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STANDARD HOUSE TYPE SPECIFICATION FOR SINGLE, TWO AND THREE STOREY DWELLINGS

Project Name – Standard House Types

Rev A

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1.0 Introduction

This document once agreed and inserted into the contract will take precedence over any employers' requirements or standard client specification and as such should be checked thoroughly before entering into the contract.

THE SPECIFICATION OF ALL MATERIALS AND COMPONENTS MUST BE SUITABLE FOR THEIR INTENDED PURPOSE AND LOCATION AND MUST BE MANUFACTURED AND INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S CURRENT SPECIFICATION AND INSTRUCTIONS, ALL RELEVANT, CURRENT BRITISH STANDARDS AND CODES OF PRACTICE, AND NHBC 2017 REQUIREMENTS.

Any reference to an Approved Document in this Specification relates to the relevant Approved Document of the Building Regulations.

The building as a whole must comply with Approved Document L1A using the DER (Dwelling Emission Rate) and the TER (Target Emission Rate).

This specification must be read in conjunction with all Finishes Schedules, Working Drawings, and Details, and any discrepancies must be reported immediately.

1.1 NHBC

The scheme will be designed and constructed to achieve a NHBC warranty and Building Control approval.

1.2 Differences in Ground Levels

Where there is a difference in level of ground or other solid construction between one side of a wall and the other of greater than four times the wall thickness, see Engineer's design calculations and details for structural stability.

1.3 Dry Graded Softwood

All internal structural timber to be of the appropriate grade and moisture content and is to be marked "DRY" or "KD" graded.

1.4 Loft Hatches

To be insulated and to have compressible draught seal and fastenable catch.

1.5 Draught Stripping

All windows and external doors to be draught stripped.

1.6 Thermal Bridging

The use of ENHANCED DETAILS in Thermalite publication "Cost Effective Solutions to Thermal Bridging Heat Loss using Enhanced Construction Details" are to be used throughout.

1.7 Structural Calculations

All structural calculations from roof truss, floor joist and lintel manufacturers will be submitted for Building Control approval / information.

1.8 All insulations to have Global Warming potential less than 5 and manufacturer to provide written confirmation;

Insulation specifications included within the relevant building structure section- refer to;

Ground floor
External walls
Roof covering and insulation
Internal walls
Plumbing

When installing special attention must be given to workmanship to ensure compliance with APA accredited details, in particular the following areas must be complied with

Insulation should be tightly packed against last truss and the party wall.

The full depth of insulation within the roof space should extend over the head of all internal walls.

The gap between the wall plate and the eaves ventilator is completely filled with insulation having a min R value of 1.2 w/m²/k.

- 1.9 All insulation is to be continuous throughout the junction of roof insulation to the meeting of the insulation in the external walls.
- 1.10 The properties will conform to Robust Details E-WM-17 to satisfy Part E of the approved documents. Contractor is to ensure that the scheme is registered with Robust Details to avoid the need for Sound Testing.

2.0 Foundations and Substructure walls

Note:

Please refer to Consulting Engineer's details for any site-specific special foundations.

- 2.1 All foundations and concrete mixes to be agreed with NHBC Engineer/Local Authority Building Inspector.
- 2.2 Concrete foundation generally to be Grade 35 Slump Class S3 to suit classification DS-1, AC-2z
- 2.3 All foundations to be as designed by the Structural Engineer in conjunction with the ground investigation report, to be the satisfaction of building regulations, the Local Authority and NHBC.

Reinforced concrete foundations designed by a structural engineer must have a minimum cover to the reinforcement as shown in the design. Reinforced concrete foundations not designed by a structural engineer must have a minimum of 75mm cover to the reinforcement. All in accordance with NHBC Standards Chapter 3.1: Table 8.

- 2.4 Foundations to be sized by structural engineer and to be of ready mix concrete RC35, depth to suit ground conditions. Any mesh to SE specifications and where shown install compressible material to manufacturers recommendations.

All steps to foundations to be in strict accordance with Approved Document Part A1/2 of the Building Regulations, or as instructed by Structural Engineer. Steps to strip foundations to have min. 300 mm laps or twice the height of step, whichever greater. Minimum depth below ground level to be not less than 900mm below proposed finished ground level, subject to proximity of drains and local site conditions.
- 2.5 All dpc / dpm to be to detailed drawings by chosen manufacturer and installed to their recommendations.
- 2.6 Horizontal dpcs to be B.S 6398 or B.S 6515; min. 150mm above ground level at all times.

