelled to correspond to the following circuit allocations:

Circuit No Allocations	RCBO Rating
Lighting Downstairs	6
Lighting Upstairs	6
Boiler	6
Immersion Heater	16
Kitchen Ring Main Circuit	32
Shower	45
Cooker	32
Power Ring Main Circuit – RCD/RCBO protected	32
Mains Powered Smoke Alarms	6

Residual current device/residual current circuit device (RCD/RCCD)

- 024 Ensure RCDs and RCCDs:
- function as both isolators and switches;
 - have a current rating of 80 amp DP;
 - have a sensitivity of 30m amp; and
 - are complete with an insulated cover or terminal shrouds.

Residual current circuit breaker (RCCB)

- 025 Ensure RCCBs:
- function as both isolators and switches;
 - have a current rating of 63 amp DP;
 - have a sensitivity of 30mA; and
 - have a white PVC enclosure.

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Residual current circuit breaker with override protection (RCBO)

- 026 Ensure RCBOs:
- function as both isolators and switches;
 - have a current rating of 80A DP;
 - have a sensitivity of 30mA; and
 - are complete with an insulated cover or terminal shrouds.

ISCO connectors

- 027 For ISCO connectors ensure:
- the covers and bases are manufactured from black phenolic resin material; and
 - the connector blocks are manufactured from brass with electro-tin finish.

Door bells

- 028 Ensure door bells:
- are primary mains supply, transformer , 6v secondary outlet;
 - have a white bell push PVC-u cover; and
 - are screw fixed.

Bulkhead light fitting (fluorescent) (metal base)

- 029 Ensure metal base bulkhead light fittings:
- have a corrosion resistant die-cast or pressed metal base complete with a vandal resistant diffuser;
 - have the wiring within the fitting protected by heat resistant sleeving;
 - are installed complete with a 20W compact fluorescent lamp with integrated control gear;
 - lamp efficacy to be greater than 45 lumens per circuit-watt;
 - controlled manually by Customers; and
 - are screw fixed.

Bulkhead light fittings (fluorescent) (polycarbonate base)

- 030 Ensure polycarbonate base bulkhead light fittings:
- have a heavy duty polycarbonate base with a vandal resistant diffuser;
 - have the wiring within the fitting protected by heat resistant sleeving;
 - are installed complete with a 20W compact fluorescent lamp with integrated control gear;
 - lamp efficacy to be greater than 45 lumens per circuit-watt;
 - controlled manually by Customers; and
 - are screw fixed.

Photocell sensor

- 031 Ensure sensors to control the landlord's lighting installation are:
- complete with a baseholder and wall mounting bracket;
 - screw fixed to masonry or concrete; and
 - fixed in a position approved by the Client's Representative.

TV aerial installation

- 032 Ensure TV aerial installations:
- consist of 20mm diameter PVC-u conduit complete with co-axial cabling run from roof level; and
 - terminate at a white plastic surface mounted outlet box complete with a white plastic cover plate with single co-axial TV outlet.

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Time switch (24 hour)

- 033 Ensure time switches:
- have a 24 hour and quartz control mechanism;
 - are a 20 amp single pole, single throw time switch; and
 - have 2 'on' and 2 'off' programmes with a day omitting device and independent motor connections.

Smoke detectors

- 034 Ensure smoke detectors:
- have white PVC-u for the housing;
 - have a minimum 10 year life expectancy;
 - include a photo-electronic sensor to applicable Standard;
 - are 240 V mains operated with a sealed-in rechargeable Lithium cell back up supply; and
 - include a full function test/hush button control, automatic reset, Green and Red LED indicators to confirm alarm status and low power cell warning signal.

Heat detectors

- 035 Ensure heat detectors:
- have white PVC-u housing;
 - have a minimum 10 year life expectancy;
 - comprise a fixed temperature fast response thermistor sensor with a range of 54° – 62° centigrade to applicable Standard;
 - are 240V mains operated with a sealed-in rechargeable Lithium cell back up supply; and
 - include or have a test button control function, Green and Red LED indicators to confirm alarm status and low power cell warning signal.

Carbon monoxide detectors

- 036 Ensure carbon monoxide detectors:
- have white PVC-u housing;
 - have a minimum 10 year life expectancy;
 - incorporate an electrochemical cell sensor module;
 - are battery operated to applicable Standard fixed with security screws to ceiling;
 - sensor power pack life 10 years;
 - include a continuous self check function monitor with test/hush facility;
 - have a pre-alarm warning LED;
 - include LEDS for battery power pack life, CO level and fault status; and
 - have a CO gas test feature.

Fixing electrical accessories/equipment

- 037 Position accessories accurately and squarely to the vertical and horizontal axes. Where not shown otherwise, align adjacent accessories on the same vertical or horizontal axis (as appropriate). Agree the mounting heights with the Client's Representative.

Multi-gang switches

- 038 Connect switches so that there is a logical relationship with the lights.

WORKMANSHIP

Installation generally

- 039 Install, test and commission the electrical work in accordance with the applicable Standards for electrical installations and the design and performance requirements set out in this Section so as to provide a safe, well insulated, earth protected system capable of supplying the anticipated maximum demand.

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- 040 Ensure all installation Works are carried out by qualified electricians fully conversant with the applicable Standards for electrical installations to good workmanship by skilled (electrical) or instructed (electrical) persons and proper Materials shall be used in the electrical installation.
- 041 Do not allow the number of Apprentices and Trainees at a Property to exceed the number of qualified electricians.
- 042 Ensure all installation Works are carried out under the direct supervision of a "Qualifying Manager" named in the List of Approved Contractors issued by the National Inspection Council for Electrical Installation Contracting (or equivalent).
- 043 Use only the types of fastenings, bushes, glands, terminals, connectors, clips, clamps and all other minor accessories necessary to complete the installation that are recommended by the manufacturer of the electrical equipment being installed.
- 044 Avoid contact between dissimilar metals. Use corrosion resistant fastenings in locations where moisture is present or may occur.
- 045 Rectify, free of charge to the Contract, any Work which in the opinion of the Client's Representative has not been properly executed and must replace free of charge to the Contract any Materials which do not comply with this Specification.
- 046 Confirm the voltage and frequency of the supply before ordering any equipment.
- 047 Include in his tender for the provision of all fixings and the making good by qualified tradesmen to the satisfaction of the Client's Representative all damage to walls, ceilings, decorations and fitments.
- 048 Dust sheets are to be used and every consideration given to Customer's property.
- 049 After work is completed each day all systems will be left in a safe usable condition and all dust and mess cleared up.

Circuit chart

- 050 Standard to applicable Standard
Regulation No. 514.9.1
Requirements: For simple domestic electrical installations the information required in Regulation 514.9.1 may be given in a Schedule
Schedule: A laminated durable copy of the Schedule relating to the Consumer Unit(s) shall be provided securely fixed within or adjacent to each Consumer Unit.

Electricity supply

- 051 Note that the electricity supply is nominally 240 volt AC, single phase, 50 hertz, 2 wire.

System of wiring

- 052 For concealed wiring, use PVC sheathed 600/1000 volt grade cable of the size and type specified. Wherever possible, run it in within floor, roof and ceiling voids.
- 053 Run cables along the sides of joists at the mid point. Clip them at 450mm centres using cable clips of tinned brass secured by nonferrous fixing pins, screws, clips or a similar fixing. Support the wire and equipment located between the joists by a wood bearer of a size of at least 100x25mm.
- 054 Install the cable:
- with a minimum clearance of 150mm to all heating, gas and waste pipes or ducts; and
 - physically separated from other wiring not associated with lighting and power supplies.

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- 055 Where cables cross flooring joists they must be passed through small holes drilled through the centre of the joists. These holes must not exceed 25mm diameter.
- 056 Ensure cables leaving or crossing joists do so at right angles to the longitudinal side of the joist, on trusses or binders. Do not notch or saw joints. Ensure that cables do not run in positions where they are susceptible to damage by floor nails.
- 057 Do not run cables in roof spaces on the top of joists or insulation. All cables in a roof space shall be clipped to horizontal timber tray supported on battens secured above roof trusses and kept clear of thermal insulation.
- 058 Install cables leaving roof voids and within floor spaces or passing through any part of the structure in conduit or trunking as specified.
- 059 Ensure cables in solid floor that are either laid in screed or in a ceiling void are drawn in through rigid PVC-u conduit as specified and run continuously from the consumer unit to the outlet served.
- 060 Do not install cables within wall cavities.
- 061 Contain all wiring to each flat within that flat.
- 062 Fit conduits complete and then draw the cable through.
- 063 Cables must be protected, supported and fixed to the requirements of the applicable Standards for electrical installations and all other Regulatory Requirements.

Cables installed in plastered walls

- 064 Protect cables by rigid PVC-u metric super high impact heavy gauge conduit where no conduit exists at present. Reuse existing conduit where approved by the Client's Representative.
- 065 Ensure new conduits are in continuous lengths, smooth in bore, true in size, and terminating in roof spaces and within floor spaces with a minimum projection of 50mm. Provide inside outlet boxes with a universal cleat.
- 066 Ensure new conduits are vertical and chased into the wall, such that the finished wall will provide a minimum of 10mm plaster cover. Adequately fix the conduit with sheradised nails and saddle clips, such that during the plastering processes, there is no tendency for plaster to push the conduit forward and reduce the cover.

Cables installed in plasterboard partitions

- 067 In plasterboard partitions with a timber core, draw cables through the partition between the timber studding and noggins. Where timber work occurs, take the cable over the face of the timber by a small chase through the plasterboard and into the timber. Make good the chase with a suitable plaster material finished smooth and flush. Ensure cables installed in partitions are vertical.
- 068 Take due account of any insulation within the partition when sizing the cables so as to prevent overheating.

Conduit installed on the surface

- 069 Use super high impact light gauge PVC-u metric rigid conduit and accessories on fairfaced brickwork or unplastered surfaces in heating cupboards, stores, garages, plant rooms, meter compartments and similar areas.
- 070 Support the conduit by PVC-u spacer bar saddles and wood screws and rawlplugs at intervals not exceeding 400mm.

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071 Allow for the expansion of PVC-u conduit.

072 Install the conduit only vertically or horizontally.

Where new cables are to be installed in or under solid floors

073 Protect cables by rigid PVC-u round super high impact heavy gauge conduit laid in continuous lengths from the consumer unit to the outlet served, run in a diagonal line. Use the proper outlet and inspection bends and tees. Adequately fix the whole system to avoid any displacement by subsequent building trades.

Requirements for PVC-u conduit systems

074 Install no more cables in each circular conduit than necessary to permit easy insertion and withdrawal. Do not install more than the maximum recommended in the applicable Standards for electrical installations. Demonstrate to the Client's Representative that cables can be easily withdrawn and inserted in any section of the installation. If this cannot be done using the existing conduit, then provide new conduit.

075 Use conduits, boxes, fittings and accessories from the same manufacturer and with suitable fixings for the application. Ensure circular conduit is at least 20mm in diameter.

076 Ensure PVC-u outlet boxes and equipment do not become distorted during plastering. Install boxes flush with the finished plaster and the sides vertical, using 1.25" No. 8 woodscrews and rawlplugs or equivalent fixing.

Use of cable trunking

077 Use cable trunking to improve the appearance at points in the installation where a number of conduits terminate or share a common route, and/or at the meter intake positions for the formation of distribution board/local isolator assemblies. Use compact miniature trunking of the appropriate size.

078 Use PVC-u trunking with fitted end covers. Provide a separate earth continuity conductor.

079 Connect trunking to equipment by appropriate screwed couplers, bushes and shakeproof washers, or flanged couplings.

080 Connect trunking to PVC-u conduit by "threaded to plain" adaptors with lock nuts, or clip in adaptors.

081 Clean out trunking before cable is drawn in.

082 Ensure the number of cables installed in trunking does not exceed the space factor specified in applicable Standard

Conductors

083 Ensure all cables comply with British Cable Association recommendations (or equivalent).

084 Carefully remove any insulation in making terminations without causing damage to the conductor. Double the wiring to fill the terminations.

085 Take the sheath of PVC-u sheathed cable inside the outlet boxes or the pattress of ceiling fittings and similar equipment.

086 Securely clamp flexible cords and fit suitable grommets to all terminal boxes.

087 Use cables of the following types and sizes complete with integral earth continuity:

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Concealed wiring - copper 2 core and earth PVC 600/1000 volt grade		
Lighting sub-circuits	- 1.5mm sq	Dependent upon length of circuit and to comply British Standard
Boiler circuits	- 1.5mm sq	
Ring circuits	- 2.5mm sq	
Radial circuits	- 2.5mm sq	
Cooker circuit	- 10.0mm sq	
Shower circuit	- 10.0mm sq	
2/3 Kw Immersion Heater	- 2.5mm sq	
3 Kw Water Heater	- 2.5mm sq	
Flexible cords and cables - heat resistant insulation 300/500 volt grade		
Lighting - pendant lamp holder		0.75mm sq 2 core heat resistant silicone rubber insulated white circular
Lighting - final internal connection for enclosed tungsten fittings in bathrooms, garages, and for exterior light fittings		0.75mm sq 3 core heat resistant butyl rubber
2/3 Kw Immersion heater		2.5mm sq EP rubber/HOFR sheath or heat resistant PVC flexible cable
3 kw Water heater		2.5mm sq EP rubber/HOFR sheath or heat resistant PVC flexible cable

Lighting Circuits

- 088 Install wiring by the loop-in system. Ensure there are no joints or connectors in the final-circuit from the consumer distribution unit.
- 089 Install a maximum of two live pairs and one switch pair at each point. Install the wiring for 2-way switching between switch points. Terminate the earth conductor in each lighting and switch point.
- 090 Install lighting points and arrange the system such that:
 - 2/3 bedroom Properties are provided with two 6 amp circuits; and
 - small 1 bedroom Properties are provided with one 6 amp circuit in the consumer distribution unit.
- 091 Limit the number of points controlled by one 6 amp RCBO way to 10. If an installation has an excess of 20 lighting points then provide three 6 amp RCBO circuit ways.
- 092 Ensure pendant type cord grip, all insulated lampholders and ceiling roses are white plastic and are complete with 225mm of flexible cable as specified for a standard height ceiling. For non-standard Properties, adjust the length of the flexible cable to give a 2.1 metre (7ft) clearance from the lampholder to the floor. Ensure lampholders are all of the insulated heat resisting pattern.
- 093 Ensure interior light switches (except in bathrooms) are white plastic, flush fitting, single pole, rocker operated 5 amp AC units, mounted in boxes with adjustable fixing lugs. Gang the switches as required, using a multiple plate cover.
- 094 Where flush fittings and switches cannot be used, mount single pole rocker operated 5 amp AC surface type switches on matching moulded white plastic boxes.

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- 095 Install light switches at a distance of between 450 and 1200mm above the floor level to the centre of the switch, and at least 150mm from the nearest door frame, unless the Client’s Representative Instructs otherwise.
- 096 Ensure light switches in bathrooms are white plastic 5 amp AC surface pattern operated by a non-conductive pull cord and knob and hang not more than 900mm above floor level. Fit them close to the wall and well clear of the door to the room.
- 097 Support ceiling fittings that are wired and located between joists by wooden bearers of a minimum size of 100x25mm fixed to the joists at both ends of the bearer.
- 098 Do not provide lamps except where specifically required by the Schedule of Rates.

13 amp ring circuit installation

- 099 Connect sockets in ring circuits without spurs using cable as specified, with both ends of each circuit terminated in one 32 amp RCBO at the consumer distribution unit.
- 100 Prevent overloading of circuits by providing specified appliances with separate final-circuits.
- 101 For Properties with a total internal floor area not exceeding 100 square metres on a single level, provide one ring circuit with appropriate numbers of sockets or fused connection units connected to the ring and one kitchen ring main.
- 102 Properties with a total internal floor area exceeding 100 square metres or Properties on two or more levels, are to have a minimum of two ring circuits with the appropriate number of sockets or fused connection units connected to the ring, in addition to a kitchen ring main.
- 103 Locate sockets and fused connector boxes in the same positions as those existing. Ensure they are 13 amp 3 pin white flush pattern. Gang sockets as required, with a multiple plate cover.
- 104 Use surface pattern sockets protected with a RCBO device in garages, and elsewhere on fair face brickwork.
- 105 Ensure sockets have switches unless otherwise specified.
- 106 Ensure the positions of sockets relative to the floor level are as follows:

Location	Dimensions for socket outlets to floor level
Garages, laundry areas	450mm - 1200mm
General living areas, hall, landings, etc.	450mm - 1200mm
Elderly persons’ Properties	450mm - 1200mm
Bedrooms (except elderly persons’ Properties)	450mm - 1200mm
Kitchens (preferred dimension from bottom of outlet to worktop)	Within 100mm and 300mm above worktop level

- 107 In kitchens, where necessary, increase the above dimensions to ensure a satisfactory match with the layout of the wall tiles. Sockets to be aligned level with each other throughout the room. Agree the exact position of sockets with the Client’s Representative before installation to ensure a satisfactory position in relation to storage cupboards and shelves, etc.
- 108 Recess socket boxes into the walls to just below plaster level and provide them with adjustable fixing lugs.

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Cooker circuit

- 109 For cooker circuits, provide one final-circuit connected to one 32 amp RCBO at the consumer distribution unit using cable as specified.
- 110 Locate a flush fitting, white plastic cooker control unit with a 45 amp DP main cooker control switch, complete with neon indicator, horizontally within 150-1200mm maximum from the edge of the cooker spaces Instructed by the Client's Representative. Ensure the dimension from the top of the unit to the floor is 1400mm and from the side of the cooker to the centre line of the unit is 150mm. Where a Customer owns a separate hob and oven, provide a separate 45A DP switch and cooker connection unit below worktop for each appliance.
- 111 Ensure a cooker control unit that is located between storage cupboards or shelves and working top surfaces aligns with other sockets around the worktop.
- 112 Connect the cooker circuit in the cooker control unit. Extend it to terminate in a cooker cable connector outlet mounted 450mm above the finished floor level and immediately adjacent to the cooker. Terminate the cooker wiring at the cooker connector outlet box where no electric cooker is provided. Connect the cooker if the Customer has one.

Immersion heaters

- 113 For heater circuits, provide one final sub-circuit connected to one 16 amp RCBO at the consumer distribution unit using cable as specified.
- 114 Provide for the heater to be controlled by a heating boost switch to applicable Standards located above the worktop in the kitchen with a 20A switch located adjacent to the hot water cylinder in the hot press.
- 115 Use flush fitting units where switches are located outside the hot press. Where flex outlets are located inside the hot press, use either surface or flush fitted units.
- 116 Terminate the circuit adjacent to the heater using suitable cable and 20A switch. Make the final connection with heat resistant flexible cable as specified and run so as to prevent the hanging of clothes, etc., on the cable.
- 117 When the supply cable is exposed within a hot press, protect cables with mini-trunking as specified.

Showers

- 118 For shower circuit, provide one final sub-circuit connected to one 45amp RCBO at the consumer distribution unit using cable as specified. Provide for the shower to be controlled as near as practicable to the shower unit, by a white 45amp AC, DP neon light or indicating flag pull cord switch located in bathroom.
- 119 New showers are to be 8.7KW electric shower unit to applicable Standard, BEAB, BEAB CARE, RNIB, CE marked and WRAS approved complete with installation set maximum temperature control, phased shut down, low pressure indicator, installation set timer setting, including plugging walls as necessary, connect to water and electrical supplies including provision of shower circuit including mini-trunking or rigid PVC-u conduit chased to walls etc., incorporating RCBO protection, controlled with 45A DP switch with neon light or indicator flag, all adjustments to pipework, adjust electrical supply as necessary, fill, test, and undertake tests, provide certificate, and remove all waste.
- 120 Showers are to be supplied with fixed sliding rail, twist and lock shower head mechanism, shower hose with adjustable shower head outlet and soap dish.

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Smoke Heat Detectors

- 121 Smoke alarms must be approved by the Client's Representative and must be installed to applicable Standard and must be of the mains powered type. The mains power must be supplied from an independent circuit of the distribution board and protected by a suitably rated RBCO breaker. The Provider must provide the necessary wiring for interconnection of the units. Installation must be strictly as specified by the manufacturer. One set of instructions must be left on site for Customers' use. The alarm system shall be tested and a certificate supplied to the Client's Representative in accordance with the applicable Standards.
- 122 Detectors must be mains operated with either battery or capacitor back up.
- 123 In premises of two levels, an optical detector is required in each of the circulation spaces and the main habitable room. Manufacturer's technical data sheet requirements must be strictly adhered to.
- 124 Wiring must be in PVC twin and earth cable looped from an independent circuit at the distribution board.
- 125 Interconnection must be made using PVC triple and earth cable between the two detectors, using the third core for interconnection, such that in the event of either surrounding the other must also sound.

Installation control and distribution

- 126 Install, test and commission the electrical work in accordance with the applicable Standards for electrical installations ensuring compliance with design and performance, to provide a safe, well insulated, earth protected system capable of supplying the anticipated maximum demand.
- 127 Ensure the consumer equipment consists of a non-combustible metal consumer unit with lid complying with applicable Standard complete with:
 - main control switch to applicable Standard;
 - sufficient RCBO's to accommodate all the sub-circuits scheduled for the Property; and
 - additional 20% spare way capacity to the number of electrical circuits installed.
- 128 Ensure sufficient space is available for the Utility Provider's metering and service cutouts. If required, provide a panel which satisfies the requirements of the Utility Provider for mounting meters, cutout and other equipment.
- 129 Supply and install PVC connection tails to the Utility Provider's point of supply, using correct coding and matching the cross sectional area to the main isolating switch rating.
- 130 Upgrade all earthing and bonding to conform to applicable Standard. Do not use metal trunking as an earthing conductor.
- 131 Meter tails are to be neatly fixed and clipped as specified.
- 132 Provide all equipment white in colour.
- 133 Clearly identify each way on distribution equipment.
- 134 Ensure the mounting height of equipment is such that persons of average height can reach all fuses, switchgear, etc., from floor level without assistance.
- 135 Conceal cables above the ceilings and maintain access to the cable runs.
- 136 Enclose cables run in cupboards in mini-trunking.
- 137 Before and on starting the Works, obtain approval from the Client's Representative to the proposed routes of cable runs and wiring circuits.

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- 138 Agree any alterations to the agreed routes of wiring circuits with the Client's Representative before starting the Works on them.
- 139 If Works are carried out before having agreed the routes with the Client's Representative, return and reroute and rewire cable runs and circuits where Instructed by the Client's Representative.

Standardisation of components

- 140 Use matching components with all lighting switches, sockets, fused spurs and similar equipment used in the Works, being from the same manufacturer.

Customer's fittings

- 141 Refix any existing fittings installed by the Customer, provided the fitting conforms to applicable Standard.
- 142 Notify the Client's Representative of any Customer's fitting which does not meet applicable Standard and which will therefore not be rewired or reconnected.

Removal of floor boarding, etc

- 143 Carefully remove any floor boarding necessary for the installation of cables. Saw through the tongues only and replace the boards in a workmanlike manner. Joists to be drilled only for the installation of cables. Ensure any new floor boarding is identical in width and thickness. Remove all debris from the joist and roof spaces.
- 144 Make good all plaster disturbed by the removal of fittings to a true and level surface.
- 145 Do not disfigure timber frames and mouldings by sawing or chiselling out for the insertion of cables.
- 146 Where the removal of mouldings, etc. is necessary, ensure the replacement is carried out by a qualified tradesman and that the replacement surface matches the existing surface.

Existing roof insulation

- 147 Where the roof insulation must be moved for the electrical installation, carefully move it to one side. On completion of the electrical Works carefully replace it to its original position. Take care to cover lengths of cable with insulating material to ensure the current rating of the cable(s) is not unduly altered.

Removal of old cables and fittings

- 148 Remove old cables and redundant switches, sockets, clips, boxes, etc. from roof spaces, exposed walls and other noticeable places and make good any disturbed surfaces.

COMPLETION

Inspection and testing

- 149 Ensure that on completion and before being energised, any installation is tested in accordance with applicable Standard.
- 150 Give not less than 24 hours' notice to the Client's Representative before commencing the testing.
- 151 After satisfactory completion of tests, submit copies of all inspection and completion certificates, with all associated schedules and test results if applicable, to the Client's Representative.
- 152 Note the testing instrument serial numbers on the test certificates.
- 153 All charges for testing or re-testing must be borne by the Provider.

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- 154 The Provider must provide all the test instruments and test equipment required, make all arrangements for connections of the mains supply and issue to local authority supply company all appropriate test notices.
- 155 The Provider must affix to the distribution board a notice in accordance with applicable Standard.

Report and certificates

- 156 Ensure all inspections, reports and test certificates and forms are the current version at the time of the test and are in the standard format published by IET, the National Inspection Council for Electrical Installation Contracting (NICEIC), the Electrical Contractors’ Association (ECA) or other certifying and testing body approved by the Client’s Representative.
- 157 For minor Works or alterations to an electrical installation which involve a change or modification to an existing single circuit, provide a certificate for Minor Electrical Installation Works.
- 158 Issue an Electrical Installation Completion Certificate for Major Works or alterations to electrical installations which involve:
 - a change or modification to two or more existing circuits;
 - the addition of one or more new circuits to an existing installation; or
 - a new installation.
- 159 Provide an electrical installations condition report when specifically Instructed by the Client’s Representative.

Operating Instructions

- 160 Each consumer unit must be supplied with an operating instruction card which must be mounted adjacent to the unit.
- 161 The Provider must leave with the Customer printed instructions regarding operation of the consumer unit trip switch.
- 162 The instruction leaflet for the smoke detectors must be left in a safe place either by the electricity meter or consumer unit.

Client’s current manufacturers/suppliers/products

- 163 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

ELECTRICAL INSTALLATIONS (WHOLE DWELLING REWIRES)

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PERFORMANCE SPECIFICATION FOR ELECTRICAL INSTALLATIONS

COMPLIANCE WITH REGULATIONS

- 001 The whole of the electrical installation must comply with the following regulations and requirements including all revisions and amendments applicable at the time.
1. Building Regulations
 2. Electricity supply company regulations
 3. applicable Standards and Codes of Practice
 4. The Health and Safety At Work etc Act 1974
 5. Electrical Equipment (Safety) Regulations
 6. Electricity at Work Regulations 1989
- 002 Within the scope of this specification and the schedule, the Provider must be responsible for the full design, installation, test, inspection and certification of the installation.
- 003 Certification must be made using Electrical Installation Certificates.

Materials and Workmanship

- 004 Only new Materials must be used.
- 005 The whole of the installation must be executed in a proper and workmanlike manner.
- 006 Rectify, free of charge to the Contract, any work which in the opinion of the Client's Representative has not been properly executed and must replace free of charge to the Contract any materials or goods which do not comply with the Specification.
- 007 Confirm the voltage and frequency of the supply before ordering any equipment. This will nominally be 240v ac. 50 Hz single phase.

General

- 008 Include in his tender for the provision of all fixings and the making good by qualified tradesmen to the satisfaction of the Client's Representative all damage to walls, ceilings, decorations and fitments.
- 009 Dust sheets are to be used and every consideration given to Customer's property.
- 010 After work is completed each day all systems will be left in a safe usable condition and all dust and mess cleared up.

Consumer Unit

- 011 The consumer unit must be located adjacent to the meter at the incoming supply position.
- 012 In installations without Protective Multiple Earthing (PME) it must be a non-combustible consumer unit with lid. RCBO's must be labelled to correspond to the following circuit allocations:

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Circuit No Allocations	RCBO Rating
Lighting Downstairs	6A
Lighting Upstairs	6A
Immersion Heater	16A
Kitchen Ring Main Circuit	32A
Cooker	32A
Power Ring Main Circuit(s)	32A
Mains Powered Smoke Alarms	6A

013 Each consumer unit must be supplied with an operating instruction card which must be mounted adjacent to the unit.

014 Leave the Customer printed instructions regarding operation of the consumer unit trip switch.

Wiring

015 The installation must be carried out using PVC British Approved Service for (BASEC) certified, PVC insulated and sheathed cables to applicable Standard. Minimum cable sizes must be as follows:

Lighting circuit	1.5mm ² with earth conductor
Power Ring Main Circuit	2.5mm ² with earth conductor
Cooker Circuit	6.0mm ² with earth conductor
Immersion Heater Circuit	2.5mm ² with earth conductor
Kitchen Ring Main Circuit	2.5mm ² with earth conductor
Mains Earth Connectio0n	16.0mm ²
Equipotential Bonding	10.0mm ²
Supplementary Bonding	4.0mm ²

016 Cables must be concealed where possible within the roof void or within floor space and wiring in walls which are plastered must be run in chased-in-high impact PVC-u conduit.

017 Where cables cross flooring joists they must be passed through small holes drilled through the centre of the joists. These holes must not exceed 25mm diameter. Cables must be clipped to the sides of joists by means of plastic cable clips. All cables must be positioned to avoid damage and must be adequately secured. The wiring to power circuits must be carried out on the ring main system. Spur connections will not be permitted.

018 The wiring to lighting circuits must be carried out using the three-plate ceiling rose system, no junction boxes being permitted, all connections being made at the ceiling rose or lighting switch.

019 Separate circuits must be provided for upstairs lighting, downstairs lighting, ring main circuit and kitchen ring main circuit

Earthing and Bonding

020 The method of primary earthing must be as required by the appropriate electricity supply company regulations.

021 Where an earth is made available by the supply authority, this must be used, the Provider being responsible for any negotiation with the authority.

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- 022 The main earthing terminal shall be connected with earth by one of the methods described in the applicable Standard, as appropriate to the type of system of which the installation is to form a part and in compliance with that applicable Standard.
- 023 Main protective bonding conductors are required to connect extraneous-conductive parts to the main earthing terminal of the installation in compliance with the applicable Standard.
- 024 Comply fully with the Regulations regarding the protective bonding of exposed conductive parts and ensure that cross-bonding of hot and cold water pipes, metalwork and steel sinks is carried out where applicable.
- 025 Earth rods must be protected by purpose made inspection pits set neatly and firmly in the ground.
- 026 The earth wire must be enclosed in HGS galvanised conduit taken directly into the inspection pit.
- 027 The inspection pits shall protect from mechanical damage each earth electrode by enclosing in a heavy duty cast iron box with lid, or a heavy duty concrete box with lid.

Immersion Heater Circuit

- 028 A separate immersion heater circuit shall be provided from the consumer unit to the immersion heater control unit. The connection to the immersion heater must be a 3-core heat resistant flexible cable to applicable Standard with 2A local isolation switch.
- 029 The immersion heater switch shall be controlled by a heating boost switch, with time control settings, and fixed to a flush metal box to applicable Standard located the kitchen above the work top.

Smoke Alarms

- 030 Smoke alarms must be approved by the Client's Representative and must be installed to BS 5839-6 and must be of the mains powered type. The mains power must be supplied from an independent circuit from the consumer unit and protected by a suitably rated RCBO. The Provider must provide the necessary wiring for interconnection of the units. Installation must be strictly as specified by the manufacturer's technical data sheet. Alarms shall have a rechargeable Lithium battery power cell. One set of instructions must be left on site for Customer's use.

Testing

- 031 On completion of the installation in each dwelling the Provider must carry out all the tests prescribed in the applicable Standard for the Requirements for Electrical Installations and must record fully the results on the Electrical Installation Certificate. These certificates must be submitted at handover.
- 032 All charges for testing or re-testing must be borne by the Provider.
- 033 Provide all the test instruments and test equipment required, make all arrangements for connections of the mains supply and issue to local authority supply company all appropriate test notices.
- 034 Fix in accordance with the applicable Standard in a prominent position at or near the origin of every installation upon completion of the work carried out, a notice of such durable material as to likely to remain legible throughout the life of the installation.

**M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS –
SPECIFICATION – VERSION 8**

INSTALLATION OF MAINS OPERATED SMOKE ALARMS

Provision

035 Detectors shall be mains operated with either battery or capacitor back up.

Fitting

036 In dwellings of two or more levels, an optical detector is required in each of the circulation spaces and the main habitable room, with a heat detector fitted in the kitchen. The manufacturer's technical data sheet must be strictly adhered to.

Wiring

037 Cables shall be in PVC twin and earth cable looped from an independent circuit from the consumer unit.

038 Interconnection shall be made using PVC triple and earth cable between the detector heads, using the third core for interconnection, such that in the event of an alarm, all detector heads will sound.

Instructions

039 The instruction leaflet must be left in a safe place either by the electricity meter or consumer unit.

Lighting and Power Requirements etc.,

040 Main Bedroom:

Ceiling light pendant and switch 2 No. double switched socket outlets

041 Other Bedrooms:

Ceiling light pendant and switch 2 No. double switched outlet sockets

042 Hall/Stairs/Landings:

Ceiling light pendants top and bottom of stairs with 2 way switching

1 No. double switched socket outlet

1 No. smoke detector per level

043 Bathroom/WC:

Ceiling mounted totally enclosed light fitting with ceiling pull cord

Wall mounted extractor fan with a 15A ceiling pull cord with 3A fused connection unit

044 Living Room:

Ceiling light pendant and switch 3 No. double switched socket outlets

1 No. smoke detector

046 Dining Room:

Ceiling light pendant and switch 2 No. double switched socket outlets

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047 Kitchen:

- Ceiling light pendant and switches;
- Kitchen Ring Circuit with 3 No. double switched socket outlets above work top level and 1 No. double socket outlet in Dining Area;
- Cooker Circuit with 45A DP switch with neon indicator above worktop, cooker connection unit behind appliance;
- Water Heater Circuit with heating boost switch above worktop, 20A DP switch in hot press/airing cupboard;
- Cooker Hood Circuit with 20A DP switch with neon indicator above work top, fused connection unit (3A) adjacent hood;
- Fridge Circuit with 20A DP switch with neon indicator above worktop, unswitched single socket outlet below work top;
- Washing Machine Circuit with 20A DP switch with neon indicator above worktop. unswitched single socket outlet below worktop;
- Where required, provide an electrical circuit for a dishwasher or tumble dryer, or both as necessary;
- All double pole (DP) switches shall be engraved so as to indicate its appropriate function
- 1 No. heat detector

Client’s current manufacturers/suppliers/products

048 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Rewiring of Dwellings

049 Typical Lighting and Power Requirements etc., TO FLATS AND BUNGALOWS

LOCATION	1 BEDROOM FLAT/BUNGALOW	2 BEDROOM FLAT/BUNGALOW	3 BEDROOM FLAT/BUNGALOW	BEDSIT FLAT
Main Bedroom:	1 No. Ceiling light pendant and switch; 2 No. double switched socket outlets	1 No. Ceiling light pendant and switch; 2 No. double switched socket outlets	1 No. Ceiling light pendant and switch; 2 No. double switched socket outlets	2 No. Ceiling light pendant and switch; 2 No. double switched socket outlets 1 No Smoke Detector
Second Bedroom		1 No. Ceiling light pendant and switch; 2 No. double switched outlet sockets;	1 No. Ceiling light pendant and switch; 2 No. double switched outlet sockets;	
Third Bedroom			1 No. Ceiling light pendant and switch; 2 No. double switched outlet sockets;	
Hall:	2 No. Ceiling light pendants with 2 way switching; 1 No. Double switched socket outlet; 1 No. Smoke detector; 1 No Door bell and transformer (optional);	2 No. Ceiling light pendants with 2 way switching; 1 No. Double switched socket outlet; 1 No. Smoke detector; 1 No Door bell and transformer (optional);	2 No. Ceiling light pendants with 2 way switching; 1 No. Double switched socket outlet; 1 No. Smoke detector; 1 No Door bell and transformer (optional);	2 No. Ceiling light pendants with 2 way switching; 1 No. Double switched socket outlet; 1 No. Smoke detector; 1 No Door bell and transformer (optional);
Bathroom:	1 No. Enclosed bathroom ceiling light fitting with ceiling pull cord; 1 No. radial circuit with 20A DP switch for and including Extractor Fan with fused spur and 15A DP pull cord switch; 1 No. Switched fused connection spur unit with separate flex outlet for bathroom heater; (Optional) 1 No. 45A Pull cord ceiling switch for shower; (Optional);	1 No. Enclosed bathroom ceiling light fitting with ceiling pull cord; 1 No. radial circuit with 20A DP switch for and including Extractor Fan with fused spur and 15A DP pull cord switch; 1 No. Switched fused connection spur unit with separate flex outlet for bathroom heater; (Optional) 1 No. 45A Pull cord ceiling switch for shower; (Optional);	1 No. Enclosed bathroom ceiling light fitting with ceiling pull cord; 1 No. radial circuit with 20A DP switch for and including Extractor Fan with fused spur and 15A DP pull cord switch; 1 No. Switched fused connection spur unit with separate flex outlet for bathroom heater; (Optional) 1 No. 45A Pull cord ceiling switch for shower; (Optional);	1 No. Enclosed bathroom ceiling light fitting with ceiling pull cord; 1 No. radial circuit with 20A DP switch for and including Extractor Fan with fused spur and 15A DP pull cord switch; 1 No. Switched fused connection spur unit with separate flex outlet for bathroom heater; (Optional) 1 No. 45A Pull cord ceiling switch for shower; (Optional);

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

LOCATION	1 BEDROOM FLAT/BUNGALOW	2 BEDROOM FLAT/BUNGALOW	3 BEDROOM FLAT/BUNGALOW	BEDSIT FLAT
Living Room:	1 No. Ceiling light pendant and switch; 3 No. double switched socket outlets; 1 No Smoke Detector	1 No. Ceiling light pendant and switch; 3 No. double switched socket outlets; 1 No Smoke Detector	1 No. Ceiling light pendant and switch; 3 No. double switched socket outlets; 1 No Smoke Detector	
Dining Room:		1 No. Ceiling light pendant and switch; 1 No. double switched socket outlets;	1 No. Ceiling light pendant and switch; 1 No. double switched socket outlets;	
Kitchen:	1 No ceiling light pendant with 2 No.2 way switches; 1 No. Cooker control switch with cooker outlet plate behind appliance; 1 No. Cooker hood and 20A DP switch (engraved cooker hood)and fused connection adjacent hood; 2 No. 20A DP switches (engraved washing machine, and fridge) with un-switched socket below worktop and switch above with neon light; 1 No. Heating boost switch for immersion heater; 3 No. Double switched socket outlet above worktop level; 1 No. Heat detector;	1 No ceiling light pendant with 2 No.2 way switches 1 No. Cooker control switch with cooker outlet plate behind appliance; 1 No. Cooker hood and 20A DP switch (engraved cooker hood)and fused connection adjacent hood; 2 No. 20A DP switches (engraved washing machine, and fridge) with un-switched socket below worktop and switch above with neon light;; 1 No. Heating boost switch for immersion heater; 3 No. Double switched socket outlet above worktop level; 1 No. Heat detector;	1 No ceiling light pendant with 2 No.2 way switches 1 No. Cooker control switch with cooker outlet plate behind appliance; 1 No. Cooker hood and 20A DP switch (engraved cooker hood)and fused connection adjacent hood; 2 No. 20A DP switches (engraved washing machine, and fridge) with un-switched socket below worktop and switch above with neon light;; 1 No. Heating boost switch for immersion heater; 3 No. Double switched socket outlet above worktop level; 1 No. Heat detector;	1 No ceiling light pendant with 1 No.2 way switch; 1 No. cooker control switch with cooker outlet plate behind appliance; 1 No. Cooker hood and 20A DP switch (engraved cooker hood)and fused connection adjacent hood; 2 No. 20A DP switches (engraved washing machine, and fridge) with un-switched socket below worktop and switch above with neon light;; 1 No. Heating boost switch for immersion heater; 3 No. Double switched socket outlet above worktop level; 1 No. Heat detector;
Telephone	1 No. double switched socket outlet adjacent telephone point	1 No. double switched socket outlet adjacent telephone point	1 No. double switched socket outlet adjacent telephone point	1 No. double switched socket outlet adjacent telephone point
Meter Cupboard	Consumer unit complete with RCBO's, Meter Tails, earth bonding	Consumer unit complete with RCBO's, Meter Tails, earth bonding	Consumer unit complete with RCBO's, Meter Tails, earth bonding	Consumer unit complete with RCBO's, Meter Tails, earth bonding
Front and Rear external elevations:	2 No Bulkhead light fittings with internal light switches and PIR sensors externally; (optional)	2 No Bulkhead light fittings with internal light switches and PIR sensors externally; (optional)	2 No Bulkhead light fittings with internal light switches and PIR sensors externally; (optional)	2 No Bulkhead light fittings with internal light switches and PIR sensors externally; (optional)

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

050 Typical Lighting and Power Requirements etc., TO HOUSES

LOCATION	1 BEDROOM HOUSE	2 BEDROOM HOUSE	3 BEDROOM HOUSE	4 BEDROOM HOUSE
Main Bedroom:	1 No. Ceiling light pendant and switch; 2 No. double switched socket outlets	1 No. Ceiling light pendant and switch; 2 No. double switched socket outlets	1 No. Ceiling light pendant and switch; 2 No. double switched socket outlets	1 No. Ceiling light pendant and switch; 3 No. double switched socket outlets
Second Bedroom		1 No. Ceiling light pendant and switch; 2 No. double switched outlet sockets;	1 No. Ceiling light pendant and switch; 2 No. double switched outlet sockets;	1 No. Ceiling light pendant and switch; 2 No. double switched outlet sockets;
Third Bedroom			1 No. Ceiling light pendant and switch; 2 No. double switched outlet sockets;	1 No. Ceiling light pendant and switch; 2 No. double switched outlet sockets;
Fourth Bedroom				1 No. Ceiling light pendant and switch; 2 No. double switched outlet sockets;
Hall:	2 No. Ceiling light pendants with 2 way switching; 1 No. double switched socket outlet; 1 No. smoke detector; 1 No Door bell and transformer (optional);	2 No. Ceiling light pendants with 2 way switching; 1 No. double switched socket outlet; 1 No. smoke detector; 1 No Door bell and transformer (optional);	2 No. Ceiling light pendants with 2 way switching; 1 No. double switched socket outlet; 1 No. smoke detector; 1 No Door bell and transformer (optional);	2 No. Ceiling light pendants with 2 way switching; 1 No. double switched socket outlet; 1 No. smoke detector; 1 No Door bell and transformer (optional);;
Stairs/Landing	1 No Ceiling light pendant with 2 way switching; 1 No. smoke detector where applicable;	1 No Ceiling light pendant with 2 way switching; 1 No. smoke detector where applicable;	1 No Ceiling light pendant with 2 way switching; 1 No. smoke detector where applicable;	1 No Ceiling light pendant with 2 way switching; 1 No. smoke detector where applicable;

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LOCATION	1 BEDROOM HOUSE	2 BEDROOM HOUSE	3 BEDROOM HOUSE	4 BEDROOM HOUSE
Bathroom:	1 No. Enclosed bathroom ceiling light fitting with ceiling pull cord; 1 No. radial circuit with 20A DP switch for and including Extractor Fan with fused spur and 15A DP pull cord switch; 1 No. Switched fused connection spur unit with separate flex outlet for bathroom heater; (Optional) 1 No. 45A Pull cord ceiling switch for shower; (Optional);	1 No. Enclosed bathroom ceiling light fitting with ceiling pull cord; 1 No. radial circuit with 20A DP switch for and including Extractor Fan with fused spur and 15A DP pull cord switch; 1 No. Switched fused connection spur unit with separate flex outlet for bathroom heater; (Optional) 1 No. 45A Pull cord ceiling switch for shower; (Optional);	1 No. Enclosed bathroom ceiling light fitting with ceiling pull cord; 1 No. radial circuit with 20A DP switch for and including Extractor Fan with fused spur and 15A DP pull cord switch; 1 No. Switched fused connection spur unit with separate flex outlet for bathroom heater; (Optional) 1 No. 45A Pull cord ceiling switch for shower; (Optional);	1 No. Enclosed bathroom ceiling light fitting with ceiling pull cord; 1 No. radial circuit with 20A DP switch for and including Extractor Fan with fused spur and 15A DP pull cord switch; 1 No. Switched fused connection spur unit with separate flex outlet for bathroom heater; (Optional) 1 No. 45A Pull cord ceiling switch for shower; (Optional);
Separate WC:			1 No. Enclosed bathroom ceiling light fitting with ceiling pull cord; 1 No. Extractor fan with fused spur and 1A DP pull cord switch;	1 No. Enclosed bathroom ceiling light fitting with ceiling pull cord; 1 No. Extractor fan with fused spur and 1A DP pull cord switch;
Living Room:	1 No. Ceiling light pendant and switch; 3 No. double switched socket outlets; 1 No. Smoke Detector	1 No. Ceiling light pendant and switch; 3 No. double switched socket outlets; 1 No. Smoke Detector	1 No. Ceiling light pendant and switch; 3 No. double switched socket outlets; 1 No. Smoke Detector	1 No. Ceiling light pendant and switch; 3 No. double switched socket outlets; 1 No. Smoke Detector
Dining Room:			1 No. Ceiling light pendant and switch; 1 No. double switched socket outlets;	1 No. Ceiling light pendant and switch; 1 No. double switched socket outlets;

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

LOCATION	1 BEDROOM HOUSE	2 BEDROOM HOUSE	3 BEDROOM HOUSE	4 BEDROOM HOUSE
Kitchen:	1 No Ceiling light pendant with 2No. 2 way light switches; 1 No. Cooker control switch with cooker outlet plate behind appliance; 1 No. 20A DP switch (engraved cooker hood) with fused spur connection unit adjacent hood; 2 No. fused spurs (engraved washing machine and fridge) with un-switched socket below worktop and switch above with neon; 1 No. Heating booster switch for immersion heater; 3 No. double switched socket outlet above worktop level; 1 No. Heat detector;	1 No Ceiling light pendant with 2No. 2 way light switches; 1 No. Cooker control switch with cooker outlet plate behind appliance; 1 No. 20A DP switch (engraved cooker hood) with fused spur connection unit adjacent hood; 2 No. fused spurs (engraved washing machine and fridge) with un-switched socket below worktop and switch above with neon; 1 No. Heating booster switch for immersion heater; 3 No. double switched socket outlet above worktop level; 1 No. Heat detector;	1 No Ceiling light pendant with 2No. 2 way light switches; 1 No. Cooker control switch with cooker outlet plate behind appliance; 1 No. 20A DP switch (engraved cooker hood) with fused spur connection unit adjacent hood; 2 No. fused spurs (engraved washing machine and fridge) with un-switched socket below worktop and switch above with neon; 1 No. Heating booster switch for immersion heater; 3 No. double switched socket outlet above worktop level; 1 No. Heat detector;	1 No Ceiling light pendant with 2No. 2 way light switches; 1 No. Cooker control switch with cooker outlet plate behind appliance; 1 No. 20A DP switch (engraved cooker hood) with fused spur connection unit adjacent hood; 2 No. fused spurs (engraved washing machine and fridge) with un-switched socket below worktop and switch above with neon; 1 No. Heating booster switch for immersion heater; 3 No. double switched socket outlet above worktop level; 1 No. Heat detector;
Loft:	1 No. Batten holder light fitting and light switch with neon indicator fixed adjacent to loft hatch (optional);	1 No. Batten holder light fitting and light switch with neon indicator fixed adjacent to loft hatch (optional);	1 No. Batten holder light fitting and light switch with neon indicator fixed adjacent to loft hatch (optional);	1 No. Batten holder light fitting and light switch with neon indicator fixed adjacent to loft hatch (optional);
Telephone	1 No. double switched socket outlet adjacent telephone point	1 No. double switched socket outlet adjacent telephone point	1 No. double switched socket outlet adjacent telephone point	1 No. double switched socket outlet adjacent telephone point
Meter Cupboard	Consumer unit complete with RCBO's, Meter Tails, earth bonding	Consumer unit complete with RCBO's, Meter Tails, earth bonding	Consumer unit complete with RCBO's, Meter Tails, earth bonding	Consumer unit complete with RCBO's, Meter Tails, earth bonding
Front and Rear external elevations:	2 No Bulkhead light fittings with internal light switches and PIR sensors externally (optional);	2 No Bulkhead light fittings with internal light switches and PIR sensors externally (optional);	2 No Bulkhead light fittings with internal light switches and PIR sensors externally (optional);	2 No Bulkhead light fittings with internal light switches and PIR sensors externally (optional);

ELECTRICAL POWER GENERATION INSTALLATIONS

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

ELECTRICAL POWER GENERATION INSTALLATIONS

GENERAL REQUIREMENTS

Regulations

- 001 All electrical Works must be carried out in accordance with the applicable Standard Requirements for Electrical Installations IET Wiring Regulations co-published by the British Standards Institution ("BSI") and the Institution of Engineering and Technology ("IET").

Small Scale Domestic Wind Power Generation Installations

- 002 Domestic building or garden mast mounted wind power installations must generate less than 35 decibels of noise in all wind conditions
- 003 Domestic building or garden mast mounted wind power installations must meet all UK and safety standards.
- 004 Domestic building or garden mast mounted wind power installations must be independently verified for structural, electrical and grid monitoring safety by the New and Renewable Energy Centre (NAREC) and the Energy Savings Trust
- 005 Optimum power must be able to be taken from the turbine under all wind and loading conditions.
- 006 On generation of more power than required by the property, excess power units must be fed back to the national grid through a monitored inverter to enable accurate costing; the inverter must be G38, UL & AS4777 certified.
- 007 Domestic building mounted wind power installations must have a suitable vibration damping system incorporated in the mounting brackets.
- 008 Domestic building or garden mast mounted wind power installations must be bat and bird friendly.
- 009 The installation must have 20 year maintenance free design lifespan; and be fully weather and corrosion resistant.
- 010 The installation must have mechanical and electrical safety systems to conform to the applicable Standards
- 011 The installation must commence to generate power at a minimum wind speed of 3.4m/s (7.6mph).

Domestic Solar Panel Power Generation Installations

- 012 Domestic solar panel installations must be wind, weather and corrosion resistant.
- 013 The installation must be able to operate in temperatures between 40°C and 90°C.
- 014 Domestic solar panels must accomplish the specifications required by IEC/EN 61215, 61730 Class II and 61646 Class II
- 015 The panels must have
- A product warranty of 2 years
 - A power warranty of 90% output power over 10 years and 80% over 25 years
- 016 On generation of more power than required by the property, excess power units must be fed back to the national grid through a monitored inverter to enable accurate costing; the inverter must be G8E/G59 certified.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

COMPLETION

Inspection and Testing

- 017 The installation must, on completion and before being energised, be inspected and tested in accordance with the applicable Standards for electrical installations.
- 018 The Client’s Representative must be given not less than 24 hours notice before commencing tests.
- 019 After satisfactory completion of tests submit copies of inspection and completion certificates, complete with all associated schedules and test results if applicable, within one month of satisfactory completion to the Client’s Representative.
- 020 All test instruments must be provided by the Provider who must note the instrument serial numbers on the test certificates.

Report and Certificates

- 021 Inspections, reports and test certificates and forms must be the latest current version and in the standard format published for the purpose by the National Inspection Council for Electrical Installation Contracting (NICEIC), the Electrical Contracting Association (ECA) or any other approved certifying and testing body.
- 022 Submit all notifications under Part P of the Building Regulations to the relevant Statutory Authority.
- 023 Minor works or alterations to electrical installations, which involves a change or modification to an existing single circuit to include the issue of a certificate for Minor Electrical Installation Works.
- 024 Major Works or alterations to electrical installations, which involves a change or modification to two or more existing circuits, addition of one or more new circuits to an existing installation, and all new installations, must include the issue of an Electrical Installation Completion Certificate.
- 025 Periodic or routine inspection and reporting only of electrical installations when specifically Instructed by the Client’s Representative, but, where no change or modification is Instructed must be carried out to the installations, must include the issue of a Periodic Inspection Report for an Electrical Installation.

Client’s current manufacturers/suppliers/products

- 026 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

ELECTRIC SPACE HEATING AND HOT WATER INSTALLATIONS

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

ELECTRIC SPACE HEATING AND HOT WATER INSTALLATIONS

General Requirements

Provider's Conduct

- 001 The Client is intent on providing an expeditious, safe and efficient maintenance service to its Customers and consequently the Provider shall do his utmost to promote and enhance the image and reputation of the Client in this respect.
- 002 Require Staff engaged upon the Works to be properly and presentably dressed in appropriate uniforms or workwear.
- 003 Ensure that Staff shall perform their duties in an orderly and quiet manner as may be reasonable and practicable having regard to the nature of the duties being performed by them.
- 004 The need to maintain the highest standards of hygiene and courtesy whilst the Provider's Staff are engaged upon the Works is paramount and in particular consideration must be given to Customers and other occupiers when working in or near occupied premises, the Provider shall observe all of these provisions and also ensure that the said Staff do not cause a nuisance and or disturbance to Customers and other occupiers when they are working in or near occupied premises.
- 005 The Client is empowered by this provision to give written notice to the Provider requiring him to remove from the Works forthwith any Staff engaged upon the Works, if he is not satisfied in any way with the respective Staff member's apparel, conduct, manner, or ability. The Provider shall on receipt of such notice comply forthwith and remove the Staff member from the Client's Property and the Staff member shall not be employed or engaged upon or in connection with the Works whilst the Contract remains in force.
- 006 The Client will from time to time poll its Customers' to obtain their views on the effectiveness of the service provided by the Provider and the manner adopted by his Staff when discharging their duties. The results of the poll will be taken into account when considering the needs for resourcing future repair and maintenance programmes.

Registered Provider

- 007 Have and maintain throughout the Contract Period registration with the:-
 - National Inspection Council for Electrical Installation Contracting (NICEIC) and/or Electrical Contractors Association (ECA) or alternatively, the Provider may employ a Sub-contractor, to be approved by the Client's Representative under the Contract, who is registered with the National Inspection Council for Electrical Installation Contracting and/or Electrical Contractors Association in order to undertake the Works, or be registered with an approved electrical licence to practise system, an example of which is Sparksafe.
- 008 In the event that the Provider's NICEIC or ECA registration becomes suspended or withdrawn or has any conditions attached for whatever reason, the Provider shall immediately notify the Client's Representative in writing giving full details of the reasons for such and the proposed or intended action and timescale for gaining reinstatement of its registration(s). With immediate effect from the date of suspension or withdrawal of its registration(s) and until reinstatement. The Provider shall, subject to approval of the Client's Representative, be required to employ on a domestic sub-contract basis a suitable registered Sub-contractor to undertake Works under the Contract.
- 009 Should the Provider be unable within a period of two weeks to engage a suitably registered Sub-contractor which meets the Client's approval and or the period of suspended or withdrawn registration(s) exceeds or is likely to exceed four weeks then, the Client may at its sole discretion terminate the Providers employment under the Contract in writing with immediate effect. Such action on the part of the Client shall constitute a valid termination in accordance with the Contract Conditions.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Electrical Installations

- 010 Check and test, as part of the installation of a new electrical heating installation, all electrical installations and fittings in the dwelling, to ensure their safe operation. All remedial work will comply fully with the applicable Standards for electrical installations.