- 2.7 DPC to be installed to extend beyond external face of external leaf and to be cut back following inspection by Client.
- 2.8 Allow for temporary bedding of appropriate number of bricks at low level for ease of access to clean cavities. Obtain clients permission prior to permanently bedding bricks on mortar.
- 2.9 Foundations in close proximity to existing trees are to be constructed in accordance with National House Building Councils technical requirements. Refer to 'All about Tree' report for additional information and guidance.
- 2.10 Walls below D.P.C (up to max 150mm below finished ground level) to be either-
 - a) 320mm cavity construction of 2no leaves of 100mm thick Thomas Armstrong Airtec blockwork (or equal approved) minimum compressive strength 7N/mm², and 100mm cavity with lean mix concrete fill, or
 - b) Thomas Armstrong Armstart (or equal approved) Lightweight Concrete Foundation block 320 x 280 x 140mm, with minimum compressive strength 7N/mm².
- 2.11 Cavity fill below ground level to be lean mix concrete. Concrete mixes will be suitable for purpose and will be in accordance with the cement and concrete association, general purposes mixes. Cavity fill to terminate max 225mm below lowest DPC level.
- 2.12 Facing material to be taken down two courses below finished path/garden levels. All facing brick or stone to be FL and FN rated.
- 2.13 Provision is to be made for all incoming services and drainage. UPVC products to be incorporated as per S.E/Architects Drawings.

Openings in walls to have pre cast concrete lintels and all entry points to be sealed.

All below ground drainage to be Polypipe and Sulphate resisting concrete/bricks are not required.
- 2.14 Drains passing under floor through external walls to be built in solid using a short length of pipe and connected within 150mm of wall faces to rocker pipes max. 600mm long with flexible joints. Voids around pipe to be filled with compressible material.
- 2.15 Wall ties below DPC level shall be safety ties in accordance with BS1243 (last amendment) and to be spaced at 450mm CRS vertically and horizontally with a minimum embedment of 50mm into each leaf of wall. Any deviation to be agreed with engineer.

3.0 Ground Floor Construction

Ground floor construction target u-value: 0.16 to 0.18 W/m²K (depending on P/A ratio)

Ground floor at Party Walls to be to Robust Details E-WM-17

Access to the dwelling: At least one entrance into the house must be provided with a level platform immediately outside the entrance door at the top of the approach. This to be designated the 'Principle Entrance in accordance with Building Regulations Approved Document M 2015 (incorporating 2016 amendments). This platform is to be min 1200mm long measured in the direction of the ramp or flight of steps, and at least the same width as the entrance door.

- 3.1 Unless site conditions dictate otherwise, ground floor construction to be in accordance with NHBC Standards Section 5 and agreed with NHBC Engineer/Local Authority Building Inspector.

- 3.2 Refer to Site-specific details regarding Radon and Methane Gas Control Measures (where necessary), and Ventilation requirements. Details to be in accordance with BRE Guidelines and to NHBC Approval.
- 3.3 Ground floor to be designed with regard site specific conditions by structural engineer.
- 3.4 Block and beam system:

Install proprietary block and beam system to specialist sub-contractor design. Include for additional spine walls to manufacturers requirements. Ground floor beams to be 150mm deep. Maintain min. 150mm ventilated void below beams. Refer to Engineers drawing as some voids are 250mm. Lay 1200 gauge polythene dpm. (dressed under external wall D.P.C.) with sealed joints and 300mm laps over block and beam system. 150mm thick Jabfloor EPS rigid insulation laid on block and beam system and overlaid by vapour control layer. 30mm thick. edge insulation to be laid around perimeter to top of screed finish. Finish with 75mm thick. polypropylene fibre reinforced screed.

NOTE: should there be a requirement from the authorities that a gas membrane be installed despite there being no gas as per the reports, a LPGM by chosen manufacturer will need to be installed as per their recommendations. Contractor to provide a cost for this as a contingency.

- 3.5 Garage floor to be:

150mm below FFL of the adjacent house FFL.

Proprietary Block and Beam construction as described above to specialist sub-contractor design. Lay 1200 gauge polythene dpm. (dressed under external wall D.P.C.) with sealed joints and 300mm laps over block and beam system. Finish with a nominal 75mm thick screed to Structural Engineers specification: Fibre screed is C35, running from 100mm at back to 75mm at front and a 75mm steel angle at the front as permanent shutter. Floor to be finished with a surface sealer / anti-dusting agent.

NOTE: should there be a requirement from the authorities that a gas membrane be installed despite there being no gas as per the reports, a LPGM by chosen manufacturer will need to be installed as per their recommendations. Contractor to provide a cost for this as a contingency.