SPECIAL CONDITIONS

Special Conditions

- 011 The following special conditions apply to the new electrical heating and hot water services installations:
- 012 The Provider shall be NICEIC or ECA registered or be registered with an approved electrical licence to practise system such as Sparksafe. Installation, testing and commissioning the electrical works is to be in accordance with the applicable Standard - the Requirements for Electrical Installations, ensuring compliance with design and performance requirements to provide a safe well insulated, earth protected system of supplying the anticipated maximum demand. Good workmanship is expected from skilled (electrical) or instructed (electrical) persons and proper materials shall be used in the erection of the electrical installation.
- 013 The Provider shall provide a full list of the Staff who will be involved in the Contract prior to the commencement date. This list shall include the Staff member's names, career history, qualifications, etc.
- 014 This information shall be updated as and when required throughout the duration of the Contract.
- 015 **The Provider should note that following completion of the works, a 24 hour, 7 days/week, including Public Holidays, emergency call-out service shall be provided for the duration of the 12 months Defects Liability Period.** The emergency call-out number shall be provided on a sticker placed inside the space heater appliance enclosure.
- 016 The Provider is to provide written notification of all emergency call-outs giving details of faults/defects and response times which should be countersigned by the Customer.

Provider Design

- 017 Undertake the Design responsibilities for the new electrical heating and hot water services installations.
- 018 All local space heaters must comply with a minimum efficiency standard under Lot 20 of the Energy Efficiency Director (2015/1188).
- 019 Provide a statement of skills, knowledge and experience, which will cover:
- Membership of a relevant professional body.
 - Familiarity with the construction processes in the circumstances of the project and the impact of Design on Health and Safety.
 - Awareness of relevant Health and Safety and fire safety legislation and appropriate risk assessment methods.
 - The Health and Safety practices of the designer for Design Work carried out.
 - The people to be employed to carry out the Work, their skills and training, this is likely to include external resources where necessary and is to be reviewed in association with the Design requirements.
 - Technical facilities to support the Design, particularly in the circumstances of the project.
 - The method of communicating Design decisions.
 - How information and instructions will be communicated to the Customers. Ideally this should be provided by a person with specific training, e.g. City and Guilds in Energy Advice.
- 020 This information shall be forwarded to the Client's Representative.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Replacement operations will be as follows and to include all labour and materials necessary for the completion of the installation

Design

- 021 Carry out an initial survey of each dwelling and prepare and submit the Design information required for the replacement of the electric space heating and hot water system in compliance with the Clients Specification.
- 022 Submit a completed "Survey Schedule and Cost Estimate" to the Client's Representative for clearance and approval.
- 023 Carry out all necessary Customer consultation.
- 024 Obtain all necessary statutory approvals; for the works (including the payment all necessary fees and administration charges in connection therewith).

Removal of Existing System

- 025 Include for the disconnection of all existing Client and or Customer installed heating appliances, associated equipment and switches; removal of all existing electrical cables, conduits, redundant consumer units where applicable; remove/seal off as necessary all redundant pipe work thereto; remove fireplace hearth and surround, build up chamber opening, core ball and sweep flue; supply and insert permanent ventilator and extend and make good plaster, skirting to match existing. The hot water cylinder, combination unit or hot water unit redundant hot water cold water pipe work, immersion heaters, insulation and support stool where applicable are also to be removed.

Replacement installation

- 026 Supply temporary heat (two 3 Kilowatt electric panel or radiator type heaters having time and temperature control); for the complete duration of the Works and maintain Customer's mains electricity supply, mains water supply and bathroom facilities at end of each working day.
- 027 Ensure that Customer's Property and possessions are protected in the Property and cleaned at the end of each working day and on completion of all of the Works.
- 028 Supply and install a complete electric space heating and hot water system all in accordance with the Client's specification; including any alterations to existing and all new domestic hot and cold water pipe work where applicable.
- 029 Provide a tiled fire surround and hearth in accordance with F30 (3) Code of Practice for Electric Fires, with an electric inset focal fire provided, including dedicated electrical circuit and flexible cable connection to the fire from a DP switch concealed within the fabric of the Property.
- 030 Supply and install in all habitable rooms an electric space heating appliance to provide the calculated heat output required in each Property type, including grounds to stud walls where required. Rear halls and porches are not deemed to be a habitable room.
- 031 The control of space heating and hot water systems shall be provided with time and temperature control in accordance with the Client's Specification including all electrical circuits and all final connections to each item of control equipment etc;
- 032 Supply and install new hot water storage system, complete with factory fitted foam insulation where applicable, 2 No 3kW immersion heaters, cylinder stool including new dedicated day rate electrical circuit having a heating boost switch and final flexible cable connection to the immersion heater and a new dedicated off peak rate electrical circuit and a final flexible cable connection.
- 033 Design, install and test all electrical circuits in accordance with the applicable Standard for space heating appliances and hot water heaters.

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- 034 Provide all labels where necessary.
- 035 All equipotential bonding and supplementary equipotential bonding shall be completed in accordance with applicable Standard
- 036 Make good/replace where necessary any insulation to exposed pipe work in the roof space and all necessary new insulation to pipelines in accordance with the Client's Specification.

Completion

- 037 On completion of the replacement electric space heating and hot water system the Provider shall check and adjust the operation of all electric space heating equipment and appliances, controls and safety switches etc.,
- 038 Inspect and test, on completion of the installation and before being energised, all electrical circuits installed in compliance with the applicable Standard and following satisfactory completion of tests; and upload unto the Client's IT system an Electrical Installation Certificate (EIC) on completion of the works.
- 039 All test instruments shall be provided by the Provider who shall note the instruments serial numbers on the Electrical Installation Certificate
- 040 Give the Client's Representative and the Customer sufficient information for all of the equipment installed, including all operational and maintenance instructions, controls and any other details so that each Property can be operated and maintained in an energy efficient manner to use no more power than is reasonable in the circumstances.
- 041 Without comprising health and safety requirements, the instructions should explain to the Customer how to operate the off peak heaters and day rate heaters efficiency: These should include how to make adjustments to the timing, temperature and flow control settings.
- 042 Provide an information pack supplied in an A4 clear plastic envelope and containing a copy of the central heating system's manufacturers operational instructions/booklets for each major component.
- 043 Notify in writing to the local Building Authority and the Client's Representative confirming that all fixed building services have been properly commissioned not more than five days after completion of the commissioning work.
- 044 A Health & Safety File shall be provided in accordance with the current CDM (Construction Design Management) Regulations and uploaded unto the Client's IT system on the completion of the Works.

Manufacturer's Warranty

- 045 The Work will also include the provision of a manufacturer certificate providing evidence of a warranty for each electric space heating appliance installed by the Provider.
- 046 The warranty guarantees the repair of all defects to the boiler at no cost to the Client (including the cost for all parts, labour and any other charges) for a period of 5 years from the date of installation of the appliances.
- 047 The warranty shall be given by the manufacturer directly to the Client and the manufacturer will agree that from the commencement date to the end of the warranty period of the warranty, labour to carry out any repairs is provided by the Provider but is transferable to the Client's new service provider either after the end date of this Contract or upon termination of the Contract.
- 048 The Client will undertake to have the warranted space heating appliances installed under this Contract.
- 049 The Client will undertake to have the warranted space heating appliances serviced at five yearly intervals either under this contract or a subsequent contract.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Provider’s Space Heating and Hot Water Warranty

- 050 The Work will also include the provision of a warranty for each electric space heating and hot water system installed by the Provider and this warranty must provide for the following features:
- 051 The warranty guarantees the repair of all defects and any Customer’s misunderstanding and abuse to the electric space heating and hot water system at no cost to the Client (including the cost of all parts, labour and any other charges) for a period of 12 months from the date of installation of the system.

Five Yearly Servicing and Routine and Responsive Maintenance Service

- 052 For the avoidance of doubt, the electric space heating and hot water system installed under this part of the service, with immediate effect, is repaired by the Provider under the routine and responsive maintenance service of this Contract, however while the electric space heating and hot water system is under the Provider’s 12 month warranty, no payment will be made for the installation under the routine and response maintenance service during this time.
- 053 As part of the Providers routine and responsive maintenance service of this Contract the Provider is responsible for obtaining all parts and recovering all associated labour costs or any other expenses, directly from the space heating appliance manufacturer under the space heating appliance manufacturer’s warranty.

DESIGN PROCESS

Design Criteria

- 054 The Design criteria for the electric space heating and hot water systems shall be as follows:
- 055 Electric space heating systems shall be Designed to achieve and maintain the following minimum room temperatures when the ambient external temperature is -4°C, and the air change rate is as detailed below.

Habitable Room	Room Temperature	Air
Living Room	21°C	1.5
Dining Room	21°C	1.5
Kitchen/Dining Room	21°C	2
Bed Sitting Room	21°C	1.5
Circulating spaces	18°C	1.5
Bathrooms	23°C	3
WC’s	23°C	2
Kitchens	18°C	2
Bedrooms	18°C	N/A
Mobility (Standard)	21°C throughout	As rooms above

- 056 Where extract fans are fitted the Provider shall allow for 60 l/s for Kitchens with an extract fan or 30//s with a cooker hood and 15 l/s for Bathrooms
- 057 A rear hall or porch are not deemed to be a habitable room.

ELECTRIC SPACE HEATING SYSTEMS

- 058 Standard: To TEHVA DOM 8: Guide to the design of electric space heating systems and current Domestic Building Services Compliance Guide

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

HEATING APPLIANCE TYPES:

- 059 For Electric Economy 7 off peak tariff appliances with automatic control of input charge; with local temperature and time control to take the maximum advantage of the Economy 7 off peak tariff.
- 060 For Electric Direct Acting appliances with local temperature and time control; designed to operate from the day rate electricity tariff.
- 061 For Electric Direct Acting fan heater appliance with local time control designed to operate from the day rate electricity tariff, where an electric Economy 7 off peak tariff appliance cannot be installed.

ELECTRIC SPACE HEATING APPLIANCE	ROOM
FOR ECONOMY 7 OFF PEAK TARIFF	LIVING ROOM
	KITCHEN
	DINING ROOM
	KITCHEN/DINING
	HALL
	MAIN BEDROOM (MOBILITY)
	BATHROOM (WHERE FEASIBLE)
FOR DIRECT ACTING DAY RATE TARIFF	ALL OTHER BEDROOMS
FOR DIRECT ACTING DAY RATE TARIFF (FAN HEATER)	KITCHEN
	BATHROOM

- 062 Where an electric Economy 7 off peak tariff appliance cannot be installed in the Kitchen or Bathroom; a wall mounted electric direct acting day rate fan heater rated at 2kW shall be installed

ELECTRIC HOT WATER SYSTEMS

- 063 Standard: To TEHVA DOM 9: guide to electric hot water heating systems

Type: Open vented cylinder from a cold water cistern located in the roof space or an open vented combination unit hot water storage system or hot storage type unit installed primarily within the dwelling; complete with 2 No. 3kW electric immersion heaters.
- 064 It is usual to provide hot water requirements to TEHVA DOM9: Guide to the Design of Electric Hot Water Heating Systems with a hot water storage capacity of 210 litres where technically and practically feasible. However, due to limited space requirements smaller quantities of hot water may be an overriding factor to be considered for the size of cylinder to be provided.

OCCUPANCY	CYLINDER CAPACITY
2 PERSONS	120 Litres
	144 Litres
	210 Litres
3 PERSONS	144 Litres
	210 Litres
4/5 PERSONS	144Litres
	210 Litres

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

- 065 With regard to heat loss calculations, these shall be in accordance with the Chartered Institute of Building Services Engineers Environmental Guide A and TEHVA DOM8: Guide to the Design of Electric Space Heating Systems taking into account the following:
- the heat loss of the structure;
 - the air infiltration loss;
 - the effectiveness of heat losses to the room;
 - the heating period;
 - the thermal mass of the structure (i.e. if it is timber framed or building block construction);
 - the approximate percentage of direct acting required for both economic considerations; and accurate control
- 066 Allow for upgrading the thickness of loft insulation to a minimum depth of 270mm.
- 067 Space heating appliances can be placed away from windows and the inconvenience caused by curtaining and are then best sited on an internal wall adjacent an external wall, where possible, in order to minimise "back losses"
- 068 A 10% contingency shall be allowed on the total system Design to allow for general heating losses.
- 069 It shall be assumed that adjacent properties are heated to 10°C for heat loss calculation purposes.
- 070 All heat loss calculations shall be forwarded as part of the Design Information to the Client's Representative.

Initial Survey

- 071 Following Instruction, the Provider shall include for an initial survey of the Property. Access arrangements shall be made direct with the Customer.
- 072 The initial survey for new installations will be for the purposes of determining the:
- Information for heat loss calculations, i.e. room/window dimensions, wall construction, number of external walls.
 - Layout of space heating appliances, cabling routes, etc.
 - Location of hot water storage cylinder/combination unit/hot water unit.
 - Size and adequacy of incoming water main.
 - Position of incoming mains water stopcock.
 - Existing electrical earth arrangements .
 - Number and location of extract fans.
 - Existing loft insulation thickness.
 - Any evidence of condensation problems.
 - Window type: frame material, glazing type, condition and if draught proofed.
 - Wall insulation thickness, if any.
 - Any other roof insulation and its thickness, e.g. flat roofs.

Continuity of Services

- 073 The Provider will leave the properties with all services in proper working order at the end of each working day. Under no circumstances shall Customers be without the use of these services and facilities overnight.
- 074 Ensure that an alternative form of heating is available for the Customer during the period of works. The alternative form of heating will be two portable electric panel heaters of 3kw output with time and temperature control.

Elderly and Persons with a Disability Property

- 075 Special care and consideration must be given to all the above Property. Property for Persons with a disability will require on site consultation and agreement.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Electrical Supplies

- 076 Under **no circumstances** must work be started in any Property that is not fitted with all services and meters.
- 077 All electrical Work must be carried out by skilled (electrical) persons, who must issue current Electrical Installation Certificates (EIC) for each individual installation.
- 078 No installation shall be started until the earth arrangements have been tested and proved satisfactory. Therefore, before Work of any nature proceeds in the property the electrical installation must be tested. Should it fail reference should be made to the Client.
- 079 No installation will be accepted for payment unless such certificate is provided. Equally a note must be made on the certificate that all bonding has been completed in accordance with the applicable Standard for electrical installations.
- 080 Inspect the loft space of the Property and establish the depth of insulation existing, if below the minimum requirements of 270mm, the Provider is to allow for upgrading the insulation to this minimum depth. The cost of upgrading the insulation will be reimbursed at the rates in the Schedule of Rates, these rates are deemed to include the cost of moving and reinstating any Customer content stored in the loft.

Design Information

- 081 The Provider shall submit details of the initial survey.
1. A schematic working drawing layout of the Property on each floor identifying heater positions and sizes together with proposed, cabling routes and consumer unit sizes and layout. The location of the cylinder shall also be included on the drawing together with cold water services and domestic hot water services.
 2. Heat loss calculations.
- 082 Obtain require written agreement to the design proposals from the Client's Representative before site works can start.
- 083 Failure of the Provider to provide working drawings, schedules and calculations may lead to additional time and costs being incurred by the Client which shall be passed on to the Provider to bear.
- 084 The approval by the Client's Representative of such drawings, schedules and calculations covers only the general principles of the work concerned and does not absolve the Provider from carrying out the Works in accordance with the Specification and good engineering practice.
- 085 The Client's Representative shall have the right to change the Provider's Design with no financial implications to the Client. The Provider is to comply with all Customer requirements with regard to space heating appliances location in each room at no financial implication to the Client. The Provider is to explain the full extent of the Works i.e. space heating appliances positions, controls, and all other electrical services contained within the Contract to the Customer and then request the Customer to sign the Customer agreement form. The Customer agreement form shall be produced by the Provider and submitted to the Client's Representative for approval at the pre-contract meeting.

Regulations and Standards

- 086 The Design and installation of new electrical heating and hot water service systems shall comply with all appropriate Regulations, applicable Standards and Codes of Practice.
- 087 The Works shall also be in accordance with the manufacturer's instructions and current Building Regulations

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

088 With regard to implementation of the Works, the Provider shall also take into account the following Health and Safety Regulations:

- Management of Health and Safety at Work Regulations 1999
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013
- Manual Handling Operations Regulations 1992 as amended 2002
- The Control of Substances Harmful to Health Regulations 2002 (COSHH)
- The Provision and Use of Work Equipment Regulations 1998 (PUWER)
- Electricity at Work Regulations 1989
- Construction (Health, Safety and Welfare) Regulations 1998

089 Electrical works shall be in accordance with the applicable Standards for electrical installations.

STANDARD SPECIFICATION

General Preamble

090 Where Properties are occupied during the works the Provider shall take all reasonable steps to ensure that inconvenience and disturbance to the occupiers is minimised.

091 Once work commences in a Property it must be continuous without interruption until completion.

092 Allow for protection of all fixtures and fittings including carpets. Move, take up, reinstall and replace all furniture, fittings and fixtures as may be necessary to execute the works. Re-position items of furniture and appliances at the end of each working day whether Work is completed or not.

093 Protect and maintain existing services at all times, inform the Customers prior to disconnection and adaptation Works, which are to be for the minimum period possible. No services are to be left disconnected overnight.

094 Make good to all adjacent structures and surfaces disturbed during the Works, whether specifically mentioned or not. Any damage caused by carelessness or want of skill on **the part of the Provider shall be immediately made good at the Providers expense.**

095 All carpets, floor coverings, underlay, hardboard, floorboards, etc., (excluding laminated wood flooring) is to be properly and professionally re-fitted on completion of the installation.

096 Materials or tools must not be stored within the Property, including communal areas or gardens.

PERFORMANCE SPECIFICATION

Storage, Panel and other Heaters-Generally

097 Design for and install storage, fan, convactor, panel or other types of heaters from the one manufacturer.

098 Space heating appliances shall be sized by the Provider to suit. All space heating appliances are to be fitted according to manufacturer's instructions and fixings and fittings shall be used to facilitate easy removal for repair.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

099 All space heating appliances shall carry a minimum **five year's manufacturer's warranty** with a minimum five year parts and labour warranty and this shall be arranged to run from the date of the completion certificate. The Provider is to provide a space heater appliance installation record secured to the inside of the casing giving the Provider's name and address and the date of installation.

100 ELECTRIC SPACE HEATING APPLIANCE FOR ECONOMY 7 TARIFF

Standard: To applicable Standard

Approvals: BEAB/EMC/CE Mark

Type: Economy 7 Tariff Appliance

Economical Use: Electrical energy utilising the best of stored and direct acting heating technologies

Electric Heating Systems	New and Replacement Systems		Supplementary information
Economy 7 Tariff Appliance	Charge Control	Automatic control of input charge	Charge control is the ability to detect the internal temperature and adjust the charging of the heater accordingly
	Temperature and Time Control	Temperature and Time control by adjusting the rate of heat release from the appliance, using a thermostatically controlled method	

Mounting: To be securely fixed to wall in accordance with the Manufacturer's fixing instructions with floor fixing feet

Electrical Supply: 230/240V/1ph/50Hz.

101 ELECTRIC SPACE HEATING APPLIANCE FOR DIRECT ACTING DAY RATE TARIFF

Standard: To applicable Standard

Approvals: BEAB/EMC CE Mark

Type: Direct Acting Electric Appliance utilising best heating technology

Electric Heating Systems	New and Replacement Systems		
Electric Day Rate Tariff Appliance	Local time and temperature control	Time control by a programmable Time switch integrated into the appliance or a separate time switch Individual temperature control by integrated thermostats or by separate room thermostats or programmable room thermostats	Appliances provide instantaneous heat

Mounting: To be securely fixed to wall in accordance with Manufacturer's fixing instructions

Electrical Supply: 230/240V/1ph/50Hz.

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102 ELECTRIC DIRECT ACTING DAY RATE FOCAL INSET FIRE

Standard: To applicable Standard
Approval: BEAB/ CE mark. Type: Direct Acting Electric Inset Fire, to fit chimney opening
Construction: Chassis and surround to be metallic with black/brass or black finish suitable for full recess
Heater Type: Fan Convection
Max Heat Output: 2kW
Coal Bed: One piece with switchable choice for flame effect independent of heat source
Sound: Fan noise suppressed to 50 decibel maximum when in operation.
Lights: LED bulbs for long life and low energy consumption
Controls: ON/OFF switch with multiple heat settings and thermostat control
Fixing: To be securely fixed to the hearth or surround as Code of Practice F30 (3) Tiled Insets and Hearths for Electric Fire Installations
Electrical Supply: 230/240V/1ph/50Hz.

103 ELECTRIC DIRECT ACTING DAY RATE FAN HEATER

Standard: To applicable Standard
Approvals: BEAB/ CE Mark
Type: Electric Direct Acting Day Rate
Construction: Double insulated plastic case.
Moulded in flame retardant self-extinguishing grade nylon
Heater Type: Fan Convection
Max Heat Output: 2kW with energy saving function to reduce output to 1kW once room is warm
Colour/Finish: White finish and grille
Controls: Thermal overload and thermal fuse link protection against overheating
Local Time Control: Running timer with auto shut off set to 30 minute operation
Switching: Ceiling pull core operation with red neon lamp to indicate status
Rating: IPX2
Fixing: To be securely fixed to wall in accordance with the Manufacturer's fixing instructions
Electrical Supply: 230/240V/1ph/50Hz.

104 PORTABLE ELECTRIC PANEL HEATER (FOR TEMPORARY HEAT):

Standard: To applicable Standard
Approvals: BEAB/ CE Mark.
Type: Direct Acting Electric Portable Convector panel supplied with feet, cable and plug.
Heater: 2kW output
Colour/Finish: White/Graphic grey
Controls: Thermostat control, heat selector switch and thermal cut off switch.
Rating: IPX2
Operation: Heater to be used strictly in accordance with the Manufacturer's important safety advice and **MUST NOT BE USED** in a Bathroom.
Electrical Supply: 230/240V/1ph/50Hz

105 DIRECT HOT WATER STORAGE CYLINDERS (ELECTRIC HEATING):

Standard: To applicable Standard, Grade 3.
Hot Water Capacity: To TEHVA DOM 9: Guide to the design of electric heating hot water systems
Insulation: Factory applied as Clause 419.
Accessories: Anti corrosion aluminium anode,
2No. BSP screwed connections for side entry immersion heaters.

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106 FACTORY APPLIED INSULATION TO CYLINDER:

Insulation: To comply with Building Regulations Approved Documents Part L.
 Type: CFC free foam factory applied insulation to the sides and top of cylinder; NOT bottom
 Thickness: 50mm for new and replacement cylinders.

107 DIRECT INSULATED COMBINATION UNITS (ELECTRIC HEATING):

Standard: To applicable Standard, Grade 3
 Hot Water Capacity: To TEHVA DOM 8: Guide to the design of electric hot water heating, where the cylinder is supplied as a complete assembly; cold water storage cistern, 227 Litres capacity.
 Insulation: Hot water cylinder: Factory applied.
 Cold water cistern: Insulation jacket.
 Accessories: Anti-corrosion aluminium anode, 2 No BSP connections for side entry immersion heaters as Clause 051, supported at the required levels on an open type purpose made rust-proof mild steel frame with base and levelling screws.
 There should be sufficient space for access to and removal of immersion heaters, and replacing the ball valve; the supporting structure should give adequate distribution of the load.

108 IMMERSION HEATERS:

Standard: To applicable Standard, and BEAB approved.
 Type: Single element alloy sheathed.
 Loading: 3KW.
 Element length: 355mm.
 Mounting: Side entry (2No. per cylinder).
 Thermostat: Safety rod thermostat to applicable Standard having a secondary re-settable thermostat button fitted.
 Thermostat Settings: Recommended 65 deg. C. for lower side entry unit 55 deg. C. for upper side entry unit.
 Exceptional circumstances: Special combination units may require a bottom entry unit with length tailored to situation.

Client’s current manufacturers/suppliers/products

109 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

**M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS –
SPECIFICATION – VERSION 8**

ELECTRICAL INSTALLATION ASSOCIATED WITH ELECTRIC SPACE HEATING AND HOT WATER

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

ELECTRICAL INSTALLATION ASSOCIATED WITH ELECTRIC SPACE HEATING AND HOT WATER

GENERAL

Regulations

- 201 All electrical Works must be carried out in accordance with the applicable Standards for Requirements for Electrical Installations IET Wiring Regulations co-published by the applicable Standards Institution ("BSI") and the Institution of Engineering and Technology ("IET").

COMPLIANCE WITH REGULATIONS

- 202 Ensure that all electrical Works comply with the following regulations and requirements including all revisions and amendments applicable at the time the Works are carried out.
- a) Building Regulations
 - b) Electricity supply company regulations
 - c) applicable Standards and Codes of Practice
 - e) The Health and Safety At Work etc Act 1974
 - f) Electrical Equipment (Safety) Regulations
 - g) Electricity at Work Regulations
- 203 Design, installation, test, inspection and certification of the Works.
- 204 Certification must be made using the Electrical Installation Certificates.

Equipotential bonding

- 205 Standard: To applicable Standard
General: Connect the following metallic parts to the main earth terminal, where they are extraneous-conductive parts to:
- Metal water installation pipes;
 - Metal gas installation pipes, as near as possible to the point of entry of the service into the building and before any branch pipe work where the meter is fitted;
 - Where practicable the connection shall be made within 600mm of the meter outlet union where the meter is fitted internally;
 - Central heating system pipe work;
 - Other installation pipe work (including oil and gas supply pipes) and ducting; and
 - exposed metallic parts of the building structure;

Supplementary bonding

- 206 Standard: To applicable Standard
General: Within the zone formed by the main equipotential bonding, provide connections to:
- baths;
 - sinks;
 - exposed pipes;
 - heating and ventilation systems;
 - in locations containing a bath or shower in accordance with Section 701 in Part 7 of the applicable Standard for electrical installations

Protected Multiple Earthing Installations

- 207 In Protective Multiple Earthing (PME) installations the power circuit must be protected by a 30mA residual current circuit breaker which must form an integral part of RCBO consumer unit.
- 208 Where all the electrical requirements in the dwelling to the applicable Standard for electrical installations are met, supplementary equipotential as Clause 006 may be omitted.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

209 Cables generally

CABLES GENERALLY:

Standard: To applicable Standards

Approval: applicable Approval Service for (BASEC), certified

<u>Location/Use</u>	<u>Cable</u>
General	PVC insulated and sheathed,
Conduit system (Complete)	PVC insulated non-sheathed
Sub-Mains Distribution	PVC split concentric,
Sub-Mains Distribution	PVC insulated, PVC sheathed, steel wire armoured and PVC sheathed
Final connections to all Space Heating Appliances and Immersion Heaters	EP Rubber/HOFR Sheath or Heat resistant PVC flexible cable 85°C

210 Ensure cables are BASEC certified. Use cables in the locations and for the uses specified in the table below:

<u>Location/Use:</u>	<u>Cable Type:</u>
General (includes central heating, ventilation and smoke detector systems)	PVC insulated and sheathed
Conduit system (complete)	PVC insulated and sheathed or PVC insulated only
Immersion heater (final connection)	EP rubber/HOFR sheath

PVC insulated and sheathed cables and PVC insulated split concentric cables

211 Colour code cables for identification.

212 PVC INSULATED AND SHEATHED CABLES:

Standard: To applicable Standard

Type: PVC insulated and PVC sheathed cable, colour coded for identification.

213 HI-TUFF CABLE

Standard: To applicable Standard

Installation: As Clause 018

214 PVC INSULATED SPLIT CONCENTRIC CABLES:

Standard: To applicable Standard

Type; PVC insulated and PVC sheathed split concentric cable colour coded for identification.

215 EP RUBBER SHEATHED CABLES OR HEAT RESISTANT PVC FLEXIBLE CABLES:

Standard: To applicable Standard Type: EPR insulated and HOFR sheathed cable, or heat resistant PVC flexible, colour coded for identification.

216 MICC CABLES

Standard: To applicable Standard

Type: Mineral insulated copper cable.

217 CABLE ROUTES:

Installation: Shall be straight, vertical or horizontal and parallel to walls unless shown otherwise

Cables shall be positioned at least 150mm clear of other services

Cables running parallel and adjacent to heating pipes to be located below the pipes

Concealed cable runs in walls or partitions shall comply with applicable Standards

Concealed cable runs to wall switches and outlets shall be vertically in line with the accessory

Cables installed under floors or above ceilings shall comply with applicable Standards.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

218 INSTALLING CABLES GENERALLY

Standard: To applicable Standard

Installation: Internal cables should not be installed until the building is sufficiently enclosed to ensure permanent dry conditions

Cables shall be installed above ceilings, below floors and concealed in walls where practical

Cables to be able to be withdrawn through (1) access through removable floor or wall panels (2) a continuous conduit/trunking system

Cables shall be installed without joints other than at equipment and terminal fittings.

Jointing boxes or blank plates to extend electrical circuits are NOT PERMITTED

Cables shall be supported and fixed to the requirements of applicable Standards.

Cables shall be sleeved where passing through walls with conduit bushed at both ends

Cables where installed across floor joists shall be threaded holes neatly bored at least 50mm from flooring or ceiling

PVC insulated cables must not come into contact with polystyrene insulation or organic timber preservative

Cables installed within a wall or partition shall comply with applicable Standards.

Final Connections: To immersion heaters and all heating appliances shall be carried out using EP Rubber insulated/HOFF sheathed flexible cable or heat resistant PVC flexible cable

Materials

Conduit/trunking/ducting

219 Do not use surface conduit or trunking without an Instruction to do so from the Client's Representative.

PVC-u conduits and fittings

220 Ensure PVC-u conduits and fittings comply with the following:

- strength: heavy gauge super high impact;
- shape/colour: round, white or black;
- jointing: push fit and solvent welded;
- fittings: standard;
- mounting/support: screw the conduit to surfaces using the conduit manufacturer's clips/saddles;
- use maximum practical straight lengths to minimise number of joints;
- use proprietary bends and/or junction boxes at changes of direction;
- do not use elbows, tees or site formed bends without the approval of the Client's Representative;
- secure the conduit system using boxes, plated screws and fibre/plastic plugs;
- fix boxes independently of the conduit; and
- form secure joints, using expansion couplings where recommended by the manufacturer and connectors at equipment and terminal fittings.

PVC-u surface cornice trunking system

221 Use PVC-u surface cornice trunking in conjunction with mini trunking for the mechanical protection of sub-mains cables and final circuit cables in accessible locations at ceiling level, where approved by the Client's Representative. Ensure the trunking complies with the following:

- fittings: use the manufacturer's standard fittings;
- colour: white;
- mounting/support: secure to surfaces using plated screws and fibre/plastic plugs; and
- use proprietary units to form junctions and changes of direction wherever possible.

PVC-u surface mini-trunking system

222 Use PVC-u surface mini-trunking for the mechanical protection of final circuit cables in accessible locations. Ensure the trunking complies with the following:

- fittings: use the manufacturer's standard fittings;
- colour: white;
- mounting/support: secure to surfaces using plated screws and fibre/plastic plugs; and
- use proprietary units to form junctions and changes of direction wherever possible.

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Fire stopping of trunking/ducting

- 223 Seal trunking/ducting internally with firmly packed rock fibre or intumescent type material supplied by the trunking/duct manufacturer.

Electrical accessories generally (wall mounted)

- 224 Ensure wall mounted accessories for the connection and control of heating equipment are:
- manufactured using white moulded plastic;
 - complete with flush type mounting box except where specified otherwise;
 - from the same manufacturer in a single installation; and
 - control switches for space heating appliances shall be rated at 20A DP and mounting heights as agreed with the Client's Representative.
- 225 Ensure metal boxes for flush mounting switches are manufactured from galvanised steel complete with an earth terminal.
- 226 Fix all boxes using brass screws, fibre or plastic plugs.

Consumer unit

- 227 Ensure consumer units:
- have a surface non-combustible enclosure complete with lid;
 - have a main switch of 80/100 amp DP rating;
 - are fitted with RCBO's to applicable Standard located adjacent to the meter at the incoming supply position; and
 - have each way permanently labelled to identify the circuit and rating.
- 228 In installations without Protective Multiple Earth, it must be a surface non-combustible enclosure complete with lid with RCBO's to applicable Standard.

Circuit No Allocations	MCB Rating
Electric heating circuit – RCD/RCBO protected	16A
Immersion Heater	16A
Shower	45A

Residual current device/residual current circuit device (RCD/RCCD)

- 229 Ensure RCDs and RCCDs:
- function as both isolators and switches;
 - have a current rating of 80 amp DP;
 - have a sensitivity of 30m amp; and
 - are complete with an insulated cover or terminal shrouds.

Residual current circuit breaker (RCCB)

- 230 Ensure RCCBs:
- function as both isolators and switches;
 - have a current rating of 63 amp DP;
 - have a sensitivity of 30mA; and
 - have a white PVC-u enclosure.

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Residual current circuit breaker with override protection (RCBO)

- 231 Ensure RCBOs:
- function as both isolators and switches;
 - have a current rating of 80 amp DP;
 - have a sensitivity of 30mA; and
 - are complete with an insulated cover or terminal shrouds.

ISCO connectors

- 232 For ISCO connectors ensure:
- the covers and bases are manufactured from black phenolic resin material; and
 - the connector blocks are manufactured from brass with electro-tin finish.

Time switch (24 hour)

- 233 Ensure time switches:
- have a 24 hour and quartz control mechanism;
 - are a 20 amp single pole, single throw time switch; and
 - have 2 'on' and 2 'off' programmes with a day omitting device and independent motor connections.

Duoheat radiators

- 234 For duoheat radiators ensure:
- have a direct energy low wattage radiant element;
 - have low cost off peak tariff energy retention cells;
 - incorporates heat management automatic controls;
 - has a child lock facility on controls;
 - has electronic room temperature controls allowing user adjustment of heater output;
 - has user configurable electronic automatic input charge regulator;
 - can be linked to a central control programmer by either pilot wire or mains bourne signals;
 - has prewired electrical connections;
 - has easy fit front panel connections;
 - can be floor or wall mounted;
 - has simple secure wall fixings
 - is slim line design with concealed outlet grille
 - has white stove enamelled casing;

Economy 7 Off peak tariff heaters

- 235 For convector storage heaters ensure:
- are low cost off peak with automatic charge regulation;
 - are combination type with independently operated built in convector heater;
 - has automatic room temperature boost and time control;
 - has frontal grille for heat distribution
 - can be linked to a central control programmer by either pilot wire or mains bourne signals;
 - can be floor or wall mounted;
 - has secure wall fixings; and
 - is slim line, with white stove enamelled casing;
- 236 For fan assisted storage heaters ensure:
- has low noise thermostatically controlled fan;
 - high performance, fully automatic, integral time and temperature controls;
 - has frontal grille for heat distribution;
 - can be linked to a central control programmer by either pilot wire or mains wire signals;
 - can be floor or wall mounted;
 - has secure wall fixings; and
 - is slim line, with white stove enamelled casing;

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Day rate tariff heaters:

- 237 For heaters ensure:
- has convected heat for rapid warm up;
 - pre-set background temperature at 5degree C below thermostat setting;
 - has electronic thermostatic control providing room temperature stability to +- 0.3degree C
 - has 24hour electronic digital timer
 - has plug in electronic single zone pilot wire programmer;
 - has plug in electronic runback timer;
 - can be linked to a central control programmer by either pilot wire or mains bourne signals;
 - is wall mountable;
 - has secure wall fixings; and
 - is slim line, with white stove enamelled casing; and
 - is splash proof to IPX4 rating;
- 238 For panel heater with towel rail hangers ensure:
- two fixed non heated towel hangers;
 - has comfortable radiant heat output;
 - has electronic thermostat accurate to within 0.1degree C;
 - has user selectable comfort, background and frost protection settings;
 - is splash proof to IPX4 rating;
 - can be linked to a central control programmer by either pilot wire or mains bourne signals;
 - is wall mountable; and
 - has secure wall fixings;

Heated Towel Rail

- 239 For heated towel rail ensure:
- is oil filled tubular;
 - has chromium plated finish
 - has mains neon indicator;
 - is splash proof to IPX5 rating
 - can be linked to a central control programmer by either pilot wire or mains wire signals;
 - is wall mountable; and
 - has secure wall fixings;

Central Programmer

- 240 For central programmer ensure it is:
- wall mounted;
 - has pilot wire or mains wire powered;
 - has four zones, each with separate customisable user programme for each day of the week;
 - has installer option to allow switching between comfort/set back modes, comfort/off modes or comfort/frost modes;
 - manual programme over-ride facility with automatic return to programme at next timed change;
 - mains wire signalling option has receiver cassettes on each heater; and
 - has interface unit to control ancillary appliances or hot water;

Fixing electrical accessories/equipment

- 241 Position accessories accurately and squarely to the vertical and horizontal axes. Where not shown otherwise, align adjacent accessories on the same vertical or horizontal axis (as appropriate). Mounting heights to comply to current Building Regulations.

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WORKMANSHIP

Installation generally

- 242 Install, test and commission the electrical work in accordance with the applicable Standards for electrical installations and the design and performance requirements set out in this section so as to provide a safe, well insulated, earth protected system capable of supplying the anticipated maximum demand.
- 243 Ensure all installation Works are carried out by qualified electricians fully conversant with applicable Standards for electrical installations.
- 244 Do not allow the number of Apprentices and Trainees at a Property to exceed the number of qualified electricians.
- 245 Ensure all installation Works are carried out to good workmanship by skilled (electrical) or instructed (electrical) persons and proper Materials shall be used in the electrical installation.
- 246 Use only the types of fastenings, bushes, glands, terminals, connectors, clips, clamps and all other minor accessories necessary to complete the installation that are recommended by the manufacturer of the electrical equipment being installed.
- 247 Avoid contact between dissimilar metals. Use corrosion resistant fastenings in locations where moisture is present or may occur.
- 248 The Provider must rectify, free of charge to the Contract, any Work which in the opinion of the Client's Representative has not been properly executed and must replace free of charge to the Contract any Materials which do not comply with the Specification.
- 249 The Provider must confirm the voltage and frequency of the supply before ordering any equipment. This will normally be 240v a.c. 50 Hz single phase.
- 250 The Provider must include in his tender for the provision of all fixings and the making good by qualified tradesmen to the satisfaction of the Client all damage to walls, ceilings, decorations and fitments.
- 251 Dust sheets are to be used and every consideration given to Customers property.
- 252 After Work is completed each day all systems will be left in a safe usable condition and all dust and mess cleared up.

Distribution charts - labelling of equipment

- 253 Fix circuit charts securely to the inside of each item of distribution equipment, clearly indicating the circuits protected, fuse and RCBO ratings and the size and type required.

Electricity supply

- 254 Note that the electricity supply is nominally 240 volt, single phase, 50 hertz, 2 wire.

System of wiring

- 255 For concealed wiring, use PVC insulated and sheathed cable of the size and type specified. Wherever possible, run it in below floors and ceiling voids.
- 256 Run cables along the sides of joists at the mid-point. Clip them at 450mm centres using cable clips of tinned brass secured by nonferrous fixing pins, screws, clips or a similar fixing. Support the wire and equipment located between the joists by a wood bearer of a size of at least 100x25mm.

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- 257 Install the cable:
- with a minimum clearance of 150mm to all heating, gas and waste pipes or ducts; and
 - physically separated from other wiring not associated with lighting and power supplies.
- 258 Where cables cross flooring joists they must be passed through small holes drilled through the centre of the joists. These holes must not exceed 25mm diameter.
- 259 Ensure cables leaving or crossing joists do so at right angles to the longitudinal side of the joist, on trusses or binders. Do not notch or saw joints. Ensure that cables do not run in positions where they are susceptible to damage by floor nails.
- 260 Do not run cables in roof spaces on the top of joists or near water tanks, etc., since in this position they are susceptible to damage.
- 261 Install cables leaving roof voids and below floors or passing through any part of the structure in conduit or trunking as specified.
- 262 Ensure cables in solid floor that are either laid in screed or in a ceiling void are drawn in through rigid PVC-u conduit as specified and run continuously from the consumer unit to the outlet served.
- 263 Do not install cables within wall cavities.
- 264 Contain all wiring to each flat within that flat.
- 265 Fit conduits complete and then draw the cable through.

Cables installed in plastered walls

- 266 Protect cables by rigid PVC-u metric super high impact heavy gauge conduit where no conduit exists at present. Reuse existing conduit where approved by the Client's Representative.
- 267 Ensure new conduits are in continuous lengths, smooth in bore, true in size, and terminating in roof and below floors with a minimum projection of 50mm. Provide inside outlet boxes with a universal cleat.
- 268 Ensure new conduits are vertical and chased into the wall, such that the finished wall will provide a minimum of 10mm plaster cover. Adequately fix the conduit with sheradised nails and saddle clips, such that during the plastering processes, there is no tendency for plaster to push the conduit forward and reduce the cover.
- 269 Where approved by the Client's Representative, embed cables in plastered surfaces and cover them with 'top hat' trunking secured at a depth to allow the plastered surface to be made good.

Cables installed in proprietary de-mountable or plasterboard partitions

- 270 Install cables in proprietary or de-mountable similar type partitions. Draw them through holes formed by forcing a suitable rod through the honeycomb core of the partition from above.
- 271 Take due account of any insulation within the partition when sizing the cables so as to prevent overheating.
- 272 In plasterboard partitions with a timber core, draw cables through the partition between the timber studding and noggins. Where timber work occurs, take the cable over the face of the timber by a small chase through the plasterboard and into the timber. Make good the chase with a suitable plaster material finished smooth and flush. Ensure cables installed in partitions are vertical.

Conduit installed on the surface

- 273 Use super high impact light gauge PVC-u metric rigid conduit and accessories on fairfaced brickwork or unplastered surfaces in heating cupboards, stores, garages, plant rooms, meter compartments and similar areas.

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- 274 Support the conduit by PVC-u spacer bar saddles and wood screws and rawlplugs at intervals not exceeding 400mm.
- 275 Allow for the expansion of PVC-u conduit.
- 276 Install the conduit only vertically or horizontally.

Where new cables are to be installed in or under solid floors

- 277 Protect cables by rigid PVC-u round super high impact heavy gauge conduit laid in continuous lengths from the consumer unit to the outlet served, run in a diagonal line. Use the proper outlet and inspection bends and tees. Adequately fix the whole system to avoid any displacement by subsequent building trades.

Requirements for PVC-u conduit systems

- 278 Install no more cables in each circular conduit than necessary to permit easy insertion and withdrawal. Do not install more than the maximum recommended in the applicable Standards.

Demonstrate to the Client's Representative that cables can be easily withdrawn and inserted in any section of the installation. If this cannot be done using the existing conduit, then provide new conduit.
- 279 Use conduits, boxes, fittings and accessories from the same manufacturer and with suitable fixings for the application. Ensure circular conduit is at least 20mm in diameter.
- 280 Ensure metal outlet boxes and equipment do not become distorted during plastering. Install boxes flush with the finished plaster and the sides vertical, using 1.25" No.8 woodscrews and rawlplugs or equivalent fixing.

Use of cable trunking

- 281 Use cable trunking to improve the appearance at points in the installation where a number of conduits terminate or share a common route, and/or at the meter intake positions for the formation of distribution board/local isolator assemblies. Use compact miniature trunking of the appropriate size.
- 282 Use PVC-u trunking with fitted end covers. Provide a separate earth continuity conductor.
- 283 Connect trunking to equipment by appropriate screwed couplers, bushes and shakeproof washers, or flanged couplings.
- 284 Connect trunking to PVC-u conduit by "threaded to plain" adaptors with lock nuts, or clip in adaptors.
- 285 Clean out trunking before cable is drawn in.
- 286 Ensure the number of cables installed in trunking does not exceed the space factor specified in applicable Standards.

Conductors

- 287 Ensure all cables comply with British Cable Association recommendations (or equivalent).
- 288 Carefully remove any insulation in making terminations without causing damage to the conductor. Double the wiring to fill the terminations.
- 289 Take the sheath of PVC sheathed cable inside the outlet boxes or the pattress of ceiling fittings and similar equipment.
- 290 Securely clamp flexible cords and fit suitable grommets to all terminal boxes.

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291 Use cables of the following types and sizes complete with integral earth continuity:

Concealed wiring - copper 2 core and earth PVC insulated and sheathed	
Electric Heating	- 2.5mm sq
Shower circuit	- 10.00mm sq
2/3 Kw Immersion Heater	- 2.5mm sq
3 Kw Water Heater	- 2.5mm sq

16 amp heating circuit installation

- 292 Connect storage heaters in dedicated radial circuits without spurs using cable as specified, with both ends of each circuit terminated in one 16 amp RCBO at the consumer distribution unit.
- 293 A radial circuit may supply two storage appliances subject to the circuit protective device not exceeding 20amps.
- 294 Prevent overloading of circuits by providing specified appliances with separate final-circuits.
- 295 Use junction boxes only with the approval of the Client’s Representative.
- 296 Locate fused connector boxes in the same positions as those existing.
- 297 Ensure the positions of fused switched connection units relative to the floor level are as follows:

Location	Dimensions from centre line of socket to floor level
General living areas, hall, landings, etc.	450mm – 1200mm
Elderly persons’ Properties	450mm - 1000mm
Bedrooms (except elderly persons’ Properties)	450mm – 1200mm

298 Recess back boxes into the walls to just below plaster level and provide them with adjustable fixing lugs.

Immersion heaters

- 299 For immersion heater circuits, provide one final sub-circuit connected to one 16 amp RCBO at the consumer distribution unit using cable as specified.
- 300 Provide for the heater to be controlled by a heating booster switch located above worktop in kitchen.
- 301 Use flush fitting units where switches are located outside the airing cupboard. Where switches are located inside the airing cupboard, use either surface or flush fitted units.
- 302 Terminate the circuit adjacent to the heater using suitable cable and a flex outlet plate. Make the final connection with heat resistant flexible cable as specified and run so as to prevent the hanging of clothes, etc., on the cable. When control switches are remote from the heaters, provide an appropriate means of isolation.
- 303 When the supply cable is exposed within an airing cupboard, protect cables with mini-trunking as specified.

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Showers

- 304 For shower circuit, provide one final sub-circuit connected to one 45amp RCBO at the consumer distribution unit using cable as specified.
- 305 Provide for the shower to be controlled as near as practicable to the shower unit, by either a white 20amp AC, DP neon indicating pull switch with pull cord if located in bathroom, and by a white 20amp AC DP neon indicating switch labelled "shower".

Installation control and distribution

- 306 Install the consumer control and distribution unit for UNRESTRICTED supplies in each Property. Ensure the exact form and position of the equipment is as specified in the Order or Instructed by the Client's Representative. This may consist of either:
- a purpose made wall mounting cabinet with external meter reading access; or
 - a non-combustible consumer unit located within a meter cupboard.
- 307 Ensure the consumer equipment consists of a non-combustible unit complying with applicable Standards complete with:
- double pole AC main switch of a rating suited to the loading/diversity of the installation;
 - sufficient RCBO's to accommodate all the sub-circuits scheduled for the Property; and
 - a minimum of 20% spare ways;
- 308 Ensure sufficient space is available for the Utility Provider's metering and service cut outs. If required, provide a panel which satisfies the requirements of the Utility Provider for mounting meters, cut out and other equipment.
- 309 Supply and install PVC-u connection tails to the Utility Provider's point of supply, using correct coding and matching the cross sectional area to the main isolating switch rating.
- 310 Upgrade all earth and bonding to conform to the applicable Standards for electrical installations. Do not use metal trunking as an earth conductor.
- 311 Use PVC-u cable trunking to enclose meter tails as specified.
- 312 Provide equipment in a colour approved by the Client's Representative.
- 313 Clearly identify each way used for distribution equipment.
- 314 Ensure the mounting height of equipment is such that persons of average height can reach all fuses, switchgear, etc., from floor level without assistance.
- 315 Conceal cables above the ceilings and maintain access to the cable runs.
- 316 Enclose cables run in cupboards in mini-trunking.
- 317 Before and on starting the Works, obtain approval from the Client's Representative to the proposed routes of cable runs and wiring circuits.
- 318 Agree any alterations to the agreed routes of wiring circuits with the Client's Representative before starting the Works on them.
- 319 If Works are carried out before having agreed the routes with the Client's Representative, return and reroute and rewire cable runs and circuits where Instructed by the Client's Representative.

Standardisation of components

- 320 Use matching components with all fused spurs and similar equipment used in the Works, being from the same manufacturer.

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Removal of floor boarding, etc

- 321 Carefully remove any floor boarding necessary for the installation of cables. Saw through the tongues only and replace the boards in a workmanlike manner. Ensure any new floor boarding is identical in width and thickness. Remove all debris from the joist and roof spaces.
- 322 Make good all plaster disturbed by the removal of fittings to a true and level surface.
- 323 Do not disfigure timber frames and mouldings by sawing or chiselling out for the insertion of cables.
- 324 Where the removal of mouldings, etc. is necessary, ensure the replacement is carried out by a qualified tradesman and that the replacement surface matches the existing surface.

Existing roof insulation

- 325 Where the roof insulation must be moved for the electrical installation, carefully move it to one side. On completion of the electrical Works carefully replace it to its original position. Take care not to cover lengths of cable with insulating material to ensure the current rating of the cable(s) is not unduly altered.

Removal of old cables and fittings

- 326 Remove old cables and redundant switches, sockets, clips, boxes, etc. from roof spaces, exposed walls and other noticeable places and make good any disturbed surfaces.

COMPLETION

Inspection and testing

- 327 Ensure that on completion and before being energised, any installation is tested in accordance with the applicable Standards for electrical installations.
- 328 Give not less than 24 hours-notice to the Client's Representative before commencing the testing.
- 329 After satisfactory completion of tests, submit electronically a copy of all inspection and completion certificates, with all associated schedules and test results where applicable, to the Client's IT system.
- 330 Note the testing instrument serial numbers on the test certificates.
- 331 All charges for testing or re-testing must be borne by the Provider.
- 332 The Provider must provide all the test instruments and test equipment required, make all arrangements for connections of the mains supply and issue to local authority supply company all appropriate test notices.

Report and certificates

- 333 Ensure all inspections, reports and test certificates and forms are the latest version and are in the standard format published by the IET for Electrical Installation Certificates approved by the Client's Representative.
- 334 Upload onto the Client's IT System an Electrical Installation Completion Certificate for Major Works or alterations to electrical installations which involve:
 - a change or modification to two or more existing circuits;
 - the addition of one or more new circuits to an existing installation; or
 - a new installation.
- 335 Provide an electrical installations condition report when specifically Instructed by the Client's Representative.

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336 Documentation

Manufacturers Operating and Maintenance Instructions: The Client’s Representative and Customer shall be given sufficient information for the equipment installed, including all operational and maintenance instructions, controls and any other details so the Property can be operated and maintained in an energy efficient manner as to use no more power than is reasonable in the circumstances. The instructions shall be directed to the specific equipment in the Property and shall be readily understandable by the Customer.

System Operating Instructions: Without comprising Health & Safety requirements, the instructions should explain to the Customer of the Property how to operate the electrical Storage and Panel Heaters efficiently including how to make adjustments to the timing and temperature controls of equipment.

Notice: The Provider shall notify in writing to the Local Building Authority and Client’s Representative that all fixed building services have been properly commissioned, not more than 5days after completion of the commissioning work.

337 CIRCUIT CHART

Standard: To applicable Standard

Requirement: A legible circuit chart/schedule shall be provide indicating in particular the information required in Regulation 514.9.1

Schedule: A laminated durable copy of the circuit chart/schedule relating to each consumer unit shall be provided within or adjacent to each Consumer Unit and to be securely fixed.

Client’s current manufacturers/suppliers/products

338 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand Name	Manufacturer’s Details

[complete table as appropriate]

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ELECTRIC HEATING EXAMPLE CHECKLIST

[Client to amend as appropriate]

Item	Work Description	Deemed included within All-in Electric Heating Renewal Rates	Reimbursed through Schedule of Rates
1.0	Carry out an initial survey of Property and prepare and submit the Design information required for the replacement of the electric space heating in compliance with the Client's Specification.	✓	
1.1	Isolate, disconnect, remove and dispose of existing heating units, cabling and associated waste. Install new heating system, as per the approved design.	✓	
1.2	Provide temporary heating and lighting.	✓	
1.3	Property and possessions are protected in the Property and cleaned at the end of each working day and on completion of all of the Works.	✓	
1.4	Supply and installation of Focal Fire Inset.		✓
1.6	Carry out a full inspection on the electrical installation within the Property and provide a written report in the form of an Electrical Inspection Condition Report.	✓	
1.7	Rewire power distribution back from existing consumer unit location. Utilise existing conduits where possible or chase in new PVC-u conduit and socket boxes, to facilitate minimum 10mm- plaster coverage.	✓	
1.8	Supply and install 13amp switched fused connection units.	✓	
1.9	Replace consumer unit in accordance with applicable Standards & IET On-Site Guide when Instructed by Client's Representative.		✓
2.0	Carry out all Code 1 and 2 recommendations to electrical installation outside of kitchen and bathroom (if being renewed at same time as kitchen)		✓
2.1	On completion, all Work is to be tested as laid down in the applicable Standards and the latest IET on-site guide. An electrical installation certificate or minor electrical works certificate is to be provided as appropriate.	✓	
2.2	With prior approval of the Client's Representative and subject to size and layout of bathroom; Install Heated Towel Warmer - Dimplex TR Range - TRS175/W or similar approved by Client's Representative. The Provider shall install an electric heated towel rail, including switch, to wall. Where stud wall, wall to be suitably strengthened. Towel warmer to be installed in accordance with manufacturer's instructions. Test on completion and provide electrical certificates as required. All Works, Materials and components to comply with the Building Regulations.	✓	

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Item	Work Description	Deemed included within All-in Electric Heating Renewal Rates	Reimbursed through Schedule of Rates
2.3	With prior approval of the Client’s Representative and subject to size and layout of bedroom; Install Panel heaters in bedrooms - EPX Size range 0.5kw to 2kw or similar approved by Client’s Representative in accordance with the manufacturer’s instructions. Test on completion and provide electrical certificates as required.	✓	
2.4	With prior approval of the Client’s Representative and subject to size and layout of bathroom; Install wall Mounted Down flow Fan Heater – Dimplex Bathroom FXIPX4 - Kitchen FX20VE- down flow heater or similar approved by Client’s Representative within the bathroom and the kitchen, in accordance with the manufacturer’s instructions. Test on completion and provide electrical certificates as required.	✓	
2.5	Installation of main equipotential and supplementary earth bond.	✓	
2.6	Test and clean existing smoke and heat detection.	✓	
2.7	Supply and install smoke detectors.		✓
2.8	Supply and install heat detector if not already installed in kitchen.		✓
2.9	Supply Authority switch.		✓
3.0	Patch plaster walls for decorations following strip out, area not exceeding 2m2.	✓	
3.1	Remove and dispose of electric storage heaters containing asbestos - Where the bricks contain asbestos, the storage heater should be removed and disposed of in accordance with the relevant regulations, and in its entirety. Copies of all waste transfer and consignment notes should be provided to the Client’s Representative.		✓
	Electric Heating and Hot Water (1.0 to 3.1 all in rates apply)		
3.2	Carry out an initial survey of Property and prepare and submit the Design information required for the replacement of the electric hot water system in compliance with the Client’s Specification.	✓	
3.3	Supply and install new hot water storage system, complete with factory fitted foam insulation where applicable, 2 No 3kW immersion heaters, cylinder stool including new dedicated day rate electrical circuit having a heating boost switch and final flexible cable connection to the immersion heater and a new dedicated off peak rate electrical circuit and a final flexible cable connection.	✓	

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Item	Work Description	Deemed included within All-in Electric Heating Renewal Rates	Reimbursed through Schedule of Rates
3.4	Make good/replace where necessary any insulation to exposed pipe work in the roof space and all necessary new insulation to pipelines in accordance with the Client's specification.	✓	
3.5	Renew 7 Day Timer and controls.	✓	
3.6	Renew associated pipework to hot water system.	✓	
3.7	Patch plaster walls for decorations following strip out, area not exceeding 2m2.	✓	
3.8	Provide and install 9.5KW electric shower complete with circuit, 20 amp fused pull switch, RCBO etc., and connect to electrical and water supplies.		✓
3.9	Remove existing tiling and make good was in preparation of new tiling. Supply and install 6.5mm ceramic full height to three sides of bath. Tiling to be carried out to internal windowsills.		✓
4.0	Provide and install anodised aluminium shower curtain track and showerproof plastic weighted shower curtain and adjustable height shower rail.		✓

ELECTRIC HEATING INSTALLATIONS MAINTENANCE

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

ELECTRIC HEATING INSTALLATIONS MAINTENANCE

General Requirements

- 001 The Provider shall be deemed to have read the whole of this Specification together with the Client's requirements' and will be deemed to have included in his Tendered Rates for full compliance.
- 002 Provide a 24 hour breakdown service 365 (366 for a leap year) days per annum.