- 3.6 Insulation to have a Global Warming Potential (GWP) of less than 5.
- 3.7 Agrément certified DPM/DPC system (which may be a gas membrane system) to comply with the requirements of the Ground Investigation report and as advised by the Structural Engineer.
- 3.8 Min 150mm Clear ventilated space under suspended floor system, with cross-ventilation of void in accordance with approved document part C and NHBC standards (item 5.2.10). Vent openings provide min. 1500mm² per metre run of wall or 500mm² per m² floor area, whichever greater. Vents to be spaced at max. 2m centres, commencing from any wall-end and as indicated on the drawings. Vents, where appropriate to be ducted according to NHBC standards 6.1.
- 3.9 Vent spacing assumes Glidevale or similar air brick, size 215x65x50mm, offering 6000mm² free area of ventilation.
- 3.10 A fully executed collateral warranty to be provided from the PCC floor provider.
- 3.11 D.P.C.'s:
 - a) Horizontal D.P.C.'s to be minimum 150mm above adjacent ground level and to be 500 microns black polythene (2000g) to B.S.6515: 1984. A Rated FL frost resistant. D.P.C. to be stepped up as necessary, to maintain 150mm clearance above entrance ramp or level platform adjacent to principal entrance door.

- b) Unless proprietary cavity closers are used, vertical D.P.C.'s to be installed at jambs of all external openings - tacked to back of frame, built into vertical joint and lapped over end of cavity wall insulation sheet, where installed (see 'EXTERNAL WALLS Cavity' section below).

4.0 First Floor Construction – 40dB / 40dB

First floor at Party Walls to be to Robust Details E-WM-17

- 4.1 A letter of intent from the supplier must confirm the requirement can be met before placing orders.
- 4.2 First floor to comprise of 22mm nominal flooring grade "peelclean" moisture resistant chipboard (min. mass 15 kg/m²) with T & G glued joints (to BS 5669 1979, type C4; BS EN312 type P5) on engineered, to suit loading and spans in accordance with manufacturers recommendations.

See Table 7 below (NHBC Section 6.4)

Table 7: Floor decking requirements

Floor decking	400mm joist centres	450mm joist centres	600mm joist centres	Standard
Softwood boarding	16	16	19	BS EN 13353
Moisture resistant chipboard	18	18	22	BS EN 312 – type P5
Plywood	15	15	18/19	BS EN 636
Oriented strand board	15	15	18/19	BS EN 300 – type OSB3

- 4.3 Joists at max. 600mm centres (designed by manufacturer) to BS 5268 (SC3) and BBA 99/3633 and BS 5268: Part 2 (TJI) with one layer 15mm Gyproc Wallboard to Ceiling with skim finish. Gyproc to be min 10kg/m². Construction to achieve min. Airborne sound transmission of 40dB and impact sound transmission of 40dB, 75x50mm, perimeter noggins and partition noggins to be installed. Joists to comply with NHBC standards 6.4
- 4.4 38x75mm noggins fixed with z-clip at each end to flanges of the joists around the perimeter of the building for chipboard support and also at 600mm centres under non-load bearing partitions running parallel with the joists. Internal end bearing of joists and cantilever bearings to be support laterally by full height blocking panels/trimmers.
- 4.5 Provide lateral restraint straps min. 5x30x1200 girth (with 100mm crank) maximum 2m centres, fitted over 3no. Joists with min 150x38 noggins. Noggins to be min ½ depth of joists and min 38 mm wide.

<u>Joist Span in Metres</u>	<u>No. of Rows of Strutting</u>
Less than 2.5	0
2.5 - 4.5	1 at mid span
More than 4.5	2 at one third span positions

All joists connections to be strictly in accordance with joist manufacturers details using joist manufacturers approved galvanised hangers specified individually for load bearing characteristics.

- 4.7 All services to be passed through the web of joints.
- 4.8 Joist hangers to be specified by specialists and should comply with NHBC standards 6.4.13
- 4.9 Joist straps to be specified by specialists and should comply with NHBC standards 6.4.14.
- 4.10 Any openings formed in joists to be trimmed and detailed appropriately according to NHBC standards 6.4.16.
- 4.11 Multiple joists fixed together to be designed by specialists and comply with NHBC standards 6.4.17.

- 4.12 Additional joists must be provided under first floor buttress walls when running parallel to span of joists
- 4.13 Spans over 3000mm to be restrained to walls by galvanised ms restraint straps at 2000mm max centres spanning over 3no joists.
- 4.14 Horizontal pipe runs within the floor void to be wrapped in min 25mm sound deadening quilt. Floor to achieve 40dB sound reduction for Part E. This can be achieved without additional acoustic insulation provided 22mm chipboard decking and 15mm 'BRITISH GYPSUM Wallboard' ceilings are used in conjunction with I-Beams at 600mm ctrs.
- 4.15 Where floor void is above integral Garage: Mineral fibre insulation (0.040 or 0.037 wool) between and to full depth of joists. Ceiling finish to be 15mm British Gypsum 'Fireline' or equivalent.
- 4.16 All timber 'I' JOISTS are to be finished into bearing walls using timber blocking to each side of web and silicone mastic filler applied to all edges or joist end caps.
- 4.17 Notching and Drilling: Timber I-Beams may have circular or rectangular holes carefully formed within the webs but only strictly in accordance with the I-Beam manufacturer's published diagrams, tables and general cutting criteria - the size and spacing of such holes and their location with respect to the end of the beam is absolutely critical.
Under no circumstances should the top or bottom I-beam flanges be notched or drilled.