Asset Register

- 003 Ensure that all the asset registers supplied by the Client's Representative prior to the commencement of the Contract are verified during the first 12 months of the Contract Period and any discrepancies made known, in writing, to the Client's Representative.
- 004 At the commencement of the Contract, a set of services drawings may be issued to the Provider who shall ensure that, during each maintenance service element, the respective drawing shall be marked up by him to indicate the actual installed services. At the completion of each element the marked-up drawings shall be returned to the Client's Representative.

Maintenance Reports

- 005 Ensure that, following all inspection visits, conditional reports shall be submitted to the Client's Representative in electronic format, including all specialist reports and test equipment printouts.
- 006 Provide to the Client's Representative copies of the site risk assessment, method statement and COSHH assessments issued to the Provider's Staff including his specialist Subcontractors.

Manufacturer's Requirements

- 007 Where manufacturer's instructions exceed the requirements of this document they shall be adhered to in their entirety.

Permit to Work Certification

- 008 If it is deemed necessary by the Client's Representative for the need for a permit to be issued before any Work is undertaken on the installation, the Provider shall ensure his compliance with the permit to work system as employed by the Client.

Access

- 009 Ensure that he undertakes a risk assessment and provides a method statement for his means of access to allow for inspection and testing.
- 010 All Works shall be carried out in strict accordance with the requirements of "The Work at Height Regulations 2005".
- 011 Ensure that all Staff employed upon this Contract are suitably trained and experienced and competent to work at height.

Minor Repairs

- 012 Carry out minor repairs, whilst testing, such as tightening joints, replacement of clips, etc to achieve a pass status and make appliances safe to ensure compliance with the Client's requirements.

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Periodic Inspections and Testing

- 013 Inspection and testing of storage and convector heater installations must unless otherwise Instructed by the Client's Representative be carried out in accordance with the requirements tabled below;

Routine and Responsive Maintenance

- 014 Provide a 24-hour, 365 days per year (366 for a leap year) responsive maintenance service for the period of the Service to allow for breakdown or malfunction of any appliance, or installation and the replacement of any defective or missing components or installation parts previously specified. This service is to ensure that the appliances and installations are left in a safe and fully operational condition. The details of any repair are to be noted by the engineer for registering on the Provider's database (as provided by the Client's Representative).
- 015 All Works in connection with the installations to be arranged by the Provider.
- 016 For breakdowns the Provider is expected to complete 80% of such repairs at first fix or as a minimum within one day and 100% within two days. The aim of this requirement is to minimise any disruption to the Customer relating to use of water/space heating facilities.
- 017 Where the above is not achievable with parts being unavailable from impressed or local stockist the Provider is to immediately notify the Customer and the Client's Representative and provide time scales for completion of the Works where replacement parts are required.
- 018 On receipt of a request being made by the Client's Representative and/or the Customer the Provider shall comply with the following:-

a) **EMERGENCY CALLOUT ATTENDANCE WILL MEAN THE FOLLOWING:**

Emergency call out to be responded to immediately and no later than 2 hours and completed or made safe within 4 hours.

Breakdown repairs are to be completed within the stipulated attendance timescales, with every effort being made to complete on a first call, first fix basis, where this cannot be achieved the timescales as mentioned above will apply.

b) **URGENT CALLOUT ATTENDANCE WILL MEAN THE FOLLOWING:**

Urgent Call Out To be responded to immediately and no later than 24 hours and completed within 48 hours.

- c) Ensure that each engineer is equipped with an adequate impressed van stock of parts to deal with most eventualities. A comprehensive stock of impressed spare parts, shall also be kept at the Provider's control point and store to enable items such as cylinders and where applicable immersion heaters to be replaced immediately.

- d) If rectification of the fault is not possible at the time of attendance the fault must be rectified within the previously stated time scales.

In the event of rectification not being considered possible as aforesaid, the Provider shall immediately notify the Client's Representative and the Customer giving the reasons as to why, and inform the Client's Representative and the Customer when the repair will be completed. The Client's Representative must satisfy himself that suitable alternative temporary arrangements for hot water and heating are in place.

Notwithstanding the generality of the Provider's obligations hereunder, the expression "component part" shall include the parts listed elsewhere hereof and any other specialist controls associated with a particular installation.

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- e) Ensure that the Customer is kept informed of the situation at all times.
 - f) Upon completion of a breakdown, the satisfaction card is to be left with each Customer, the approved work document is to be duly completed and a copy of such is to be sent to the Client's Representative.
 - g) In addition to the requirements detailed previously the Provider shall also allow to provide the following Services, which shall be included for within the rate per appliance:
 - 1. Advise on efficient and correct use of appliance and installations.
 - 2. Instruct new and existing Customers on the operation of appliances and installations.
 - 3. Resetting of controls for any reason.
 - 4. All calls where a Customer maintains an appliance or installation is faulty, even if no such fault is found to exist.
 - 5. All calls where the fault reported is due to controls being incorrectly set.
 - 6. Repairs due to Customer damage.
 - h) The breakdown element of the works shall be priced in accordance with the schedules shown elsewhere in this document and shall be inserted in The Price Framework.
 - i) The Provider is to provide on a daily basis a breakdown status report on each site visited.
- 019 Before attending a breakdown the Provider should contact the Customer to ascertain where reasonably possible as to the authenticity of the call to establish if the malfunction is due to Customer error such as installation/control adjustments or electricity failure.

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020 Periodic Servicing and Inspections

Storage Heaters

Item No.	Item	Frequency	Action	Notes
1.	General	5 Yearly	All storage heaters shall be inspected, tested and maintained in strict accordance with the manufacturer's recommendations and requirements	On older models be vigilant for the presence of asbestos. Report suspect appliances.
2.	Cases	5 Yearly	Examine fixings. Examine general mechanical condition of cases and cabinets. Tighten screws and fixings as necessary. Clean cases and cabinets. Remove all fluff, dust and dirt from interior and exterior, including fans, grilles and ducts. Examine the location of the storage heater to ensure that it does not present a fire risk.	
3.	Fans	5 Yearly	Clean and examine fans, motors and bearings. Examine filters, clean or renew as necessary. Examine fan housings and ductwork. Test performance.	
4.	Elements	5 Yearly	Examine connections. Examine terminals for oxidation, corrosion and tightness. Clean and tighten as necessary. Test insulation resistance. Test element resistance.	Note the condition of the thermal blocks, report to the Client's Representative any signs of deterioration.
5.	Controls	5 Yearly	Clean and examine controls, control switches and pilot lights. Examine time switches. Examine over-ride controls. Examine thermostats, test calibration. Examine terminal connections. Examine condition of wiring.	Discuss operational effectiveness with user to determine control settings. Comment upon location of external thermostats.
6.	Meters & Electricity Supply	5 Yearly	Examine meters at supply position. Ensure time clocks are correct and supply charge to storage heaters during 'off peak' periods.	
7.	Electrical Installation	5 Yearly	Examine flexible cables for wear, fraying braid and brittle insulation. Examine connections. Examine fused connection unit to electrical installation. Check fuse rating. Test insulation resistance. Examine earthing arrangements and test continuity.	

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Fan Convectors

Item No.	Item	Frequency	Action	Notes
1.	Visual Inspection	5 Yearly	Visually examine each heater, replace missing fixings, if cabinet damaged report condition. Check operation of local isolation switch and indicator lights – switch off.	Report defects to Client's Representative. Report any findings of Asbestos Cement type boarding within heater cabinets or forming ducts through walls to Client's Representative.
2.	Cleaning	5 Yearly	Remove access panels, expose Heater Battery and Fan Assembly. Vacuum clean heater interior. Remove filter (if fitted) and clean thoroughly. Clean out heater battery and fan assembly using high pressure airline and vacuum collection. Ensure fins are correctly aligned.	Report defects to Client's Representative. Report if not fitted or faulty to Client's Representative.
3.	Electrical Inspection and Testing, General	5 Yearly	Examine all internal wiring and test insulation. Check and test earth connections. Ensure all fuses are correctly rated. Check operation of in-built room thermostat/change speed thermostat. Check operation of low temperature cut out thermostat.	Record readings and report defects to Client's Representative.
4.	Electrical Inspection and Testing, Motors	5 Yearly	Lubricate fan bearings to manufacturer's recommendations. Examine and test insulation to all motors and test earth continuity to the motor casings.	Report defects to Client's Representative. Record readings
5.	Mechanical Inspection	5 Yearly	Check operation of isolating lockshield valves on heater battery.	

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Client’s current manufacturers/suppliers/products

021 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

SMOKE, HEAT AND CARBON MONOXIDE DETECTORS

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OPTICAL SMOKE ALARM TECHNICAL SPECIFICATION

001 The Optical Smoke Alarm shall have the following features:

- The Smoke Alarm shall carry the BSI Kitemark to indicate type testing to applicable Standard. It will meet the requirements of Grade D (and exceed the requirements of Grades E and F) as defined in the applicable Standards. It carries the CE mark to indicate conformance to Low Voltage and Electromagnetic Compatibility Directives.
- The alarm shall have an optical (photoelectric) sensor with large volume chamber and large high sensitivity photodiode. The sensor chamber shall have an insect resistant fine mesh screen with holes less than 0.030 inches.
- The alarm shall operate on a 230V AC Mains Power Supply with built-in tamper proof Rechargeable Vanadium Pentoxide Lithium standby cells, capable of lasting at least 10 years and powering the alarm initially for at least 6 months in the event of mains power failure.
- The Lithium cell manufacturer shall endorse a minimum 10-year life expectation for the rechargeable cells.
- The alarm shall be supplied with a built-in surface mounting plate, with integral terminal block and cable cover and incorporate a foam gasket fitted to the mounting plate to prevent dust ingress into the unit. The alarm shall connect to the mains and interconnect/control connections automatically as it slides on to the mounting plate. The alarm shall disconnect from the mains and interconnect/control connections as it slides off the mounting plate, without the need for a lead and connector.
- All mains wiring shall be covered by a cable cover so that the mains cable is not visible when the Smoke Alarm is removed from the ceiling, obviating the need for a ceiling pattress or dry lining box.
- The alarm shall have a built-in sounder giving a minimum sound output of 85dB(A) at 3 metres. The diameter of the piezo disc in the sounder shall measure 35mm and have wire contacts soldered directly on to the piezo disc.
- There shall be an interconnection capability so that if one alarm sounds all interconnected alarms sound.
- A remote test facility via a separate Remote Control Switch shall be available to test circuitry, sensor and horn (red LED shall flash rapidly) and to activate all interconnected alarms in the system. The Remote Control Switch shall also have a remote 'Locate' facility (to audibly identify the source of an alarm signal when the system is sounding). All units except the alarm that has triggered and sent out the interconnect signal shall be silenced when this switch is activated. The Remote Control Switch shall also have a 'Silence' facility for false alarm control. Pressing and resetting the 'Silence' switch shall silence nuisance alarms. A red LED on the alarm cover shall flash every 10 seconds to indicate that alarm is in 'Hush' mode and automatically reset in approximately 10 minutes.
- The alarm shall have an automatic self-test feature which tests the chamber every 40 seconds and the unit beeps (without red LED flash) if it is degraded.
- The alarm shall be provided with a manual integral test/hush button to test circuitry, sensor and horn and activate all interconnected alarms in the system. This button shall also operate a 'Hush' feature to silence nuisance alarms. A red LED shall flash every 10 seconds to indicate that alarm is in 'hush' mode and shall automatically reset after approximately 10 minutes.
- The alarm shall have a separate green LED mains indicator light to confirm integrity of mains power supply.
- The alarm shall have a separate red LED which will flash every 40 seconds to indicate full auto test of circuitry and the rechargeable cells. The red LED shall flash rapidly in alarm condition and flash once every ten seconds whilst the unit is in a de-sensitive (hush) condition.
- The alarm shall have an RF (Radio Frequency) wireless interconnect capability when used with an RF base. In this case other RF products can be connected.
- Control via an optional wall-mounted Hardwired or RF Remote Control Switch shall also be available.
- The alarm shall have a low power cell-warning signal, which must operate with or without mains power present.
- The alarm shall be provided with an anti-tamper locking device to prevent unauthorised removal of the alarm without the use of a tool.
- The alarm shall be supplied with a dust cover fitted to protect it from contamination during installation.
- The alarm shall be supplied with two separate sets of instructions - one for the installer and one for the user.
- The alarm shall have a 5 Year guarantee.

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HEAT ALARM TECHNICAL SPECIFICATION

002 The Heat Alarm shall have the following features:

- The Heat Alarm shall carry the BSI Kitemark to indicate type testing to applicable Standard for a Class A1 device. It shall be CE marked to indicate conformance to applicable Standard Low Voltage, and applicable Standards Electromagnetic Compatibility Directives.
- The alarm shall be of the fixed temperature thermistor type, temperature range 54°C to 62°C (129°F - 144°F).
- The alarm shall operate on a 230V AC Mains Power Supply and have built-in tamper proof Rechargeable standby cells, capable of lasting at least 10 years and powering the alarm initially for at least 6 months in the event of mains power failure.
- The rechargeable cell manufacturer shall endorse a minimum 10 year life expectation for the rechargeable cells.
- The alarm shall be supplied with a built-in surface mounting plate, with integral terminal block and cable cover and incorporate a foam gasket fitted to the mounting plate to prevent dust ingress into the unit. The alarm shall connect to the mains and interconnect/control connections automatically as it slides on to the mounting plate. The alarm shall disconnect from the mains and interconnect/control connections as it slides off the mounting plate, without the need for a lead and connector.
- All mains wiring shall be covered by a cable cover so that the mains cable is not visible when the alarm is removed from the ceiling, obviating the need for a ceiling pattress or dry lining box.
- The alarm shall have a built-in sounder giving a minimum sound output of 85dB(A) at 3 metres. The diameter of the piezo disc in the sounder shall measure 35mm and have wire contacts soldered directly on to the piezo disc.
- There shall be an interconnection capability so that if one alarm sounds all interconnected alarms sound.
- A remote test facility via a separate Remote Control Switch shall be available to test circuitry, sensor and horn (red LED shall flash rapidly) and to activate all interconnected alarms in the system. The Remote Control Switch shall also have a remote 'Locate' facility (to audibly identify the source of an alarm signal when the system is sounding). All units except the alarm that has triggered and sent out the interconnect signal shall be silenced when this switch is activated. The Remote Control Switch shall also have a 'Silence' facility for false alarm control. Pressing and resetting the 'Silence' switch shall silence nuisance alarms. A red LED on the alarm cover shall flash every 10 seconds to indicate that alarm is in 'Hush' mode and automatically reset in approximately 10 minutes.
- The alarm shall be provided with a manual integral test/hush button to test circuitry, sensor and horn and activate all interconnected alarms in the system. This button shall also operate a 'Hush' feature to silence nuisance alarms. A red LED shall flash every 10 seconds to indicate that alarm is in 'hush' mode and shall automatically reset after approximately 10 minutes.
- The alarm shall have a separate green LED mains indicator light to confirm integrity of mains power supply.
- The alarm shall have a separate red LED which shall flash every 40 seconds to indicate full auto test of circuitry and the rechargeable cells. The red LED shall flash rapidly in alarm condition and flash once every ten seconds whilst the unit is in a de-sensitive (hush) condition.
- The alarm shall have an RF (Radio Frequency) wireless interconnect capability when used with an RF base. In this case other RF products can be connected.
- Control via an optional wall-mounted Hardwired or RF Remote Control Switch shall also be available.
- The alarm shall have a low power cell-warning signal, which must operate with or without mains power present.
- The alarm shall be provided with an anti-tamper locking device to prevent unauthorised removal of the alarm without the use of a tool.
- The alarm shall be supplied with a dust cover fitted to protect it from contamination during installation.
- The alarm shall be supplied with two separate sets of instructions - one for the installer and one for the user.
- The alarm shall have a 5 year guarantee.

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MAINS POWERED CARBON MONOXIDE (CO) ALARM

003 The Mains Powered Carbon Monoxide Alarm shall have the following features:

- The CO Alarm shall carry the BSI Kitemark to indicate type testing to applicable Standard. It shall be CE marked to indicate conformance to Low Voltage and Electromagnetic Compatibility Directives.
- The alarm shall have a new generation electrochemical cell type carbon monoxide sensor which checks CO level every 70 seconds. Each unit shall be calibrated and tested in CO gas to ensure accuracy. The sensor module should plug into base of unit and should be replaced after 5 years. The amber 'Fault' light should flash once every 40 seconds (without a beep) to indicate the sensor should be replaced. Replacement sensor modules shall be readily available at modest cost. It shall not require an electrician to change the sensor.
- The alarm shall have a high level of selectivity - no false alarms when exposed to the following interference gases for 2 hours: (as per UL2034sec.38) Methane 500ppm, Butane 300ppm, Heptane 500ppm, Ethyl Acetate 200ppm, Isopropyl Alcohol 200ppm and Carbon Dioxide 1000ppm.
- The alarm shall be 220 – 240V AC, 50 Hz mains powered. Power consumption shall be: 1 Watt, 60mA. The alarm shall be supplied complete with sealed-in tamper proof Panasonic Rechargeable Vanadium Pentoxide Lithium standby cells, designed to last at least 10 years without the need for replacement and can power the unit for a minimum 30 days in the event of mains failure. The rechargeable cells shall be monitored and if they start to be depleted (i.e. with mains off) or if they become defective the unit should beep every 40 seconds. The cell manufacturer shall endorse a minimum 10 yr life expectation for the rechargeable cells.
- The alarm shall be supplied with a surface mounting plate, with integral terminal block, cable cover and incorporate a foam gasket fitted to the mounting plate to prevent dust ingress into the unit. The terminal block shall be permanently fitted to the mounting plate. The built-in rechargeable cells shall connect as the alarm is slid on to the mounting plate. There shall be an option for conduit (up to 25 x 16mm) to be attached to the top or bottom of the unit for surface wiring. The unit shall be able to be ceiling or wall mounted.
- The alarm shall have a hard-wire interconnect capability such that if one alarm sounds all interconnected alarms sound. Additionally, an RF interconnect option shall be available when used with an Interface Module.
- A remote test facility via a separate Remote Control Switch shall be available to test circuitry, sensor and horn (red LED shall flash rapidly) and to activate all interconnected alarms in the system. The Remote Control Switch shall also have a remote 'Locate' facility (to audibly identify the source of an alarm signal when the system is sounding. All units except the alarm that has triggered and sent out the interconnect signal shall be silenced when this switch is activated. The Remote Control Switch shall also have a 'Silence' facility for false alarm control. Pressing and resetting the 'Silence' switch shall silence nuisance alarms. A red LED on the alarm cover shall flash every 10 seconds to indicate that alarm is in 'Hush' mode and automatically reset in approximately 10 minutes.
- On first power up the Red and Amber LED's shall flash once; after 2 minutes settling, the unit shall operate normally.
- The alarm shall have a green LED indicator light that confirms integrity of mains power supply.
- The alarm shall have low and high level indicators - red LED indicator light shall flash every 2 seconds at 50ppm CO (sounder operate within 60-90 mins); flash twice every second at 100ppm CO (sounder operate within 10-40 mins); flash 4 times per second at 350ppm CO (sounder operate within 3 minutes)
- The alarm shall have a fault indicator - amber LED flash and horn beep every 40 seconds if a fault is detected.
- The alarm shall have a manual test/hush button - test button to test circuitry and horn. Pressing and releasing the test button when the unit is sensing CO shall silence the alarm for 4 minutes. It must only silence once until the gas clears. At 300ppm CO the unit shall not silence due to the increased danger.
- The alarm shall have a quick CO Gas Test to reduce the time for testing with CO from at least 4 - 5 minutes to less than 10 seconds.
- The alarm shall have a memory feature - pressing test button must record if CO has been detected during a period of absence: red LED off – no CO recorded; red LED flashes twice (every 40 seconds) – 50ppm CO recorded; red LED flashes 4 times (every 40 seconds) –100ppm; red LED flashes 8 times (every 40 seconds) - 300ppm CO recorded. Pressing the test button for 20 seconds must reset the memory.

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- The alarm shall have a built in sounder to give a minimum output of 85dB(A) at 3 metres. The sound output shall be modulated - 3 rapid pulses followed by a 1½ second pause, repeated until reset. This easily differentiates it from a typical smoke alarm.
- The alarm shall have an automatic reset facility of alarm test when button is released and after an alarm state when CO gas clears.
- The alarm shall have a tamper resistant cover, which cannot be removed from mounting plate without releasing catch with a small screwdriver. There shall be an optional locking screw that can be screwed into the side to prevent removal. The rechargeable cells must not be suitable for use with other products and must be soldered on to the circuit board.
- The alarm shall have an operating temperature range: -10°C to +40°C (14°F - 104°F). 15% to 95% relative humidity (non-condensing).
- The alarm shall have a 5 Year Guarantee.

Client’s current manufacturers/suppliers/products

004 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

INJECTED DAMP PROOF COURSES AND FUNGUS/BEETLE ERADICATION

INJECTED DAMP PROOF COURSES AND FUNGUS/BEETLE ERADICATION

GENERAL REQUIREMENTS

Generally

- 001 Ensure chemical injection damp proof course Works are undertaken by specialist installers/subcontractors approved by the Client's Representative.
- 002 Ensure fungus/beetle eradication Works are undertaken by specialist installers/subcontractors approved by the Client's Representative.
- 003 Provide a warranty supported by an insurance policy in terms approved by the Client's Representative for chemical injection damp proof course system or fungus/beetle eradication. Hand the policy for each Property to the Client's Representation on completion of the Works to that Property.
- 004 **Protection of Property:** It is the responsibility of the Provider and his specialist installers/subcontractors to avoid all unnecessary damage to the Property and its contents. Particular care should be taken if the Property has bitumen or pitch floors and/or dampproof courses, since bitumen could be leached by the solvents present in some damp-proofing fluids.
- 005 Carpets, vinyl floors, furniture and decorations should be adequately protected from contact with the chemicals. Most of the fluids used can damage plant life and adequate precautions should be taken to prevent spillages in gardens.
- 006 Before any Work is commenced by the damp proof course specialist installer/subcontractor it is important that the occupier/owner of the adjoining property should be advised of the proposed Work and if possible carry out inspection and record condition of the relevant walls in their dwelling.

WORKMANSHIP

Chemical injection damp proof course

- 007 Applicable Standards deal with the methods of installing chemical damp proof courses.
- 008 Chemical injection damp-proof course systems are to be Agrément certified and are to be either:
- Silane/Siloxane emulsions (A silicone micro-emulsion in concentrated form) with solution to be injected at pressure up to 350kPa for mortar injection and 500pKa for brickwork; or
 - Potassium methyl silicate (An aqueous silicate solution in concentrated form) applied by low pressure injection; or
 - Ready to cream emulsion on a Silane/Siloxane base for masonry injection by means of a low pressure sprayer or cartridge gun.
- 009 Main considerations:
1. The horizontal spacing of injection holes must not exceed 150mm. This is to ensure that an overlap of saturated zones occurs thus forming a continuous damp proof barrier;
 2. All external walls such as yard or screen walls and not themselves having damp proof courses must be drilled and injected vertically not less than 1200mm high where they butt against main Property walls. Care must also be taken at steps between Properties of different floor levels when a proprietary silicate render tanking will be necessary;
 3. When the internal walls are being re-plastered after treatment the bottom edge of the plaster must be no closer than 25mm from floor level. This is extremely important when injection is associated with solid floors;
 4. The recommended floating coat of plaster should be 1:1:6 Cement/Lime/Sand which should include an additive to inhibit the re-occurrence of hygroscopic salts. Gypsum based absorbent lightweight plaster must not be used;

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5. Allow at least 2 days for the solvent to evaporate, and ventilate rooms to build up of inflammable vapour;
6. After plastering use emulsion paints only. Do not decorate with wallpaper for at least 6 months after injection. The Property should be dried out between 6 and 12 months depending on the thickness of the wall; and
7. The installation of a damp proof course does not itself prevent the development of timber decay. Any timbers at risk from fungal decay or insect damage should be treated in accordance with the prescribed methods.

010 Neatly and fully fill holes which are exposed to view with 1:1:6 cement:lime:sand mortar. Match the mortar to the existing masonry in colour and texture. Inform the Client's Representative before starting the Works and obtain approval of the appearance of the first few holes before completing the remainder.

011 Take effective measures to ventilate and dry out damp building fabric as soon as possible. Allow a minimum of 48 hours to ventilate spirit based formulations and as long as practicable for drying out the fabric. Obtain the approval of the Client's Representative to the methods to be used.

012 Drying time:

Chemical damp-proof courses do not always become effective immediately after insertion into a wall and there may be a delay of some weeks before the damp-proof course barrier is formed.

013 The overall drying time of a Property after insertion of a damp-proof course is dependent on this and many other factors. As a general guide an average house constructed of 215mm walls should be free from the residual moisture resulting from damp within a year of treatments, provided any additional sources of dampness has also been eliminated.

014 It must be remembered that the amount of water in the wall before injection is exactly the same as after injection. It is this water concentration which diminishes over the 6-12 month time period as the injection process has cut off its source of supply. If this is remembered and understood many of the questions raised after Order completion can be forestalled.

Cutting out Decayed or Infested Timber

015 Cut out the decayed or infested timber along the grain for one metre beyond the last visible sign of attack. Minimise any damage to sound building fabric and ensure adequate propping and shoring.

Repairs to timber internal door frames

016 Form the joint of the new and existing timber by a 45° - 60° splice. For the new timber, use redwood from a source approved by the Client's Representative. Joint the new timber to the existing with galvanised screws or nails or plug and screw it to the wall. Ensure the new timber matches the profile of the existing timber.

Repairs to timber external door and window frames and the cills of timber window frames

017 Form the joint of the new and existing timber by a 45° - 60° splice. For the new timber use a preservative treated redwood from a source approved by the Client's Representative. Dip all cut ends in similar preservative fluid before fixing them in position. Joint the new timber to the existing timber with galvanised screws or nails or plug and screw it to the wall. Ensure the new timber matches the profile of the existing timber.

Replacing structural members

018 Joint the new and existing timber by a half-lapped joint. The joint should have a length of at least twice the depth of the timber members; the new timbers should make-up the bottom section of the joint if timbers are horizontally placed. For the new timber, use a preservative treated whitewood from a source approved by the Client's Representative. Existing timbers ends exposed by cutting/jointing must be treated with preservative. Joint the new timber to the existing with coach bolts. Ensure the new timber matches the profile of the existing timber.

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Chemicals for treatment

- 019 Use only chemical formulations approved under the Health and Safety Executive (HSE) and listed on the HSE website under non-agricultural pesticides.

Dry rot, wet rot and insect infestation

- 020 Treat dry rot, wet rot and insect infestation as advised in BRE Digest 299(Dry Rot) and BRE Digest 345 (wet Rot) and /or BRE Expert Collection 7 "Condensation and dampness", BRE Report 453 (Insect Damage) or equal and approved by the Client's Representative and in accordance with applicable Standards or equivalent.
- 021 Basic Principles: the important issues are as follows:-
1. Prevention of further entry of dampness into the building;
 2. Drying out to remove existing dampness;
 3. Eradication of the fungus and repair of the damage caused.

Disposal of defective timber

- 022 Dispose of defective timber immediately and safely to a tip approved by a waste regulation authority. Prevent contamination of other parts of the Property. It is considered good practice for the Provider carrying out the removal to avoid future contamination.

Sterilisation for Fungus Eradication

- 023 Completely sterilise the surface with approved fungicide by coarse spraying of fluid preparation or direct application by brush with heavy bodied preservative paste. Timber preservatives and biocides must be approved under the Control of Pesticides Regulations (COPR). The approvals procedure is operated by the Health and Safety Executive (HSE) which deals with non-agricultural products. A list of approved products is published and kept up to date on the HSE's website.

Sterilisation for beetle eradication

- 024 Completely sterilise the surface with approved fungicide/insecticide by coarse spraying/brush application of fluid preparation.

Sterilisation for woodworm

- 25 Inject an insecticide approved by the Client's Representative into existing woodworm holes.

Irrigation

- 026 Irrigate walls with a fungicide approved by the Client's Representative. Bore holes in the wall as necessary for the introduction of the liquid.

Plaster to control dampness or after insertion of a new damp proof course or system

- 027 General:

The function of the new plaster is to hold back the hygroscopic salts introduced into the wall structure through rising damp, and to prevent them from migrating through to the surface of the new plaster.

- 028 The re-plastering operation should be carried out as long as possible after the injection of the damp-proof course.

- 029 Additives may be incorporated in the plaster undercoat to increase resistance to hygroscopic salt migration, provided they do not prevent the passage of moisture vapour. The new plaster work must not be a vapour barrier. Premixed gypsum plasters must not be used as undercoats.

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- 030 The damp-proof course must not be bridged by plasters internally, or by renders externally. A gap of 25mm must be left at base of plaster on inside walls to prevent contact with solid floors.
- 031 It is recommended that the removal of the old plaster is carried out to a position not less than 300mm above either the last detectable signs of dampness or the damp-proof course line itself. For chemical damp-proof courses, the recommendations of the damp-proof course installer should be followed regarding the use of:
- Water-proofers or salt inhibitors in render mixes;
 - Premixed "renovating" plasters. Agrément certified for application to salt contaminated substrates.
- 032 Arrange for the Client's Representative to inspect and approve the brickwork background before starting any replastering.
- 033 Apply a plaster after the insertion of a new damp proof course or system consisting of three coats of cement sand backing and gypsum hemihydrate formulated finish with a total plaster thickness in accordance with Good Industry Practice as follows:
- the first coat comprising a cement sand (1:3) scratch coat with an additive approved by the Client's Representative;
 - the second coat comprising cement sand (1:3) with no additive mixture, applied whilst the first coat is still green and then ruled to alignment and scratched to form a key; and
 - the finishing coat comprising gypsum hemihydrate formulated finish.
- 034 Alternatively, if the Client's Representative so approves, use a two coat lightweight aggregate plaster with a total plaster thickness of at least 13mm as follows:
- on normal backgrounds:
 - for the first coat: use a renovating plaster scratch coat containing a perlite lightweight aggregate and a waterproofing/salts inhibiting additive; and
 - for the second coat: use a finishing plaster coat containing fine lightweight aggregate; or
 - on low suction backgrounds:
 - for the first coat: use a slurry keying aid as recommended by the plaster manufacturer; and
 - immediately follow it by a tight coat of renovating plaster and leave it for a minimum of 36 hours before applying the finishing plaster.
- 035 For normal two coat systems of a total of 13mm thickness, apply the floating coat in a single application, ruled to alignment and scratched to form a key. If the maximum thickness of the backing coat required exceeds 12mm use a scratch or dubbing out coat to bring out to a level surface. Ensure the coat does not exceed 11mm, is well scratched, and is allowed to dry before the application of the subsequent coat.

Physically Inserted Damp Proof Courses to Existing Walls

- 036 Carefully cut joint of brickwork, blockwork or masonry to prevent structural damage, install a continuous damp proof course barrier to rising damp with polyethylene to applicable Standard weighting not less than 1.55kg per m² to full width of wall and finish, externally to finish flush with face of wall, internally to form a minimum 150mm lap with damp proof membrane.
- 037 Carefully cut joint of brickwork, blockwork or masonry to prevent structural damage, install a continuous damp proof course barrier to rising damp with bituminous felt to applicable Standard weighting not less than 0.48kg per m² to full width of wall and finish, externally to finish flush with face of wall, internally to form a minimum 150mm lap with damp proof membrane.

Mastic asphalt tanking/damp proof membranes

- 038 Where these are horizontal, apply them as follows:
- base: existing concrete;
 - preparation: laid to falls;
 - separating layer: none;
 - certification: asphalt kitemark certified;
 - thickness: at least 20mm; and
 - finish: smooth floated.

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039 Where these are vertical, apply them as follows:

- base: existing concrete or brickwork;
- preparation: key a vertical surface;
- certification: asphalt kitemark certified;
- thickness: at least 20mm; and
- finish: smooth floated.

General technical requirements

040 Lay each horizontal coat in a single operation to provide a secure, free draining and completely watertight floor.

041 Unless otherwise specified, use ancillary products and accessories recommended by the asphalt manufacturer.

Primer

042 Use a primer recommended by the manufacturer of the material to be bonded. Apply by mopping, brushing or spraying to achieve an even and full cover of the surface. Allow to dry thoroughly before covering.

Bonding compound(s)

043 Unless specified otherwise, use oxidised bitumen of a grade recommended by the manufacturer of the material for the conditions and type of surface. Heat it and lay it at a temperature sufficient to ensure bonding over the whole surface. Do not overheat it.

Preparation of bases - renewing existing asphalt

044 Agree with the Client's Representative the extent of the area(s) to be renewed.

045 Remove, renew and waterproof each area on the same day, unless the Client's Representative Instructs otherwise.

046 Adequately protect existing and new area(s) of floors against damage during the execution of the Works. Where removal results in accidental damage to existing elements which are to remain, agree the proposed repair or replacement with the Client's Representative.

Keying to concrete

047 Clean off mould oil with detergent. Use Materials recommended for the purpose by the asphalt manufacturer. Either prime the surface with a proprietary bituminous emulsion or apply a proprietary keying mix of cement and slurry incorporating a bonding agent.

Keying to brickwork/blockwork

048 Ensure that all joints are lightly recessed by brushing or other means. Prime the wall surface with a proprietary bitumen and rubber emulsion recommended by the mastic asphalt manufacturer.

Keying to metal

049 Apply a keying primer to all metal pipes, metal lathing, etc.

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Asphalt/accessories - suitability of base

- 050 Before laying asphalt ensure that:
- the horizontal base is to even falls with no areas which will pond;
 - the surfaces to be covered are firmly fixed, clean, dry, smooth, free from frost, contaminants, voids and protrusions; and
 - all preliminary work including formation of upstands, kerbs, sumps, grooves, chases, expansion joints, etc., and fixing of battens, fillets, anchoring plugs/strips, flashings, outlets, pipe sleeves, ventilators, etc., is complete and satisfactory.

Application of asphalt

- 051 Ensure thorough mixing when remelting and do not heat to more than 230 deg.C.
- 052 Do not use reheated asphalt.
- 053 Apply each coat to an even thickness using suitable gauges. Float to a smooth surface free from imperfections and crazing. Apply successive coats without delay and within the same working period.
- 054 Ensure there is complete fusion of the asphalt at all joints so as to give a continuous watertight membrane. Clean and heat the edges of previously laid coats by poulticing with hot asphalt. Remove and discard the poultice and cut away the edge to remove sand rubbed material before jointing. Lay new asphalt whilst the poulticed surface is still hot. Do not torch.
- 055 Stagger junctions of bays in successive coats by at least 150mm.
- 056 Pierce any blows and make good affected areas while the asphalt is still at a working temperature.
- 057 Form solid fillets in all internal angles, fully fused to the asphalt coating and at least 40mm wide on face and at an angle of approximately 45 degrees to the horizontal.
- 058 Maintain the full thickness of the asphalt around all external angles.
- 059 Turn the asphalt into splayed chase at the top edge of skirtings and vertical work. Finish the top surface with a splay to shed water away from the wall, maintaining full thickness.
- 060 Form watertight joints around all pipes, gullies and other penetrations.
- 061 Finish asphalt to a smooth flat surface, free from lipping, pitting, scars and other imperfections. Sand rub all horizontal surfaces while the asphalt is still warm, using clean, coarse sand from natural deposits, passing a 600 micron sieve and retained on a 210 micron sieve.

Redecoration

- 062 Resulting efflorescence – It should be of benefit in concluding to discuss the phenomenon known as efflorescence which is one of the most difficult building defects to appreciate and not easy to explain to Customers.
- 063 After injection has been completed and re-rendering has been carried out, the walls of the Property will, slowly at first, commence to dry out.
- 064 At this time efflorescence, in the form of crystallised salts, will usually become apparent on the internal walls also to a lesser degree on the external walls. This is because the internal temperature is greater, thus causing the remaining moisture which is now entrapped above the new chemical damp=proof course, to slowly evaporate.

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- 065 The time which rising damp has been present in the Property will usually determine the amount of efflorescence which will occur.
- 066 Moisture in the form of rising damp carries with it, ground salts. Over a period of years these salts become saturated within the main fabric of the wall and on drying through evaporation of the moisture from the wall, crystallise as dry salts. It is bad building practice to try to prohibit their movement. If brickwork was effectively sealed against the movement of efflorescing salts, crystallization would still take place but in this case internally within the brickwork. The expanding salts could then do irreparable damage to the construction.
- 067 After complete drying out, the efflorescence should be brushed off, allowing the Customer to proceed with normal wall papering etc.,
- 068 Painting:
Impervious wall coatings should not be applied until the walls are dry.
- 069 This could take as long as twelve months, and certainly not less than six months from the installation of the damp-proof course.
- 070 One coat of matt emulsion paint is particularly recommended for use in the interim period.
- 071 After re-plastering, decoration should be **restricted to matt emulsion and water based paints** which are porous and allow the wall to breathe.
- 072 Decoration with impermeable finishes such as gloss paint and vinyl paints or wallpapers should be delayed for at least one year.

Client’s current manufacturers/suppliers/products

- 073 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

PEST CONTROL

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

PEST CONTROL

General Requirements

- 001 The Provider is to provide a pest treatment service upon the instructions of the Client's Representative in respect of all pests at all domestic and corporate and communal facility premises and land owned or managed by the Client.
- 002 Detailed below are the specific Requirements. The Contract must therefore comprise of the following elements:
- Routine treatment
 - Responsive treatment
 - Out of Hours Emergency Works
- 003 Decide on the methods, equipment and materials that should be used in a treatment with due regard to the health and safety of his Staff, the Customer and their family, staff of the Client, the general public and any household pets.
- 004 Carry out the Works in accordance with the Codes of Practice issued by the British Pest Control Association including any future amendments to those Codes or such other Codes or guidance which in the opinion of the Client's Representative is of an equal or better standard and the Client's Environmental Policy.
- 005 Pay attention to:
- The Public Health Act 1936;
 - The Public Health Act 1961;
 - Prevention of Damage by Pest Act 1949;
 - Wildlife and Countryside Act 1981;
 - Food and Environmental Protection Act 1985;
 - Health and Safety at Work Act 1984;
 - Management of Health and Safety at Work Regulations 1992;
 - Control of Substances Hazardous to Health 1988;
 - Personal Protective Equipment at Work Regulations 1992;
 - Provision and Use of Work Equipment Regulations 1992;
 - Control of Pesticides Regulations 1986;
 - Environmental Protection Act 1990; and
 - The UK Rodenticide Stewardship Regime
- 006 The Client will retain the responsibility of enforcement under the Prevention of Damage by Pests Act 1949 and may carry out inspections in addition to those made by the Provider or his approved Subcontractor and will arrange the service of notices on third parties where it considers it necessary.
- 007 Contact the relevant Public Health Co-ordination Team for the local authority area where the infested dwelling, corporate or communal facility or land is located, if the infestation present is of a size that the Provider or his approved Subcontractor believes it cannot be dealt with within the contracted number of visits, or there's harborage on site that requires clearing in order to reduce the incidence of re-infestation.
- 008 Should be a member of the British Pest Control Association or the National Pest Control Technicians Association.
- 009 All rodent control Works undertaken by the Provider or his approved Subcontractor are to be in accordance with the best practice specified within the Rat and Mouse Control Procedures manual March 2019 issued by the Chartered Institute of Environmental Health.

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Operational Requirements

- 010 Notify the Client's Representative of all accidental occurrences involving persons, animals or property on the premises treated by the Provider or his approved Subcontractor.
- 011 All baits laid by the Provider or his approved Subcontractor which remain on the premises shall be removed and disposed of in a safe manner in accordance with the Regulations current at that time.
- 012 Remove and dispose of any pest carcasses which result from the pest treatment and dispose of them in a safe and hygienic manner in accordance with the Regulations current at that time.
- 013 Inform the Client's Representative of details of the chemicals to be employed, together the details of toxic properties, antidotes and precautions that may be necessary to prevent damage or injury to persons, animals and property.
- 014 Supply the occupier of any premises treated with a statement of the poison used on the premises and the appropriate precautions in emergency, medical or veterinary treatment.
- 015 Keep a record of all treatments carried out in enough detail as to indicate the extent of each infestation and the number and position of baits laid. A monthly report is to be provided to the Client's Representative summarising which pests treated,
- 016 Provide the Client's Representative with quarterly and annual statistics as the numbers of Works Orders raised by pest, category, time of response and time to resolve the infestations.
- 017 Provide the Client with a qualified scientific advisory and identification service in relation to rodent control including the provision of expert evidence at court proceedings as and when required.
- 018 The Provider is deemed to have included within the rates in the Schedule of Rates and their tendered percentage adjustment for **all visits required** to continue the appropriate treatment until the affected domestic and corporate and communal facility Property and/or land are free from the reported pests.
- 019 Where infestation is found to originate from or extend to an adjoining Property owned and managed by the Client. That Property shall be treated accordingly as a variation to the original Works Order.
- 020 Where infestation is found to originate from or extend to an adjoining Property not owned or managed by the Client, The Provider will give advice on treatment to the owner/occupier of that property, and report his findings to the Client's Representative.

Emergency or Urgent Treatment

- 021 If in the opinion of the Client's Representative, an instruction issued during the normal working day for pest treatment is of such a nature as to warrant being treated as an emergency, then the Provider or his approved Subcontractor shall attend at the Property within 2 hours of the instruction being given for Emergency Treatment, having given the occupier of that property a Triage call within 15 minutes of receiving the Emergency Works instruction being given. No additional payment will be made for Works undertaken as Emergency Treatment, other than the applicable rate in the Schedule of Rates or other Tendered Rates.
- 022 If in the opinion of the Client's Representative, an instruction for pest treatment is of such a nature as to warrant being treated as urgent, then the Provider or his approved Subcontractor shall attend at the Property within 4 hours of the instruction being given for Urgent Treatment, having given the occupier of that property a Triage call within 15 minutes of receiving the Emergency Works instruction being given. No additional payment will be made for Works undertaken as Urgent Treatment, other than the applicable rate in the Schedule of Rates or other Tendered Rates.

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Permit to Work Certification

- 023 It is deemed necessary by the Client's Representative for working in confined spaces permit to be issued before any Work is undertaken on the system, the Provider or his approved Subcontractor shall ensure his compliance with the permit to work system as employed by the Client.

Access

- 024 Ensure that he undertakes a risk assessment and provides a method statement for his means of access to allow for inspection and testing.
- 025 All Works shall be carried out in strict accordance with the requirements of "The Work at Height Regulations 2005".
- 026 Ensure that all Staff employed upon this Contract are suitably trained and experienced and competent to work at height.

Staff

- 027 Employ Staff who have been properly trained in the use of pesticides and rodenticides for all types of pests, both vertebrate and invertebrate and valid certificates of training are to be provided to the Client's Representative both at the commencement of the Contract and on an annual basis.

Approval of Pesticides and Rodenticides

- 028 Submit details of all pesticides and rodenticides that the Provider or his approved Subcontractor propose to use in providing the pest treatment/control service. Such details are to include the trade name and chemical formulation of the proposed pesticides and rodenticides.
- 029 If in the opinion of the Client's Representative any pesticides and rodenticides proposed by the Provider or his approved Subcontractor are unsuitable or subsequently become unsuitable for any reason, then the Provider or his approved Subcontractor must immediately cease to use such pesticides and rodenticides and suggest alternative pesticides and rodenticides for the approval of the Client's Representative.
- 030 Must not use any other pesticides and rodenticides other than those approved by the Client's Representative without the express written consent of the Client's Representative.

Investigations

- 031 Is required to give the fullest co-operation in cases of alleged poisoning from pest treatments being carried out by the Provider or his approved Subcontractor. This may include a full investigation carried out at the Provider's cost including post-mortems where considered necessary by the Client's Representative, an initial report to the Client's Representative on the remedial action to be taken and a final report to the Client's Representative detailing all findings and actions taken.

Surveys

- 032 The Client's Representative may request the Provider to undertake an investigative survey in relation to any type of pest at any Property and/or land owned or managed or proposed to be owned or managed by the Client.
- 033 Upon completion of the investigative survey, the Provider shall immediately a written report of their findings and recommendations for appropriate treatment.
- 034 The Provider will be reimbursed the rate for Investigative Pest Control Treatment Surveys in the Schedule of Rates for undertaking such surveys.

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Pest Treatment – Rats and Mice

- 035 On receipt of an instruction or a Works Order from the Client's Representative the Provider or his approved Subcontractor shall make a visit to the Property, and shall investigate the nature and extent of the rat and mice pest infestation and shall commence a suitable means of Treatment.
- 036 Keep a record of the treatment undertaken, including number and position of bait stations, traps and any other equipment or material used.
- 037 Arrange with the Customer or occupier of the Property a convenient time and date (which shall not be more than 10 days from the date of the initial visit) to return to make subsequent visits to monitor the progress of the treatment, renew bait as necessary vary the treatment if considered necessary and to take any other steps to complete the treatment as speedily as possible and in a manner which is consistent with good practice and safety considerations.
- 038 On the occasion of the initial visit the Provider or his approved Subcontractor shall arrange for the Customer or occupier of the Property to be notified by means of a written notice which shall be completed by the Provider or his approved Subcontractor's representative or operative giving details of the treatment undertaken and essential safety information. A further notice shall be re-issued on each subsequent visit with updated information and advice. Such notices shall be supplied by the Provider or his approved Subcontractor at no cost to the Client. The design and wording of such notice shall be agreed with the Client's Representative.
- 039 Continue to make such visits to the address until such time as the treatment has been satisfactorily concluded, save that following the second visit (inclusive of the initial visit) and if the treatment has not been satisfactorily concluded, the Provider or his approved Subcontractor shall report to the Client's Representative on the conduct of the treatment and discuss with him any difficulties that have arisen and submit his proposals for the future conduct of the treatment.
- 040 The Client's Representative shall decide as to the future conduct of the treatment for rat and mice infestation and the Provider or his approved Subcontractor must carry out the instructions of the Client's Representative forthwith. For the avoidance of doubt such decision may require the Provider or his approved Subcontractor to continue and satisfactorily conclude the treatment at no further cost to the Client, although such a decision will not unreasonably be made.
- 041 Subject to the provisions of Clause 039 payment shall be made by the Client in accordance with the appropriate rates specified in the Schedule of Rates only on the successful completion of the rat or mice infestation treatment.

Pest Treatment - Fleas, Bedbugs and Cockroaches

- 042 On receipt of an instruction or a Works Order from the Client's Representative the Provider or his approved Subcontractor shall attend the Property, and investigate the nature and extent of the fleas, bedbugs and cockroach pest infestation and shall commence a suitable means of treatment.
- 043 Keep a record of the tr fleas, bedbugs and cockroach treatment undertaken, including type of pest, materials used, location and extent of infestation and any other equipment or material used in the treatment.
- 044 On the occasion of the attendance specified in Clause 041 the Provider or his approved Subcontractor shall arrange for the Customer or occupier of the Property to be notified by means of a written notice which shall be completed by the Provider or his approved Subcontractor's Staff giving details of the treatment undertaken and essential safety information. Such notices shall be provided by the Provider or his approved Subcontractor at no cost to the Client. The design and wording of such a notice shall be agreed with the Client's Representative.

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- 045 Undertake and complete the treatment for fleas, bedbugs and/or cockroaches in one visit. If in the opinion of the Provider or his approved Subcontractor a subsequent visit is required to satisfactorily conclude the treatment, he shall submit a written report to the Client's Representative on the facts of the case, and make recommendations on any further measures that may be required to satisfactorily conclude the treatment.
- 046 On receipt of such a report, the Client's Representative shall decide as to the future conduct of the treatment and the Provider or his approved Subcontractor shall carry out the instructions of the Client's Representative forthwith. For the avoidance of doubt such decision may require the Provider or his approved Subcontractor to continue and satisfactorily conclude the treatment at no further cost to the Client, although such a decision will not unreasonably be made.
- 047 Payment for the treatment shall be made by the Client in accordance with the appropriate rates specified in the Schedule of Rates only on the successful completion of the fleas, bedbugs and cockroaches treatment.

Pest Treatment – Wasps and Hornets

- 048 On receipt of an instruction from the Client's Representative and attendance at the Customer's address, the Provider or his approved Subcontractor shall investigate the nature and extent of the wasp or hornet pest infestation and shall commence a suitable means of treatment.
- 049 Keep a record of the wasp or hornet treatment undertaken, including type of pest, materials used, location and extent of infestation and any other equipment or material used in the treatment.
- 050 On the occasion of the attendance specified in Clause 047 the Provider or his approved Subcontractor shall arrange for the Customer to be notified by means of a written notice which shall be completed by the Provider or his approved Subcontractor's Staff giving details of the treatment and essential safety information. Such notices shall be provided by the Provider or his approved Subcontractor at no cost to the Client. The design and wording of such a notice shall be agreed with the Client's Representative.
- 051 Undertake and complete treatment for wasps and hornets in one visit. If in the opinion of the Provider or his approved Subcontractor a subsequent visit is required to satisfactorily conclude the beetle, wasp or hornet treatment, he shall submit a written report to the Client's Representative on the facts of the case, and make recommendations on any further measures that may be required to satisfactorily conclude the bees, wasps or hornets treatment.
- 052 On receipt of such a report, the Client's Representative shall decide as to the future conduct of the wasp or hornet treatment and the Provider or his approved Subcontractor shall carry out the instructions of the Client's Representative forthwith. For the avoidance of doubt, such decision may require the Provider or his approved Subcontractor to repeat, continue and satisfactorily conclude the treatment at no further cost to the Client although such a decision will not unreasonably be made.
- 053 Payment for the wasp or hornet treatment will be made by the Client in accordance with the appropriate rates specified in the Schedule of Rates.

Pest Treatment - Beetles, Ants, Psocids and Flies

- 054 On receipt of a Property and investigate instruction or Works Order from the Client's Representative, the Provider or his approved Subcontractor shall attend at the nature and extent of the pest infestation and shall commence a suitable regime of beetles, ants, psocids and flies treatment.
- 055 Keep a record of the treatment undertaken, including type of pest, materials used, location and extent of infestation any other equipment or material used in the beetles, ants, psocids and flies treatment.

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- 056 On the occasion of the attendance specified in Clause 053 the Provider or his approved Subcontractor shall arrange for the Customer or occupier of the Property to be notified by means of a written notice which shall be completed by the Provider or his approved Subcontractor's representative or operative giving details of the Treatment and essential safety information. Such notices shall be provided by the Provider or his approved Subcontractor at no cost to the Client on request. The design and wording of such a notice shall be agreed with the Client's Representative.
- 057 Undertake and complete the treatment in one visit. If in the opinion of the Provider or his approved Subcontractor a subsequent visit is required to satisfactorily conclude the Treatment, he shall submit a written report to the Client's Representative on the facts of the case, and make recommendations on any further measures that may be required to satisfactorily conclude the Treatment.
- 058 On receipt of such a report, the Client's Representative shall decide as to the future conduct of the beetles, ants, psocids and flies treatment and the Provider or his approved Subcontractor shall carry out the instructions of the Client's Representative forthwith. For the avoidance of doubt, such decision may require the Provider or his approved Subcontractor to repeat, continue and satisfactorily conclude the beetles, ants, psocids and flies treatment at no further cost to the Customer or Client although such a decision will not unreasonably be made.
- 059 Payment for the beetles, ants, psocids and flies treatment shall be made by the Client in accordance with the appropriate rates specified in the Schedule of Rates.

Pest Treatment - Pigeons

- 060 Proofing of areas used by pigeons for perching or roosting can be undertaken using barriers, spikes, nets and wire to great effect, in addition more active systems like shock strips, audible scarers and optical gels can be used to create negative associations in birds wishing to land or roost on buildings.
- 061 For a heavy Pigeon infestation, the Provider or his approved Subcontractor may have to employ methods of control such as shooting, trapping or flying of predatory birds.