Note:

Special instructions should be obtained from the Structural Engineer when notching and drilling does not meet the above guidelines or is needed close to heavy loads, such as those from partitions, cisterns, cylinders and stair trimming.

If structural strength is impaired by notching or drilling, the element should be replaced or correctly repaired (to Suppliers recommendations or remedial detail in the case of a damaged I-beam).

5.0 External Walls

External wall construction target u-value: 0.21 W/m²K

External Masonry walls to comply with the following standards:

Design of masonry walls should comply with relevant standards:

Structural design	BS EN 1996-1-1 'Eurocode 6. Design of masonry structures. General rules for reinforced and unreinforced masonry structures'.
Intermediate floors, roofs and roofs designed to provide lateral restraint to external walls	BS 8103 'Structural design of low-rise buildings'.
Ancillary components	BS EN 845-1 'Specification for ancillary components for masonry'.
Walls of homes, or buildings containing homes, over three storeys high	Designed by an engineer in accordance with Technical Requirement R5.

NHBC section 6.1 (Table 4)

Protection of ancillary components

Table 4 contains guidance for a selection of ancillary components for use in buildings up to three storeys in height, in a non-aggressive environment.

Table 4: Protection of ancillary components

Product type	EN 845 ref ⁽¹⁾	Material/coating specification (the zinc coating masses are for one surface)
Wall ties, tension straps and hangers conforming to BS EN 845-1	1	Austenitic stainless steel (molybdenum chrome nickel alloys)
	3	Austenitic stainless steel (chrome nickel alloys)
	8 or 9	Zinc coated (940g/m ²) steel wire or component
Tension straps and hangers conforming to BS EN 845-1 (internal uses ⁽²⁾)	10	Zinc coated (710g/m ²) steel component
	11	Zinc coated (460g/m ²) steel component
	12.1 or 12.2	Zinc coated (300g/m ²) steel strip or sheet with organic coating over all outer surfaces of finished component
	13	Zinc coated (265g/m ²) steel wire
	14	Zinc coated (300g/m ²) steel strip or sheet with all cut edges organic coated
	15	Zinc pre-coated (300g/m ²) steel strip or sheet
	16.1 or 16.2	Zinc coated (137g/m ²) steel strip or sheet with organic coating over all outer surfaces of finished component
Lintels conforming to BS EN 845-2	17	Zinc pre-coated (137g/m ²) steel strip with zinc coated edges
	L3	Austenitic stainless steel (chrome and nickel alloys)
	L10	Zinc coated (710g/m ²) steel component
	L11.1 or L11.2	Zinc coated (460g/m ²) steel component with organic coating over all outer surfaces of finished component
	L12.1 or L12.2	Zinc coated (300g/m ²) steel strip or sheet with organic coating over all outer surfaces of finished component
Lintels conforming to BS EN 845-2, where used with a separate DPC	L16.2	Zinc coated (137g/m ²) steel strip or sheet with organic coating over all outer surfaces of finished component
	L11	Zinc coated (460g/m ²) steel component
	L14	Zinc coated (300g/m ²) steel strip or sheet with all cut edges organic coated
Bed joint reinforcement conforming to BS EN 845-3	L16.1	Zinc coated (137g/m ²) steel strip or sheet with organic coating over all outer surfaces of finished component
	R1	Austenitic stainless steel (molybdenum chrome nickel alloys)
	R3	Austenitic stainless steel (chrome nickel alloys)

Notes

1 Material/coating reference in accordance with the relevant part of BS EN 845.

2 These products are not suitable for use in contact with the outer leaf of an external cavity wall or a single leaf cavity wall.

Components in contact with, or embedded in, an inner leaf which is damp or exposed to periodic wetting (e.g. below the DPC) should be protected in the same way as components in contact with, or embedded in, an outer leaf.

5.1 Masonry in General:

Clay bricks throughout to be manufactured in accordance with BS EN 771-1 with minimum water Absorption 7 - 12%.

All blocks must be below 20kg in weight to comply with the HSE requirement for repetitive one man lift.

Provided that ALL the specified structural, thermal and acoustic requirements are met blocks may be aerated concrete, lightweight aggregate or medium dense.

All masonry construction to be built in accordance with B.S.5628: Part 3

References to 'Min.C.S.' denote 'MINIMUM compressive strength'.

References to 'Max.T.C.' denote 'MAXIMUM thermal conductivity'.

Materials used within the superstructures to be designed to achieve an A rating from the green guide for housing where possible (state which elements do external walls, roofs, etc)

Blockwork to comply with BS EN 771 and used in accordance with BS EN 1996-2 and be used in accordance with manufacturers recommendations. Strengths to Structural Engineers details.