Pest Treatment – Use of Spring Traps

- 062 The use of spring traps can be used to control a number of species where toxic control measures may be illegal or inappropriate. However, the Provider or his approved Subcontractor must ensure that their control measures are legal, humane and are carried out with sensitivity.
- 063 Conform with the legislative requirements of the following:
Wildlife and Countryside Act 1981, (England, Wales and Scotland)
Wildlife (Northern Ireland) Order 1985.
Protection of Animals Act 1911
BASC Trapping Pest Mammals Code of Practice.
- 064 All spring traps are required to conform with the requirements of the following:
Pest Act 1954,
Agricultural (Scotland) Act 1948
Wildlife and Natural Environment Act 2011 (Northern Ireland)

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- 065 Break back traps approved by the Small Ground Vermin Traps Order 1958 for small vermin and spring traps for mole control can be used as control measures to which the rules for spring traps do not apply. Break back traps should be used appropriately and checked as regularly as the Provider or his approved Subcontractor assessment dictates. Legislation such as the Animal Welfare Act 2006 may still be breached if such traps are not applied in a humane manner.
- 066 Spring Traps must always be set after consulting the manufacturer's technical data sheet regarding pest species and trap location. Where recommended by the manufacturer, traps should be set in an artificial or natural tunnel to prevent the access of non-target species. Every effort should be made to avoid trapping non target species. The Provider or approved Subcontractor in using spring traps must be able to recognize the signs and evidence of pest activity.
- 067 The entrance of trap tunnels should be restricted (with sticks, for example) to prevent the entry of non-target species, and the spring traps should be firmly anchored in the treatment area.
- 068 Spring traps should be checked at least once a day, or more often where legislation requires it, spring traps should not be set in open or accessible areas where members of the public, animals and pets can gain easy access to them.
- 069 Staff should always wear suitable Personal Protective Equipment when dealing with dead bodies and traps to prevent the transmission of rodent borne disease.
- 070 The capture and trapping of Edible Dormouse (*Glis glis*) must be done under the terms of a Class License WML-CL02. This is available from Natural England (<http://www.naturalengland.org.uk/ourwork/regulation/wildlife/species/edibledormice.aspx>)

Pest Treatment – Use of Live Capture Traps

- 071 May use live capture traps to control a number of species that cannot be treated with toxic compounds, and also allow Provider or his approved Subcontractor to be species specific with their control measures to enable non-target species to be released. However, the Provider or his approved Subcontractor must ensure that their control measures are legal, humane and are carried out with sensitivity in accordance with the Animal Welfare Act 2006.
- 072 The Provider or his approved Subcontractor are required to conform with the legislative requirements of the following:
- Wildlife and Countryside Act 1981, (England, Wales and Scotland)
 - Wildlife (Northern Ireland) Order 1985.
 - Wild Mammals (Protection) Act 1996
- 073 Live capture cage traps should be large enough to accommodate the target species e.g. Fox, Muntjac Deer, Mink, Black Rat and Grey Squirrel. Cages should be inspected at least once every day and , target species must be humanely dispatched at the most suitable opportunity and not released in contravention of Wildlife and Countryside Act 1981, (England, Wales and Scotland) or Wildlife (Northern Ireland) Order 1985.
- 074 The body should be responsibly disposed of, non target species must be released unharmed as soon as possible.
- 075 Traps must not be set in a position where the captured animal will be exposed to extremes of temperature or the risk of flooding.
- 076 Non – poisonous bait can be used to attract pest species into cage traps. However, care should be taken to avoid attracting domestic animals as injury to a domestic species can result in prosecution under The Criminal Damage Act 1971.

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- 077 Where domestic cats can be shown to be feral (1st generation born wild) live capture trapping followed by humane dispatch is an appropriate control measure if the animals are posing a risk to health or to native species. However, cat owners cannot be held liable for their animal's action, and every effort should be made to determine if the cat is a pet, for example, allowing a vet to check for the presence of a microchip.

Pest Treatment - Bees

- 078 Bees, both feral (semi-wild) and colonised, are important beneficial insects and are not normally considered as pests. They live either in the wild in nests as feral colonies or as colonies in hives managed by beekeepers. In either case, they will only sting people if strongly provoked. Because of their beneficial role, every effort should be made to avoid carrying out control treatments against any bees. Treatment with a pesticide should be considered only as a last resort, as there is a risk that foraging, non-target honey bees find a nest which has been treated, they may come into contact with the treatment and may carry away contaminated honey. This can lead to contamination of honey destined for food use, serious bee kills, and the destruction of hives
- 079 Conform with the legislative requirements of the following:
Food and Environment Protection Act 1985
Control of Pesticides Regulations 1986
Health & Safety at Work Act 1974
Management of Health & Safety at Work Regulations 1999
Control of Substances Hazardous to Health 2002
Biocidal Product Regulations 2012
- 080 If instructed by the Client's Representative to treat a feral honey bee nest, the Provider or his approved Subcontractor should assess the situation carefully, as to whether people have been stung by honey bees from the nest, or are they at risk because of its location? If the nest is not causing any risk to public health, then the Provider or his approved Subcontractor should carefully consider the alternatives before carrying out a treatment.
- 081 If the swarm has only recently formed where possible it should be left undisturbed and allowed to move on. This will usually occur within 48 hours. • If the swarm is in a sensitive area and is easily accessible, it can probably be collected and re-housed in a suitable hive.
- 082 May use a bait hive which is a container containing a pheromone lure to attract the queen. If the Provider or his approved Subcontractor do not have the expertise to do this, they should contact the local branch/division of the British Beekeeper's Association for assistance.
- 083 If the swarm has already invaded a Property, it is unlikely that it can be collected, but if it has only recently taken up residence in a chimney, it may be possible to persuade it to move on using non-pesticidal smoke. This is time critical; if a swarm has taken up residence in a building or void is it wise to assume that they have been in situ for more than 48 hours. This is enough time for the swarm to build comb and for the queen to resume egg laying. This will mean that the swarm is now established and will not move on.
- 084 If the swarm has been in residence for some time (more than 6 months) it will not be possible to get it to move on, so it may be necessary to take control action. It would be best to do this during the Winter from January to mid-March, when the honey cells are capped and the stores are at their lowest. The numbers of bees at this time will also be at their lowest levels. This will reduce the quantity of pesticide required and will allow for an efficient and clean removal of the contaminated comb and stores, if the Customer or occupier of the Property can be persuaded to live with the bees until then.
- 085 It is inevitable that there will be some residual smells from the honey and comb following removal, also the queen pheromone will be lingering. This will make it more likely that another swarm may take residence the following year as the smell of an old colony can be irresistible to scouts looking for a new nest site. It is therefore recommended that the smell be masked or destroyed, by use of deodorising compounds.

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- 086 The decision to treat will depend on whether it is possible to close off the entrance(s) to the nest after treatment. It may be possible to use extension lances to get the insecticide to the nest, but it may require access equipment in order to close off entrances safely.
- 087 Treatment with a non residual insecticide may be possible. Blocking off gaps is still required, because all pesticides have a half life where they are still viable after application, it is therefore possible given the right conditions for foragers from other managed hives to find the unattended honeycomb and call their own hive into robbing mode within 12/24 hours.
- 088 If treatment is considered the best option, they should make use of the British Beekeepers Association's spray liaison scheme. This will enable local beekeepers to be warned by their own Spray Liaison Officer where one exists. It is important for the Provider or his approved Subcontractor to liaise with local beekeepers in this way before treating a nest. Members of the British Beekeepers Association can provide advice and can sometimes remove accessible feral honey bee colonies, avoiding the need to use pesticides.
- 089 The entrances to feral bee's nests are often high up on a building, sometimes associated with the chimney. If this is the case, then consideration may need to be given to working from access equipment in order to carry out the treatment and to cap off the entrance to the nest. This introduces all the hazards involved with working at height and this work should only be attempted by technicians suitably trained in this.
- 090 If the nest is associated with a chimney, care should be taken to assess whether the nest is inside the flue or in the cavity surrounding the flue. If inside the flue, the implications of sealing it off are potentially serious if it is still in use. It is strongly recommended that no treatment be carried out until arrangements have been put in place to remove the combs, which may involve the partial demolition and rebuilding of the chimney.
- 091 In accordance with the Control of Pesticides Regulations 1986, only technicians who have been suitably trained in the use of the appropriate insecticide, application equipment and personal protective equipment, so that they are competent to do the work, should carry out such a treatment.
- 092 Only insecticides that are 'Approved for Use' by the Health and Safety Executive should be used. The label should be read in detail and all instructions followed.
- 093 The requirement to "take every reasonable action to prevent foraging honey bees from gaining access to the treated nest, by removing the combs or blocking the nest entrances" still applies, even though this phrase may not be on the label of the product concerned. This requirement is implicit in the Food and Environment Protection Act 1985 with reference to non-target species and is of particular importance in this situation given the likelihood of neighbouring bee colonies robbing the treated nest.
- 094 To reduce the risk of bees from other colonies gaining access to the treated nest whilst ensuring that all bees from the problem colony are controlled, it may be appropriate for the treatment to be carried out just before dusk, with the nest entrances being closed as soon as possible (i.e. first thing the next day).
- 095 In accordance with The Management of Health and Safety at Work Regulations 1999, a suitable and sufficient risk assessment for site activities and actions and a COSHH assessment for pesticide preparations must also be documented. The final choice of the product to use will depend on the site-specific risk assessment, which should be in writing, which will in turn affect the COSHH Assessment.
- 096 The removal of the treated honey combs must be treated as 'Controlled Waste' and disposed of via a licensed waste carrier to a licensed waste contractor as 'Non-Hazardous Waste'. The Provider or his approved Subcontractor should use a "Duty of Care Transfer Note" to legalise the transfer to another person. The recommended EWC Code is 20.01.99, as for dead mice, rats, insects and pigeons. Use of a biocide on the honeycombs or other associated debris materials would not render the waste 'hazard classified' i.e. H14-ecotoxic would not be invoked.

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- 097 Other biocides would need to be assessed to ascertain if any hazard classification of the treated materials was appropriate. The EWC Code may depend on the types of pesticide used to kill the nest, and is at the discretion of the individual.
- 098 These considerations conclude that the classification of the waste is non-hazardous and disposal could be undertaken at landfill sites. However, there is a very high risk to bee colonies if they were able to access contaminated honeycombs at the landfill tip. This might arise, for example, if incomplete covering of torn waste bags occurred. For this reason disposal via incineration should be the preferred option.

Client’s current manufacturers/suppliers/products

- 099 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]

ENERGY PERFORMANCE CERTIFICATES

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

SPECIFICATION FOR ENERGY PERFORMANCE CERTIFICATES

- 001 The Provider is to produce any Energy Performance Certificate ("EPC") when requested by the Client's Representative as one EPC, usually completed at any of the following occasions:
- 1 On the completion of all and any works affecting the EPC score, to include
 - Work to upgrade energy systems and the recording of details of energy appliances controls and fuels;
 - Renewal of windows and/or external door(s);
 - Internal or external wall insulation;
 - Roof space insulation upgrade;
 - Floor insulation upgrade.
 - 2 Where no energy related Works are planned, on site with the permission of the Provider during the Works.
 - 3 On a special request to inspect the property and prepare an EPC prior to commencing Works.
 - 4 By arrangement with a housing officer to obtain access to an occupied or unoccupied Property prior to re-letting or sale, with the EPC quickly returned thereafter.
- 002 EPCs are to be produced by suitably qualified Domestic Energy Assessors ("DEA's") accredited with National Energy Services (NES) Ltd.
- 003 Members of the Scheme shall have suitable professional indemnity cover in force.
- 004 The DEA shall observe the terms and conditions of this accreditation, and it is the responsibility of the DEA/successful Provider to ensure all necessary evidence etc., is retained for the purposes of audit by the accreditation scheme. The Provider shall also provide this information to the Client's Representative on request at any time.
- 005 Should any DEA Accreditation Scheme audit failures be recorded by the DEA/contracting organisation as part of this process, the Provider is to bring this to the attention of the Client's Representative, and ensure that any necessary remedial action is taken such that the data that underpins every previously issued and newly issued EPC, and the EPC itself is a true reflection of the Property being assessed.
- 006 The actual data collected as part of this process will be appropriate for that required to produce EPCs at the time, and as per any guidelines produced by NES/Elmhurst. The data collected is to be input into the NES online portal, such that an EPC can be produced.
- 007 The Provider is to retain a copy of all EPCs produced.
- 008 The responsibility and cost associated with the defective certificates rest with the DEA who provided the certificate. If the DEA responsible for a defective EPC cannot be contacted, or is no longer practicing as a DEA, then the Accreditation Scheme through which they lodged the certificate shall take responsibility for rectifying the underlying data and replacing the defective certificate.
- 009 The actual digital data entered into EPC software as part of this process will be appropriate for that required to produce EPCs at the time, and as per any guidelines produced by the accreditation authority. The data collected is to be in NES/Elmhurst (or other equal and approved) format and uploaded onto the energy related module of the Client's Asset Management database system or other approved IT system, at a maximum interval of one month, such that a new EPC can be issued from this data by any other DEA subsequently engaged by the Client.
- 010 The Provider is also to retain pdf versions of all EPCs produced for 15 years, suitably indexed, and also returned to the Client at the end of the Contract.
- 011 The particular Unique Property Reference Number and any other data required to assign EPC datasets to the Client's Asset Management property database, shall be correctly entered into each digital EPC record before uploading into the accreditation scheme database and forwarding to the Client's Representative.

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- 012 The Provider is to provide the Client's Representative with the RRN, PRRN, and address of every Property for which an EPC has been produced. This information is to be provided by email on the same day as production of the EPC.
- 013 EPC's for Void Properties are to be produced within 5 working days of a Property becoming void.
- 014 EPC's in respect of all other works described in Clause 001 are to be produced within 1 working day of the Provider's pre-commencement survey, and an updated EPC within 5 working days of the completion of the Work being undertaken.
- 015 The Client will nominate one accreditation scheme for use in producing all EPCs for the Client and may require from the scheme that DEAs attend extra training CPD sessions to ensure the correct recording of survey data for Client's Property. The training and venues will be provided by the Client.
- 016 The cost of lodging the Energy Performance Certificates onto databases described above is deemed to be included in the Rates in the Price Framework.
- 017 Certificates for Properties in the social and private rented sector which use Multiple EPC Production Techniques (e.g. sampling and multiple certification or the common values approach) Where such techniques have been used, this will be noted on digital records. Properties shall have procedures in place that undertake additional QA checks to ensure that government requirements in this area are met. Digital records for heating systems boilers and controls shall not be created using these techniques unless separate evidence for their existence is available and is retained.
- 018 The cost of providing Energy Performance Certificates is deemed to be included in the Rates indicated in the Price Framework.

AIRTIGHTNESS

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

AIRTIGHTNESS

General

- 001 Where airtightness measures are required the Provider has overall responsibility for the continuity of the air tightness layer and should appoint one team member to oversee the execution of all airtightness details to maintain quality control. Specific care should be taken by the Provider to oversee and check the work of Subcontractors, who should be well briefed on the importance of the airtightness barrier.
- 002 All Staff should be encouraged to report breaches in the airtightness barrier without apportioning blame or fearing blame themselves. Under no circumstances should a breach of the barrier be covered up, but must be repaired at the earliest opportunity. The Provider should also inform the Client's Representative of any previously unidentified breaches of continuity. Should any aspect of the airtightness requirement appear unclear, the Provider should seek guidance from the Client's Representative.
- 003 The airtightness measures should be executed by trained and competent Staff.
- 004 Only tapes designed specifically for airtightness purposes and for bonding to the particular substrates and finishes are to be used. Expanding foam and mineral wool will not be accepted as part of the airtightness layer at any location.
- 005 Particular attention should be paid to the following main areas of concern:
- Around window and door openings
 - External wall to ceiling junctions
 - Junctions of internal walls with external walls
 - Junctions of internal walls with the ceiling
 - Services and wiring penetrations
 - Joints in poured concrete floors

Airtightness Membrane / Vapour Control Layer

- 006 Airtight membranes/Vapour control layers shall be:

Material:

- Polyethylene membrane with polypropylene fibres for permanently airtight building envelopes, to applicable Standard.
- BBA Certified or equivalent approved 3rd party accreditation.
- Dimensions: To applicable Standard
- Mass: = 110 g/m² to applicable Standard
- Thickness: = 0.40 mm
- Diffusion equivalent air layer thickness sd: = 5 m to Applicable Standard Nail tear-out resistance: = 200 N lengthwise and crosswise
- Tensile strength: Lengthwise: = 200 N/50 mm, Crosswise: = 180 N/50 mm
- Elongation: Lengthwise: = 50 %, Crosswise: = 50%
- Durability: To applicable Standard
- Airtightness: To applicable Standard.
- Resistance to water penetration: W1 to applicable Standard
- Fire Classification: Class E to applicable Standard
- Temperature resistance: -40° - 80° C

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Installation requirements:

- By competent, trained Staff, as recommended by manufacturer, suitable for construction type in accordance with applicable Standard.
- Setting out: Joints minimized.
- Method of fixing: Double sided tape as recommended, avoiding the use of staples.
- Joints: At supports only, lapped 100 mm minimum and sealed with tape.
- Openings: Membrane taped to reveals.
- Joints and edges: Sealed with tape.
- Penetrations: appropriately sealed as manufacturer's technical data sheet.

Warranty: Minimum of 5 years for complete air tight system.

Airtightness Tape

007 For taping around window and door openings, at corners and 1st floor joists/wall junction.

Material:

- Spun bonded, polyethylene, single-sided acrylic adhesive tape, pre-folded, suitable for use on masonry and for plastering over.
- BBA Certified or equivalent approved 3rd party accreditation.
- Manufacturer: same as that of airtightness membrane.
- Diffusion equivalent air layer thickness sd: = 5 m to applicable Standard
- Tensile strength: Lengthwise: = 200 N/50 mm, Crosswise: = 120 N/50 mm
- Airtightness: To applicable Standard, not less than that of airtightness membrane.
- Resistance to aging: permanent, non-drying adhesive strength, flexible to withstand structural movement.
- Fire Classification: Class E to applicable Standard
- Temperature resistance: -40° - 80° C
- Adhesive: high strength, self-adhesive, splash-proof

Installation requirements:

- By competent, trained Staff, as recommended by manufacturer, suitable for construction type, in accordance with applicable Standards.

Warranty: Minimum of 5 years for complete airtight system.

Airtightness Measures where indicated by the Client:

008 All new window and door installations are to be sealed with airtightness tape.

009 All locations where services interrupt the airtight plane on 1st floor ceilings, external walls and ground floors are to be sealed to form a continuous airtight layer, using a suitable product for this application as recommended by the airtightness system manufacturer.

010 New tracking in the internal face of external blockwork walls to be sealed with a parge coat of plaster to maintain the continuity of the airtightness barrier.

011 Install a vapour control layer to underside of top floor ceiling joists, turned down minimum 100mm at junctions with walls. To facilitate this chip back wall plaster locally to external walls as necessary and make good to ensure continuity.

012 Existing internal plaster finish to party walls and external walls to be made airtight. Chip off and apply a plaster parge coat where necessary to ensure the integrity of the airtight barrier, paying particular attention to junctions and where internal walls meet external walls. Allow for skim finish to all affected walls.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

- 013 To intermediate floor, strip back skirting, floorboards and plasterboard ceiling to expose ends of timber joists where they enter the inner leaf of the cavity wall. Tape wall/joists junctions as recommended by tape manufacturer, replace floor, skirting and make good ceiling. Ensure gap between joists is sufficiently sealed with airtightness membrane or a plaster parge coat.
- 014 Lift existing ground floor covering and skirting boards around perimeter and tape external and party wall/floor junction. Chip back wall plaster locally to facilitate this as required, make good and fit new skirting boards.
- 015 Tape joint between any existing and new concrete floors.

Airtightness Pressure Tests

- 016 A minimum of 2 airtightness pressure tests shall be carried out and should the Provider require any further testing, to ensure they are able to achieve the required air tightness levels, they will do so at their own cost.

Test Standard:

- 017 The airtightness pressure test shall be carried out in accordance with the requirements detailed in the ATTMA Technical Standard L1, Measuring Air Permeability of Building envelopes, and applicable Standard for Thermal Performance of Buildings - Determination of air permeability of buildings - Fan pressurisation method.

Specialist Subcontractor:

- 018 The buildings airtightness test shall be carried out by a Specialist Subcontractor who is a member company of ATTMA (The Air Tightness Testing and Measurement Association) and shall also be UKAS Certified.
- 019 The pressurization test must be carried out by an institution or person independent of the Client and Provider. If the Client or Provider is suitably qualified to conduct the pressurization test themselves, it is only accepted if an independent suitably qualified witness signs the test results and thereby certifies the correctness of the data.

Air Permeability Standard:

- 020 Achieve the airtightness levels as specified by the Client or as required by Building Regulations, whichever is lowest.

Instrumentation:

- 021 The instrumentation used to carry out the building airtightness test shall be UKAS certified and have a valid calibration certificate.
- 022 The pressurization test should only be performed to the heated building envelope. It is recommended to perform the initial tests when the airtight plane is still easily accessible and corrections can be implemented.
- 023 It is recommended that the first air tightness test is carried out when the airtight layer is still accessible.

M3NHF SCHEDULE OF RATES – PLANNED MAINTENANCE & PROPERTY REINVESTMENT WORKS – SPECIFICATION – VERSION 8

Client’s current manufacturers/suppliers/products

024 Ensure all Materials are compatible with and standardised to the Client’s current products specified in the table below (listed by manufacturers, suppliers and/or brand names).

Product	Brand name	Manufacturer’s details

[complete table as appropriate]



KEY PERFORMANCE INDICATOR (KPI) FRAMEWORK

External Planned Works

Appendix B

KPI FRAMEWORK

CONTENTS

PART 1: INTRODUCTION

1. Purpose of the KPIs
2. Remedial Plan

PART 2: KEY PERFORMANCE INDICATORS:

- KPI 1 Value of Planned Works
- KPI 2 Residents Satisfaction with Planned Works
- KPI 3 Number of Properties with zero defects at time of Inspection
- KPI 4 Contractor Health & Safety

KPI FRAMEWORK

PART 1: INTRODUCTION

1. Purpose of the KPIs

In this Contract key performance indicators (“KPIs”) are used for the following purposes:

- to monitor performance of the Contract, with a view to both the Client and Service Provider having data which they will review at progress and other meetings so that each of them can bring forward suggestions for the improvement of the performance of the Contract and the delivery of the Works;
- to identify performance below the performance target which, if continued for 3 monthly Measurement Periods, or applying to 3 or more KPIs, leads to a requirement for the Service Provider to produce a Remedial Plan; and

2. Remedial Plan

The Contract Conditions require the production of a Remedial Plan if the Service Provider fails to achieve the Performance Target(s) for:

- 3 or more KPIs in relation to any Measurement Period; or
- the same KPI for 3 or more monthly Measurement Periods or one quarterly Measurement Period.

The Remedial Plan is subject to the approval of the Client and if the Service Provider provides 3 drafts of the Remedial Plan without one being acceptable to the Client, this will be Service Provider Default.

The Service Provider must implement the Remedial Plan and a failure to do so will be a breach of this Contract.

KPI FRAMEWORK

Value of Programme Completion	
Purpose	To demonstrate progress against planned programme of works and to determine the ability of the contractor to carry out works in line with the agreed programme.
Definition	<p>Measurement of the value of completed works against agreed budget.</p> <p>'Completed' is defined as the point that the work is complete and has been invoiced.</p> <p>In order to demonstrate a realistic performance, the target shall be profiled to reflect seasonal variation and general work management in planned programmes. Therefore, the target will vary and will not be derived by simply dividing the total annual contract value for planned works for the year by 12 months.</p>
Method	<p>The value of the work monitored against the agreed spend profile proposed by the contractor.</p> <p>For example:</p> <p>Contractors spend profile states 20% spend quarter 1, 2 and 3 and 40% spend quarter 4 of a £120,000 budget.</p> <p>Qtr 1 target is 20% of £120,000 = £24,000 Qtr 1 actual spend is £23,000</p> $\frac{23,000}{24,000} \times 100 = 95.83\%$
Method of Measure	<p>Monthly monitoring</p> <p>Quarterly statistical report</p>
Data Source	<p>Invoices processed and paid.</p> <p>Contractors Spend profile.</p>
Target	95%

KPI FRAMEWORK

Customer Satisfaction	
Purpose	To help drive quality of planned works and monitor service standards.
Definition	The number of tenants that have completed planned works who say that are satisfied with the works.
Method	RLO to survey tenants, collate and present the results to the Contract Administrator for their verification. Question: Are you satisfied with the completed works?
Method of Measure	Monthly monitoring
Data Source	RLO
Target	95%

KPI FRAMEWORK

Defect numbers at post-inspection	
Purpose	To determine the quality of completed works at post-inspection by the client.
Definition	<p>The total number of properties inspected where no defects were found.</p> <p>Once the contractor hands over a completed property it is expected that no defects or snagging items will be found. If any defects or snagging items are found this property will fail.</p> <p>If a contractor attends to correct the defect, this will not change the calculation.</p>
Method	<p>Determine all works on all properties post-inspected in a month, and the number with zero-defects.</p> <p>The calculation is on number of properties not number of defects at one property.</p> <p>$\frac{\text{Number of properties with zero-defects}}{\text{Number of properties post-inspected}} \times 100$</p> <p>For example:</p> <p>$\frac{48 \text{ zero-defective properties}}{50 \text{ properties}} \times 100 = 96\%$</p>
Method of Measure	Monthly monitoring
Data Source	Contract Administrators post-inspections.
Target	95%

KPI FRAMEWORK

Contractor Health & Safety Reporting	
Purpose	To determine the level of reportable accidents, incidents and near misses, with a view to implementing remedial action to avoid reoccurrences for all stakeholders and 3 rd parties.
Definition	To measure safety performance and ensure an effective safety of the working environment.
Method	<p>To include directly employed staff/operatives and regular sub-contracting operatives. Customer and site-based administration should be included where directly employed or sub-contracting employees work between sites – in these instances an average should be applied. It is permissible to exclude short-term contracting arrangements such as delivery drivers and catering, etc.</p> <p>Types of reportable injury:</p> <ul style="list-style-type: none"> • Deaths • Major injuries • Over seven-day injuries <p>Reportable major injuries include but not limited to:</p> <ul style="list-style-type: none"> • Fractures, other than fingers, thumbs and toes • Amputation • Dislocation of the shoulder, hip, knee or spine • Loss of sight (temporary or permanent) • Chemical or hot metal burn to the eye or penetrating injury to the eye • Injury relating to electric shock or electrical burn leading to unconsciousness, or requiring resuscitation or admittance to hospital for more than 24 hours • Any other injury leading to hyperthermia, heat-induced illness or unconsciousness, or requiring resuscitation or admittance to hospital for more than 24 hours • Unconsciousness caused by asphyxia or exposure to a harmful substance or biological agent • Acute illness requiring medical treatment, or loss of consciousness arising from absorption of any substance by inhalation, ingestion or through the skin. • Acute illness requiring medical treatment where there is reason to believe that this resulted from exposure to biological agent or its toxins or affected material <p>Over seven-day injuries</p> <p>Include for reporting of injuries that lead an employee or self-employed person being away from work, or unable to perform their normal work duties, for more than seven consecutive days as the result of an occupational accident or injury (not counting the day of the accident but including weekends and rest days). The report must be makes within 15 days of the accident.</p> <p>Over three-day injuries</p>

KPI FRAMEWORK

	You must still keep a record of the accident of the worker has been incapacitated for more than three consecutive days. If you are an employer, who must keep an accident book under the Social Security (Claims and Payment) Regulations 1979, that record will be enough.
Method of Measure	Monthly monitoring
Data Source	Contractor Data
Target	100%



Pre-construction Health & Safety Plan

For

Folkestone & Hythe District Council External Planned Works

November 2023

Pre-construction Information

In this design stage health and safety plan, each of the following topics has been considered and information has been included where the topic is relevant to the work proposed. This plan will provide information for those planning or bidding for the work and for the development of the construction phase plan.