Bricks and mortar should comply with BS EN 1996-1-1 and manufacturer's recommendations. Mortar mix to be to specialist specification and relate specifically to the geographical location to

resist frost damage and sulphate attack. Colour of mortar to be natural grey. Due to the fully filled insulated cavity walls, mortar joints are not to be recessed as per NHBC guidance under 6.1.7. Mortar joints to be either weathered or bucket handle joints.

Materials used for mortar should comply with the appropriate requirements and standards.

NHBC 6.1.13

Relevant standards include:

BS EN 197	Cement. Composition, specifications and conformity criteria for common cements
BS 4027	Sulfate-resisting Portland cement
BS EN 197 or BS EN 413	Masonry cement
BS EN 459	Lime
BS EN 998	Ready-mixed mortar
BS EN 934	Air entraining and set retarding admixtures
BS EN 12878	Pigments for colouring mortars

Mortar mixes to be recommended by brick manufacturer otherwise the following guidance is to be used (assuming ordinary Portland or sulphate-resisting cements are used):

NHBC 6.1.14

Table 6: Mortar mixes using ordinary Portland or sulfate-resisting cements

Location		Recommended cement:lime:sand mix	Recommended cement:sand mix with air entraining plasticiser	Recommended masonry cement:sand mix	Mortar designation to BS EN 1996-1-1
General wall area above the DPC	In areas of severe or very severe exposure – high durability	1:½:4½	1:3½	1:3	(ii)
	Other exposure categories – general use	1:1:5½	1:5½	1:4½	(iii)
Below DPC level and in chimney stacks	High durability	1:½:4½	1:3½	1:3	(ii)
Cappings, copings and sills	Low permeability	1:0 to ¼:3	–	–	(i)

- 5.2 **Brick:** Walls comprising 102.5mm facing brick work. 120mm cavity fully filled with Knauf Supafil 34 blown insulation, 100mm Thomas Armstrong Airtec Std 3.4 N block inner leaf. 12.5mm plasterboard on 15mm dabs internally. All masonry to be constructed in class 3 1:5/6 ready-mixed mortar (with plasticiser). At junction of external wall and floor, wall insulation to be continued at least 150mm below top of floor insulation. All bricks to be FL/FN rated).

Render: 18mm render on 100mm Thomas Armstrong Insulite (7N) block outer leaf, 120mm cavity – fully filled with Knauf Supafil 34 blown insulation, 100mm Thomas Armstrong Airtec Std (3.4N) block inner leaf, 12.5mm plasterboard on 15mm dabs.

Cladding (If applicable): 18mm SW timber cladding on 25mm sw timber battens on 100mm Thomas Armstrong Insulite (7N) block outer leaf, 120mm cavity – fully filled with Knauf Supafil 34 blown insulation, 100mm Thomas Armstrong Airtec Std (3.4N) block inner leaf, 12.5mm plasterboard on 15mm dabs

Single skin brick walls of Garages to House Types A, B, E, F and G to comprise 102.5mm facing brickwork. Brickwork piers to be tied in according to structural engineer's details.

- 5.3 Wall ties to be stainless steel with vertical twist to B.S 1243:1978, BS EN 845 or Technical Requirement R3 and positioned at 750mm horizontal and 450mm vertical staggered centres, reducing to max. 225mm vertical centres within 300mm of any structural openings. Ties to be Ancon HRT4. Wall ties to conform to table 4 above in reference to 'Protection of ancillary components'.

Wall ties to be long enough to be embedded a min of 50mm into each leaf.