The level of detail in this plan is proportionate to the risks involved in this project.

1. Description of the Project

- a) Project description and programme details including any key details.
- **PROJECT DESCRIPTION:** External planned works to varying properties including blocks of flats, houses, and sheltered schemes and other properties as may be added to the programme. Works to include repointing, rendering, structural repairs and associated works.
 - **PROJECT LOCATION:** Folkestone & Hythe's full property portfolio
 - **PROJECT START DATE:** Work is expected to start April 2024
 - **CONTRACT PERIOD:** This project must be completed by the 31.03.26 or 31.03.27 (allowing for 1 year extension if approved).
 - **MINIMUM TIME ALLOWED BETWEEN APPOINTMENT OF PRINCIPAL CONTRACTOR AND WORK COMMENCEMENT DATE:** 3 Weeks.
- b) Details of client, CDM co-ordinator, designers, principal contractor and other consultants

Client: Folkestone & Hythe District Council

Contact Name:

Principal Designer:

Principal Contractor: To Be Appointed

Contact Name: To Be Confirmed

- c) The proposed works are domestic properties and therefore will not be used as a future workplace.
- d) Extent and location of existing records and plans relevant to the project
- All details and plans held are contained within the Specification and should be referred to accordingly

2. Client's considerations and management requirements

- e) Management structure and responsibilities.
- A principle contractor will be appointed who will nominate a contract manager to be the first point of contact on site. A competent foreman, to be named, will be advised to the client.
- f) Planning and managing the construction works and health and safety goals for the project
- To carry out the specified works without placing risk on site users and operatives.

- To minimise the risk to occupants and visitors of the domestic properties.
- Health and safety is constantly monitored and any issues arising on site to be relayed back to the Contract Manager straight away, in order to review the health and safety procedures in place.
- Minimise risk by obtaining risk assessments from the contractor and method statements stating how the works will be carried out.
- Ensure health and safety procedures and risk assessments are reviewed regularly to improve systems of work and minimise risks.
- Ensure there is a procedure in place for accident reporting.
- Ensure the health and safety file is always available and kept up to date.

Communication between all parties will be carried out by:

- Telephone calls
- Emails
- Site meetings
- Site inspections
- Informal meetings
- Formal meetings
- Site instruction notepads
- Online meetings, as required

g) Security of site

- Ensure all materials are stored securely and in the correct manner.
- Ensure all tools are taken away from site at the end of each working day.
- Ensure all skips are fenced off and protected from the general public.
- Ensure works are left in a secure way before leaving the premises.

h) Welfare provision

- The principal contractor should provide welfare facilities on site.

i) Requirements relating to the health and safety of client's employees, customers and others involved in the project

Site hoarding requirements

- Protection to Contractors compound and access to site of works.

Site transportation arrangements or vehicle movement restrictions

- Some of the site approach roads may be narrow as in a residential area. Deliveries will need to be carefully planned.

Permit to work systems

Hot works:

- Work covering the use of heat producing equipment means provision of fire-fighting equipment and personal protective clothing should be provided.
- Where burning off of surfaces is required fire extinguishers shall be kept where the work is being carried out.
- Check areas after at least 2 hours and at

	<p>the end of the working day for any evidence of smouldering material which may ignite, causing a fire to break out.</p> <ul style="list-style-type: none">• Adjacent surfaces shall be protected when carrying out hot work to ensure they are not affected by the work i.e. fire resisting matting behind copper fittings etc. being soldered.
Fire precautions	<ul style="list-style-type: none">• Programme any work to ensure everyone understands the need to reduce the outbreak of a fire.• Ensure everyone can be alerted and escape in the event of a fire and there is adequate means of calling Kent Fire and Rescue in an emergency.• Reduce the use of materials and methods of working that resent a fire risk.• Keep flammable liquids in suitable closed containers. Keep the quantity at the workplace to a minimum.• Remove rubbish regularly and at the end of the working day, place solvent soaked rags or other flammable waste in closed fire-resisting containers.
Emergency procedures and means of escape	<ul style="list-style-type: none">• Ensure emergency procedures are in place and included in training and any tool box talks.• At least two operatives shall be engaged on work where the working platform is more than 2 metres above ground level. Access for emergency services shall not be restricted by stacking materials or locating skips close to any scaffold.• Ensure the correct line of communication is used in an emergency.• As work is external to domestic properties, use fastest means of escape and ensure these are clear of rubbish and debris where reasonably practicable.
'no-go' areas	<ul style="list-style-type: none">• Not Applicable
Confined spaces	<ul style="list-style-type: none">• There are confined spaces due to the nature of the roof, the Contractor is to consider this and provide for it within RAMS.
Smoking and parking restrictions	<ul style="list-style-type: none">• No smoking on site.• Ensure driveways and paths are not blocked.• No parking on grass verges.

3. Environmental restrictions and existing on site risks

j) Safety hazards including:

Boundaries and access	<ul style="list-style-type: none">• No known issues
Restrictions on deliveries and waste or storage	<ul style="list-style-type: none">• Materials to be stored in an appropriate manner• Deliveries to be planned ahead to reduce traffic issues and access problems
Adjacent land uses	<ul style="list-style-type: none">• Care to be taken throughout the works ensuring consideration of neighbouring properties• Consider footpaths and make sure these are accessible for the general public and site users
Existing storage for hazardous materials	<ul style="list-style-type: none">• Not provided as work is for domestic properties.
Location of existing services	<ul style="list-style-type: none">• Contractor to inspect site before commencement of work and inform the designer of any issues that may arise from existing services.
Existing structures	<ul style="list-style-type: none">• Due to the nature of the works, the Contractor shall adhere to the details in the specification in respect of this.
Previous structural modifications	<ul style="list-style-type: none">• The Principal Designer to be informed of any modifications which will adversely affect the proposed works.
Fire damage, shrinkage, or poor maintenance that might have affected the structure	<ul style="list-style-type: none">• Fire damage not applicable• If there are maintenance issues then the Designer should be contacted so that these issues can be dealt with appropriately.
Difficulties relating to plant and equipment	<ul style="list-style-type: none">• Any hired equipment should request maintenance inspection records from hire companies/sub-contractors etc. when they arrive on site.• Ensure regular maintenance inspections are undertaken.
Health and safety information contained in design or construction	<ul style="list-style-type: none">• Please see section 6 for health and safety information relating to proposed works.

k) Health hazards including:

Asbestos	<ul style="list-style-type: none">• The Contractor is required to have a Full R & D Survey conducted and to provide the resulting report to the Contract
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	Administrator
	<ul style="list-style-type: none">• Any suspected asbestos will be tested and if the removal is not licensed activity then it can be removed by the contractor and disposed of in the correct way.• If the suspected asbestos material does require a license for removal this will be organised by the designer who will appoint a licensed contractor to remove the material.
Existing storage of hazardous materials	<ul style="list-style-type: none">• Not applicable as these are domestic properties.
Contaminated land	<ul style="list-style-type: none">• Not applicable
Existing structures containing hazardous materials	<ul style="list-style-type: none">• If there are existing structures containing hazardous materials that are linked to the proposed works, the designer should be notified immediately to attend a site visit and propose a suitable way of resolving the problem.
Health risks from client's activities	<ul style="list-style-type: none">• Manual handling.• Noise and vibration.• Exposure to UV radiation from the sun.

4. Significant design and construction hazards

Significant risk identified in design	<ul style="list-style-type: none">• There are no significant risks identified
Adjacent properties will be in occupation for the duration of the works and arrangements to be made for access to all properties while restricting access to the working area Arrangements for co-ordination of ongoing design work and handling design changes	<ul style="list-style-type: none">• Contractor to keep all residents informed about the works programme.• Contractor to provide safety and warning signage.• Contractor to inform designer of any significant changes to the proposed Works.• The Principal Designer to inform contractor of any significant changes to the proposed Works.• Any variations to be cleared between all parties before carrying out the Works.• Ensure regular site visits are organised to make sure communication is clear between all parties.
Information on significant risks identified during design	<ul style="list-style-type: none">• Not applicable

5. The Health and Safety File

- The health and safety file format and layout will be the responsibility of the Principal Contractor.

6. General Construction Health and Safety Issues

6.1. Working at Height

In accordance with the Working at Height Regulations 2005, all work at height must be properly planned, supervised and carried out safely. Ensure risks from WAH are assessed and appropriate work equipment used. In accordance with HSE guidance:

- Avoid working at heights where possible.
- When work at height use work equipment or other measures to prevent falls (e.g. scaffold).

Issues to consider as work at height is necessary include:-

- Scaffold erection/dismantling by trained competent operatives. No modification to be made by unauthorised personnel.
- Provision of safe ladder access. Ensure ladders are secured and use restricted to access provision and works of short duration.

6.2. Lifting Operations

Lifting operations must be planned, supervised and carried out by trained, competent persons. 'Lifting plans' should be prepared taking into account issues such as weight/shape of load, ground conditions, adjacent structures, etc. Loads must not be lifted or suspended above operatives.

6.3. Slips, Trips and Falls

The site should be kept in good order-clean, tidy and well organised. Pedestrian routes and workplaces should be kept free of obstruction and materials should be stored in a safe and accessible manner. Waste should be removed from the work areas as work proceeds and at the end of the working day.

6.4. Working in the Sun

Ultraviolet rays in sunlight cause sunburn, skin blistering and may lead to skin cancer. Wear suitable clothing including head protection and use sunscreens on exposed areas. Skin should be checked regularly and medical advice sought regarding any skin changes of abnormalities.

6.5. Noise

In accordance with the Control of Noise at Work Regulations 2005, the new action level at which noise controls are determined are:

Lower Exposure Action Value

- Daily or weekly exposure 80dB
- Peak sound pressure 135dB

Upper Exposure Action Value

- Daily or weekly exposure 85dB
- Peak sound pressure 137dB

Exposure Limit Value (these must not be exceeded)

- Daily or weekly exposure 87dB
- Peak sound pressure 140dB

You must estimate the level of noise employees are exposed to. Where the assessment shows that an employee is subject to more than 80dB(A), see actions below:

Daily Exposure Level – dB(A)	Action Required
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<80	Low level risk; reduce noise as far as reasonable practicable
Between 80 and 85	Make ear defenders available to all operatives
Above 85	Enforce use of correct ear defenders
Provide information and training to employees	

Any equipment that exceeds peak sound pressure of 135dB (lower exposure value) 137dB (upper exposure value) and 140dB (exposure limit) will require the use of hearing protection even though the average daily exposure level may not be exceeded.

6.6. Dust

Dust will be created during the construction works which, as well as being harmful to operatives may create environmental nuisance to local residents. Risk assessment should be undertaken in accordance with COSHH regulations and suitable PPE and RPE provided to operatives to avoid inhalation. Damping-down will mitigate dust generation.

6.7. Manual Handling

Where possible, avoid manual handling of heavy or awkwardly shaped objects and utilise mechanical lifting methods. Where it is not practicable to avoid use of objects over 20kg, provision should be made for mechanical handling or for handling by two operatives. All operatives should be trained in basic manual handling techniques and, following risk assessment, information on any residual risk should be conveyed to operatives and reinforced with toolbox talks.

6.8. Working with Cement

To prevent dermatitis and cement burns, suitable PPE must be worn when handling wet cement and adequate welfare facilities provided on site including provision of hot and cold running water, basins in which forearms can be immersed, soap and towels. Operatives should be encouraged to report any occurrence of dermatitis and a competent person should carry out regular skin inspections where there is residual risk.

6.9 COVID-19 and other viral outbreaks

All works need to be conducted in line with Government guidelines applicable at the time which may impose restrictions on the number of operatives on site at any one time, social distancing measures and travel to/from the place of work. The contractor is to hold continuity plans for such events and to produce operational specific risk assessments and working policies as and when required in order to permit works to continue.



Folkestone & Hythe District Council

Preliminaires

For

External Planned Works

At

FHDC Properties

November 2023

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GLOSSARY OF TERMS

Personnel

FHDC Folkestone and Hythe District Council

CA Contract Administrator (Folkestone & Hythe District Council TBC)

RLO Resident Liaison Officer

Abbreviations

UK United Kingdom

ACM Asbestos Containing Materials

BST British Summer Time

References and Related Legislation

BSI British Standards Institution – The national standards body of the United Kingdom

DBS Disclosure and Barring Service

IET Regulations for Electrical Installations

1.0 Service Provision

The Contractor is responsible for the provision of delivering remedial works, the works are to be carried out as specified in the technical specification, identified by FHDC.

The Contractor shall employ competent operatives familiar with the type and nature of the installations. All works shall be in accordance with relevant legislation, good practice and the technical standards detailed in the specification.

2.0 The Sites

All properties owned by FHDC.

3.0 Site Visits

Special attention is to be given to means of access to the buildings. No allowance shall be made for ignorance due to Contractor's neglect in this respect.

4.0 Programme of Works

A programme of works is to be provided as part of the contractor's tender submission and this will be agreed prior to the commencement on site.

The project is estimated to start on the 1st June 2021 and must be completed by no later than 31st March 2026.

Site meetings will be held as and when required over the duration of the works.

5.0 Risk Management

FHDC is conscious of the potential risks to the provision of the service and impact on residents if the service or relationship should falter or fail. These risks can be grouped under the following key headings:

- i. Service Delivery
- ii. Reputation
- iii. Financial
- iv. Health and Safety and Welfare
- v. Staffing and Resources
- vi. Regulatory or Statutory Issues

FHDC wishes to be confident that the selected Contractor(s) has a strong understanding of the risks that may affect FHDC and its residents and that the selected Contractor will take a proactive approach to risk management throughout the term of the contract. Therefore the Contractor will be expected to develop a Risk Register prior to commencement of the contract and maintain this in collaboration with FHDC.

6.0 Inclusive Service

The Contractor's tender, except for where stated, is deemed to be fully inclusive of all costs required to undertake the Works.

The Contractor shall provide for the performance of all incidental matters which may be inferred from the Specification, according to its true intent and meaning, in order to complete the Works.

7.0 Work Not In Scope

If any work is instructed to be executed for which no tendered rate or price is contained in this contract, the value shall be based on the items therein closest with the description of such work, or as may be agreed. In the case works cannot be valued under specific items in the contract the Contractor will submit a price or prices for FHDC consideration.

New items of work (descriptions) and price shall be added to the Schedule of Rates for future use.

8.0 Specified Items

As per Specification.

9.0 Co-Operating With Other Partners and Contractors

The Contractor(s) appointed is expected to co-operate fully with other Partners and or Contractors appointed by FHDC. When necessary the Contractor should liaise with other parties and co-ordinate works so as to ensure limited disturbance and disruption for the residents, no additional charge will be accepted for this provision.

10.0 Workmanship & Materials

All workmanship and materials to be used in the Contract are to be the best of their respective kinds and in accordance with current British Standard or Code of Practice as applicable, whether specifically noted or not, this shall be taken to denote the minimum acceptable standard of material or workmanship.

It is a requirement that all work shall be carried out in accordance with the best possible building and installation practice and methods.

Manufactured items shall unless specified to the contrary mean manufacturer's standard products and installed in accordance with the manufacturer's instructions.

11.0 British Standards

All products, equipment, materials must comply with and installed in accordance with the current relevant British Standard or Code of Practice. Products, equipment, materials may be substituted at FHDC discretion by a product complying with a grade or category within a European Community Standard or other international standard recognised in the UK specifying equivalent requirements and assurances in respect of material, safety, reliability, fitness for purpose and, where relevant, appearance.

12.0 Electrical Works

All electrical works are to comply with the requirements of the IEE Regulations for Electrical Installations (current edition) BS7671:2018 and all relevant British Standard and European Standard Code of Practice.

13.0 Asbestos

All operatives employed by the Contractor or sub-contractor must have attended Asbestos Awareness training and had refresher training within a twelve month period. FHDC will provide asbestos register information prior to commencement of the contract. If the successful Contractor suspects asbestos products (ACM) exist then the Contractor must cease works immediately and inform FHDC; all in accordance with FHDC Asbestos Policy and Procedure (copy can be provided on request).

14.0 Complaints

Contractors are required to comply with the FHDC Complaints Policies and Procedures, copy can be provided on request.

15.0 Contract Management

The Contractor is to ensure that the appropriate management team is in place at all times to ensure the works are delivered efficiently and to the required standard.

The management provision will include but is not limited to attendance at meetings, potentially with other Service Providers, for the purposes of: Contractor liaison, value engineering, process mapping, performance review, progress review, planning and resident communication.

16.0 Contract Supervision

The Contractor shall provide full and adequate supervision during the progress of the contract and shall keep a competent and qualified supervisor(s), approved by FHDC, (whose approval may be withdrawn at any time). The supervisor(s) must be able to receive and act upon (on behalf of the Contractor) all instructions, directions or orders issued by the FHDC Representative. The Contractor shall also ensure that the qualified supervisor(s) is supplied with a mobile telephone. He must also keep residents advised when they are to be affected by works and will record all correspondence with the residents. This person is to ensure generally that the interests of the residents receive full consideration, and the Contractor shall allow for visiting residents outside of normal working hours.

17.0 Operatives

The Contractor shall only engage competent operatives for the works who hold a nationally recognised or accredited construction/trades qualification. Prior to the commencement and to be maintained during the term of the contract, the Contractor shall provide a schedule of all staff who might be engaged on the FHDC service provision. This schedule will include:

- Name of each member of staff;
- Details of any relevant training or qualification for each member of staff;
- Proof of Data Barring Servicing (DBS) for staff interacting with residents.

The Contractor's operatives, including sub-contractors, will be provided with and wear appropriate clothing/overalls for the works at all times, including protective clothing as necessary.

FHDC shall reserve the right to exclude any member of the Contractor's staff from working on/in its property on the grounds of being unqualified to maintain equipment or other reason which must be agreed with the Contractor.

Whenever additional members of staff are assigned to work, their details shall be provided by the Contractor to FHDC before they perform any work.

Operatives must undertake a Risk Assessment on all works to be undertaken to ensure the health, safety and welfare of all parties.

18.0 Resident Liaison Officer

The Contractor must include a Resident Liaison Officer (RLO) function dedicated to this Contract within the tender rates. This function will be expected to provide excellent customer care for residents (e.g. organising appointments with residents; dealing with enquiries; complaints, etc.; obtaining customer satisfaction feedback, etc.). The RLO will ensure that all residents are satisfied with the service provided during visits to their home.

The RLO function must be contactable at all times by phone and email during normal working hours and provide effective means of being contacted out-of-hours.

On completion and satisfactory commissioning of required works in each property, the RLO will be responsible for providing the Contract Administrator with a satisfaction questionnaire completed by the resident. The format and content will be agreed at the contract pre-start meeting.

19.0 Sub-Contractors

The Contractor shall not, without the consent in writing from FHDC and then only to such firm or firms to whom FHDC shall not object, sub-let as piece or task work, or otherwise, or make a sub-contract for the execution of the works or any part thereof except for the supply of materials and the Contractor shall not, without like sanction, assign this contract or any part thereof.

20.0 Identification

The Contractor will supply to all working personnel, including sub-contractors, employed to deliver services on-site a form of identification card approved by FHDC which will contain the following details:-

- Photograph of operative;
- Operative's name;
- Contractor's name, logo, address and telephone number;
- Expiry date of card;
- Unique Reference Number.

All working personnel including sub-contractors are to present their ID card to the resident on each and every visit to an FHDC property or on request.

All the operatives employed by the Contractor or sub-contractors shall at all times wear clean overalls, clearly and permanently bearing the Contractors logo, name, address and telephone number on them.

21.0 Working in Occupied Premises

Where work is to be carried out in occupied premises, the Contractor shall give reasonable notice to the occupier of his intention to commence the work, and the work is to be carried out in a manner that will cause the minimum inconvenience and nuisance from obstruction, dust, noise etc. All necessary precautions must be taken to ensure the safety of the occupier.

No work should start or continue in any building until all practicable steps have been taken to prevent danger to persons employed or living in the building at the time, from any live electric cable or apparatus, exposed asbestos or any other hazard which is liable to be a source of danger and the Contractor shall take all necessary safety measures accordingly.

The Contractor should be aware that properties might be occupied by elderly, frail or ill residents or other vulnerable persons and should therefore take due care and consideration in the execution of the works and allow for any extra costs.

If, in exceptional circumstances, the Contractor considers that, because of the nature of the work and the nature of the resident's needs, the resident cannot remain in occupation during the Works, this must be agreed with FHDC before works commence.

Where the Contractor considers it necessary for reasons of health and safety that vacant possession is necessary a request must be made to FHDC.

22.0 Protect and Repositioning Of Belongings

All belongings, fittings, apparatus, and the like shall be carefully moved by the Contractor as necessary to enable the execution of the works. This is to be discussed and agreed with the residents in advance of undertaking the works, and recorded.

The Contractor shall properly cover such items and the like with spot cloths, dust sheets and protect them and at completion of the works, replace and refit all such belongings in their original positions, to the residents' satisfaction.

Any claims for damage to any residents' property are to be settled directly between the resident(s) and the Contractor in the first instance and reported to FHDC for reference only. Should the matters not be reconciled between the resident and Contractor, the resident should be directed to the Contractor's complaints procedure. The Contractor is required to provide full details to FHDC for monitoring and review.

23.0 Unofficial Instruction

Should the Contractor be requested by a resident or other unofficial individual, to change, alter or modify in any way the FHDC instructions, the Contractor shall forthwith refer to FHDC and

obtain further instructions before proceeding. No payment shall be made for work carried out other than ordered by FHDC.

24.0 Working Hours

The Contractor will not be permitted to carry out works all day Sunday or Public and Bank Holidays.

Normal working hours shall be between 0800 hours and 1800 hours, Monday to Saturday inclusive. The Contractor, however, will be expected to accommodate the minority of residents that may not be available during these times at no extra cost.

25.0 Access Arrangements

The Contractor shall be responsible for making arrangements directly with the resident concerned to gain access.

In the event of continued access to a specific property not being possible or appointments not being kept, this shall be referred back to FHDC.

No payment will be made to the Contractor for abortive (no access) calls.

26.0 Access and Lack of Access

Where access has not been obtained for any reason the Contractor shall leave a “no access” card. This card shall provide the following information:

- Company Name;
- Contact Number;
- Date and Time Called;
- Brief description fault/reason for visit.

It is up to the Contractor to gain access to carry out the work. There will be no payments made for no access.

27.0 Parking Restrictions

Ensure driveways and paths are not blocked. No parking on grass verges. Be considerate of limited parking availability on some estates and the use of spaces by vulnerable tenants.

28.0 Data Usage

All data obtained by the Contractor in the execution of their duties shall be used within the conditions of the General Data Protection Regulation. In addition, all data or information obtained as part of this contract shall be treated as confidential and shall not be shared with any third party without the express authority of the Contract Administrator.

29.0 Quality Control

The Contractor is required to establish and implement a robust and well defined Quality Management System for all elements of works and or services. These systems will require the implementation of standard forms and procedures that the Contractor shall allow audit and inspection by FHDC with the aim of ensuring their use throughout the term of the Contract.

In addition to complying with the above, the Contractor will also be required to provide a consistently high quality of service through the use of high quality standards for its management processes including accreditation to recognised Quality Management Systems and Investors in People, etc.

30.0 Payment Process

The Contractor will submit a detailed, scheduled application every 30 days for the value of works completed on site. It shall be noted that the testing and remedial works will need to have been completed and a valid certificate issued to FHDC in order for the Contract Administrator

to process the application for payment. For the avoidance of doubt, failure to supply a valid certificate and confirmation of works completion will prevent the payment in respect of any and all properties that this relates to.

Following issue of an FHDC certificate, the Contractor shall issue a VAT invoice to Canterbury City Council and payment will be made via BACS within 30 days receipt.

31.0 Elderly and Vulnerable Persons Units

Special care and consideration must be given to all the above. Such will require on site consultation and agreement in both the manner in which the work will proceed and the extent of the work that meets the specific needs of the occupiers.

32.0 Trades to Attend Upon Each Other

Allow for all trades to attend upon, cut away for and make good after each other, also allow for clearing rubbish from time to time as it accumulates, and removing from site. All waste must be either removed or neatly stored onsite at the end of each working day. Waste consignment notes must be provided by the Contractor and issued to the Contract Administrator in a timely manner. Re-cycling of waste must be maximised by the Contractor.

33.0 Completion

Upon completion, clear away all debris, surplus materials, and leave premises and site areas in a clean and tidy condition to the satisfaction of the Contract Administrator.

34.0 Handover

Upon completion of testing and remedial works of each property, certification and reports are to be supplied in accordance with the Specification

35.0 Code of Conduct (Onsite)

Please let residents know if you're going to be late arriving or unable to attend that day. Do this as soon you can. This gives them the opportunity to select an alternative appointment.

Make sure your power tools are fully charged or charging.

Drive carefully in and around our neighbourhoods; park considerately, not causing damage to grass verges, or causing an obstruction.

Arriving at the door:

- Introduce yourself stating:
 - Your name;
 - Your Company Name;
 - An outline of what you've come to do;
 - Show your formal identification badge to the resident before entering the home. Let the Resident know if you're a trainee. (Trainees must always be supervised on site);
 - Explain clearly what the work will involve, which rooms you'll go in, what they need to do to help you, and how long it will take.

Your power tools must be sufficiently charged for the work. If on the rare occasion they're not, ask permission if you need to use gas, water and electrical supplies. Where the resident gives permission, be clear how you will repay the cost to the resident and agree the amount. The same principles apply to the use of a resident's phone or internet facility. Where there is a risk of damage to, for example, plants or fencing, tell the resident before works starts.

The following behaviours will not be accepted by the Contract Administrator:

- Language the resident finds abusive or offensive;
- Behaviour the resident finds rude, obstructive, unhelpful or aggressive;
- Criticising another's workmanship;
- Playing loud music;

- Using of the resident's equipment, e.g. kettle or microwave (unless offered);
- Harassment of any kind – this includes over-familiarity, sexist behaviour, derogatory or racist comments, intimidation of any kind;
- Insensitivity towards disability, vulnerability or specific needs;
- Asking questions not relevant to completing the task;
- Smoking at any time while working on site;
- Working under the influence of alcohol or drugs;
- Excessive use of mobile phone for personal reasons;
- Carelessness with sharp tools, electrical equipment or toxic substances;
- Don't trespass onto neighbouring property to complete repairs. You must first get permission from the adjoining owner or resident of that property.

On the Job: Security and Safety of the Home

- You're responsible for security where the resident leaves you on site alone;
- Do not leave doors and windows open unnecessarily: this is a security issue but it also causes draughts;
- If, during work, the condition of the property becomes dangerous, you must immediately inform:
 - The resident and or his/her family;
 - The Contract Administrator;
- Pay particular attention to the safety of young children, the elderly and disabled. This duty of care extends to all persons likely to be affected (i.e. residents, visitors, neighbours, the general public, etc.).

On the Job: Overnight

- You must leave the property, inside and out, tidy and safe overnight;
- You must remove surplus materials and rubbish regularly, preferably daily;
- You must stack ladders away securely and clear away all tools;
- Reconnect and test all services so that they're left working normally for the resident;
- There should be no ingress of wind or water;
- Before leaving, give the resident your company's emergency phone number.