- 5.4 'peep weeps' (Triangular type) to be use to all cavity trays and lintels. Colour to match external elevation. Stop ends to lintels.
- 5.5 Expansion/movement joints to be provided as per structural engineers recommendations. Colour to be matched and co ordinate with the external elevation and situated behind RWP where ever possible. Movement joints should have wall ties either side in accordance with clause 6.1.18 of NHBC standards. Unless otherwise stated, movement / expansion joints in brickwork are to be formed vertically at max 6m intervals. The location and width of movement joints in all external masonry panels (including freestanding external boundary walls) should be assessed having regard to the geometry of each particular terrace or wall configuration in accordance with BS EN 1996-1-1 and BS EN 1996-2 and brick / block manufacturer's recommendations.
Joints in external leaf to be filled with cellular polyethylene or foam rubber (100mm x 16mm) and sealed with an appropriate gun-applied sealant to match colour of facing bricks/render coating as closely as possible.
- Wherever possible, joints should be located behind rainwater pipes.
- Additional wall ties to be installed in the cavity wall max 225mm to each side of the joint at 225mm vertical centres in accordance with B.S.8103 : Part 2 : 1996 and proprietary flat-strip de-bonded ties to be installed across joint at 450mm vertical centres.
- 5.6 Steel lintels by Birtley or similar, subject to the approval of the structural engineer. All lintels must comply with BS EN 845-2 'Specification for ancillary components for masonry' where accredited details issued by CLG as part of achieving 0.08 thermal bridging value for SAP (i.e. All lintels should be insulated, the thickness of steel is to be no more that 3.2mm, all lintels to have perforated baseplate (with an effective thermal conductivity not exceeding 30 W/mK) All lintels are to be designed by lintel supplier and design notes issued to structural engineer. Lintels to conform to table 4 above in reference to 'Protection of ancillary components.
- Cavity tray / dpm provides over all openings either separately or combined as part of the lintel. All cavity trays (separate or combined) are to have stop ends due to the cavity being full filled.
- 5.7 Cavity closers to be used at all door/window cill and jamb sections, to close cavity spaces, prevent moisture ingress and limit thermal bridging. Thermal resistance not less than 0.45m²K/W.
- 5.8 Walls to be lined internally with 12.5mm Gyproc wallboard on dabs with skim finish. Perimeter of walls and openings to have plasterboard fixed with a continuous ribbon in place of dabs.
- 5.9 Internal soffits to doors and windows to be lined with 30mm Gyproc Thermalite BASIC except in kitchens and bathrooms where 12mm thick Celotex TB4000 or equal approved faced with 1 layer of 12.5mm Gyproc Moisture Resistant board should be used.
- 5.10 Cavity insulation to pitched gable walls to stop at roof insulation level and to be protected with a stepped dpc tucked half thickness of masonry max.
- 5.11 All for render feature surrounds to consist of 20mm through colour render applied to 100mm blockwork with proprietary render stop bead at foot. See Elevations for locations.
- 5.12 Dormer projections to be prefabricated GRP laminate system by chosen manufacturer. The bonded timber stud framing walls and roof to have a polyurethane foam insulation providing a thermal U-value of no greater than 0.30W/m²K-1 . Use a vapour check plasterboard for the inner lining.
- 5.13 Allow for an eaves crevice to be constructed at the southwest corner eaves of the garage to Unit 21. This will be in the form of a gap on that section of the eaves, with access to a space between the roof sarking and slates that will be checked to ensure that the bats can access past the first batten (a notch to be cut if required). An access slit 15mm by at least 20mm is required created by a notch in the wall plate / batten on that section of the eaves.

- 5.14 Allow for an external crevice to be created on the northwest gable wall top of Unit 21 to provide roosting sites for crevice loving bats. This will be in the form of an access gap measuring 20mm by at least 20mm created between the slate and water tables into a larger crevice on the wall top below the water table, resembling a 'flattened bottle' measuring c100 x c200 x 20mm. This provides a small space that acts as a suitable bat roost for the occasional bat.
- 5.15 Chasing for services should not be cut with impact power tools, not be cut into hollow blocks unless permitted by manufacturer, be limited to 1/6 of the depth of the leaf where horizontal, be limited to 1/3 of the depth of the leaf where vertical.
- 5.16 Party Walls to be to Robust Details E-WM-17

6.0 External Rendering

- 6.1 Render to be 16mm SBD Weber.pral M Monocouche Or Equal Approved (Enewall fine scratch render), (Colour ivory) coloured single coat render, scrape finished using a spiked hand trowel. Expamet (or similar) stainless steel stop and angle beads to window jambs, wall corners and movement joints. (Note: Contractor to request colour sample boards PRIOR to selection for approval)
- 6.2 Two courses stainless-steel bed-joint reinforcement to be provided in the external leaf of blockwork behind render above and below windows, extending either side of openings, in accordance with NHBC guidance and block manufacturer's recommendations.
Additional bed-joint reinforcement to be installed in locations indicated on elevations.

7.0 External Cladding (where applicable)

- 7.1 Refer to individual house types for areas of weatherboard cladding
- 7.2 Weatherboard Cladding (Marley Eternit Cedral or Hardie Plank)

The boards are mounted horizontally:

Each plank must be fixed at least once to every support. The end of every plank must also coincide with a support. Where specified, install vapour barrier or breather membrane over the wall or framework behind the timber studs. Fixing is done through the upper edges. There is no side overlap, the strips being simply loose butted against one another, and the joint must coincide with a timber support. A strip of black polyethylene soaker should be applied under the vertical joints to protect the batten.

Weatherboard needs to be fixed to vertical timber battens (preservative treated and planed on 2 sides) of at least 50mm wide spaced at a maximum of 600mm across the elevation. The weatherboard should be fixed to at least three battens; if it is only fixed to two then the batten spacing should be reduced to 400mm. **All in strict accordance with manufacturers details.**

50mm air gap required for Marley Warranty.

8.0 Separating Walls – u-value to be 0.19 W/m²K

The following construction is in compliance with Robust Standard Detail (RSD) E-WM-17
Special care is to be taken to ensure that blockwork is fully pointed on Party Walls.

- 8.1 Generally 275mm overall thickness (excluding wall finishes) cavity wall comprising 2No leaves 100mm Thomas Armstrong solid lightweight aggregate block (Min.C.S. 3.6 N/mm², Density 1350-1600 kg/m³) separated by 75mm clear cavity and tied together with Party wall Ancon HRT4 wall ties to Approved Document E - consult block manufacturer if in doubt about suitability of proposed block. Stainless steel wall ties @Tie Ancon HRT4 to comply with Approved Document E. Fix at 900 horizontal staggered centres and 900mm vertical centres (max 2.5 wall ties per sq. m). Ensure that mortar does not build upon wall ties forming an acoustic bridge.
- 8.2 All party wall blockwork to be built through to inside face of external wall cavity and tied to internal leaf at 300mm vertical centres using wall ties or 400mm long expanded metal mesh - vertical joint to be fully mortar-filled.
- 8.3 Drylined both sides with 15mm Gyproc Wallboard (9.8kg/m³ board weight). (Plaster board finish not required within floor voids or roof void, except within 'Attic truss rooms').
- 8.4 Insulation: 75mm Isover 'Round the house Roll' insulation to be installed into the cavity filling the void completely.
- 8.5 **Separating Wall spandrel panel to roof void (If applicable):**
2 layers gypsum based board lining each side on min. 35 x 45mm timber frame. Each layer to be nom. 8kg/m² each. Junction between spandrel panel and blockwork to be sealed with flexible or acoustic sealant or mounted on a mineral fibre panel. Separating wall blockwork to extend min. 300mm above finished ceiling layer. Blockwork fire stopped with insulated flexible cavity stop sock. Junction between spandrel panel and the underside of the roof membrane to be fire stopped using proprietary sleeved fire barrier packing.

Ensure all in accordance with the Robust Standard Details.

- 8.6 **Separating Wall Spandrel panel to 'Room in Roof' (If applicable):**
Design and manufacture by specialist truss manufacturer.
Internal facing 2 layers gypsum based board lining to be nom. 8kg/m² each. Ensure min 50mm cavity between wall panels. Top edges of spandrel panels to be fire stopped using insulated flexible stop socks.

Ensure all in accordance with the Robust Standard Details.

- 8.7 External cavities at vertical junctions and sloping sections from eaves to ridge, both sides of party wall, to be fully filled with cavity Sock Edging Sealing.

9.0 Internal Walls

9.1 Internal Non-Load Bearing Partitions

- 9.1.1 A letter of intent from the supplier must confirm the requirement can be met before placing orders.
- 9.1.2 69x44mm C.L.S. s.w. studs at 450mm centres with two horizontal rails faced both sides with 12.5mm British Gypsum Wallboard (see also 'Plasterboard finishes' section) or similar approved with skim finish. All studs in direct contact with screed should incorporate a DPM.
- 9.1.3 Walls subject to Approved Document Part E (sound transmission) should be constructed as above with min 50mm thick fibre quilt between studs to be provided to selected stud partitions, (bathrooms and habitable rooms) with 12.5mm plasterboard / wallboard (8.3kg/m² board weight). Contractor to ensure that materials selected will achieve the sound reduction required. Part E compliant walls are as follows:

Walls between bedrooms – 40dB sound reduction required.

Walls between room containing a water closet and any other room (except bedroom/associated en-suites) – 40dB.

- 9.1.4 Part E Partitions to achieve min airborne sound transmission (lab test result) of 40db. The sound insulation requirement does not apply to any partition containing a door which includes the partition between an En-Suite Bathroom and the associated Bedroom.
- 9.1.5 Gyproc or equal approved moisture resistant boards to be used in wet areas
- 9.1.6 Non load bearing first floor partitions parallel to floor joist to be fixed onto noggins on 'Z clips' nailed to joists, at max 600mm centres, all provided by specialist supplier.
- 9.1.7 Partitions forming shower enclosures and also at the head of and alongside baths to be finished with 12.5mm 'BRITISH GYPSUM Gyproc Wallboard MR' or equal approved (9.8 kg/m² board weight).
- 9.1.8 D.P.C. to be located below all ground floor partitions.
- 9.1.9 Internal Garage Wall – between 2 garages: 140mm Thomas Armstrong Airtac STD (3.4N).
- 9.1.10 Internal Garage Wall – adjacent to house: 210mm build up. 60mm Gyproc Thermaline Super, 100mm Fair Faced Block.

9.2 Internal Load Bearing Partitions

- 9.2.1 Internal Load Bearing walls to be 140mm medium-dense concrete Blockwork and must be supported by B.B.A. or other independent certification with 12.5mm plasterboard either side on 15mm dabs. Consult block manufacturer if in doubt about suitability of proposed block.

- 9.2.2 Walls to be fully bonded or tied, either with a tooth at alternate courses, or an expanded metal tie at a max vertical spacing of 300mm.

In full-height 3-storey dwellings, including 140mm walls around integral garages, block partitions throughout to have Min.C.S 3.6 N/mm².

Blockwork to be finished both sides with plasterboard as described in previously.

Unless otherwise stated, vertical joints to be formed at junctions between all dissimilar masonry materials - except at DPC locations, joints tied at 225mm vertical ctrs with 400mm long stainless-steel expanded metal mesh.

D.P.C. to be located under all ground floor walls and partitions.

Partitions to be taken down to foundation if shown on Structural Engineer's drawings.

10.0 Lintels / Beams

- 10.1 All load-bearing lintels are to be of the type manufactured by Birtley Lintels. Lintel specifications to suit required span/loadings as per schedules, produced by lintel manufacturer. Lintels are generally pressed-steel type Insulated lintels, designed in accordance with BS EN 845-2:2013+A1:2016, galvanised to BS EN 10142:2000 and satisfying NHBC Technical Requirement R5. Any alternatives must be approved and satisfy all of the above requirements. Where manufacturer references are not given lintels to be as detailed in Structural Engineer's calculations.

Certain sites may require the use of Birtley Supatherm lintels for SAP requirements. Refer to Design Manager/Buyer (SAP).

- 10.2 Cavity trays/damp proof protection must be provided over all external openings either separately or as a combined part of the lintel to satisfaction of NHBC.
Minimum 2 No. concealed weep holes per opening to be provided spaced at maximum 450mm ctrs.
- 10.3 All lintels to have minimum end-bearing of 150mm. All lintels/beams must bear on full (NOT CUT) blocks and must be firmly bedded in mortar. Padstones to be provided where necessary as per Structural Engineer's requirements.
- 10.4 Unless otherwise stated on the drawings, all lintels to be encased in plasterboard to give a minimum of half-hour fire resistance.
- 10.5 Steel beams and posts where used to be designed and calculated by Structural Engineer or lintel manufacturer where they are capable of supplying steelwork. To NHBC Std 6.5.
- 10.6 Proprietary lintels / steel beams to be provided over all structural openings including meter boxes in accordance with drawings, schedules, and manufacturer's data.
- 10.7 All structural steelwork to be encased to provide a minimum half-hour fire protection. Manufacturer's recommendations for providing adequate fire resistance should be followed.
- 10.8 Cold bridge paths should be avoided and adequate insulation measures incorporated, depending upon lintel profile, in accordance with manufacturer's specification and NHBC requirements. Steel beams to be zinc-coated and painted with bitumen.
- 10.9 All Padstones to Structural Engineers designs and to be installed to their specifications.

11.0 Cavity Trays / DPC's / Flashings

- 11.1 Flashings generally to be in milled lead sheet to BS EN 12588:2006 - proprietary flashings must satisfy NHBC Technical Requirement R3. Arch to consider Zed Led or equal approved.
- 11.2 Code 4 lead flashings of 150mm upstand (stepped where necessary) to be provided where roofs abut brickwork. Lead soakers to be used at side abutments along with stepped flashings on lower roofs where plain tiles are used. Lead mastic to be used in mortar bed above flashing. Weep holes to be provided at 450m centres.
- 11.3 All flashings to be dressed up wall min. 75mm above surface of tile.
- 11.4 Cavity trays to be Timloc Leaded Everdry (or equal approved) linked to flashings in all cases and stepped in the case of a stepped flashing. Trays to suit 225mm blockwork coursing and relevant roof pitch with 150mm upstand, incorporating intermediate, stop-end, corner, and ridge trays, as necessary.
Cavity trays also to be installed above recessed meter cabinet positions, with dpm protection to cavity behind box. Installed weep vents above cavity tray location.
- 11.5 All cavity trays to be installed with attached code 4 lead flashings, where applicable.
- 11.6 Cavity trays must rise minimum 140mm across cavity.
- 11.7 Code 4 lead soakers to be provided at each tile overlapped by flashing.
- 11.8 Valleys to be GRP. Valleys formed with unequal roof pitches to be lined with code 4 lead.

12.0 Pitched Roof Construction

Cold Roof construction target u-value: 0.09 W/m²K
To NHBC Technical Requirements 7.2

All roof timbers to comply with NHBC requirements according to Table 1 Chapter 3.3.

Roof timbers dry: Use class 1 and treated using the required preservative.

Roof Timbers where risk of wetting is high: Use class 2 and treated using required preservative.

- 12.1 A letter of intent from the supplier must confirm the requirement can be met before placing orders.
- 12.2 Trusses to be designed by specialist and generally be: Standard gang-nailed trussed rafter system to B.S 5268: part 3, 1985 and B.S 6399: Part 3, 1988. Roof pitch and indicative truss layouts indicated on structural engineers' drawings to be further developed by specialist roof truss designer. Dead and imposed loads calculated according to BS –EN- 1991-1-1; BS-EN-1991 -1-3; PD 6693-1 and Technical Requirement R5.
- 12.3 Roof Truss at maximum 600mm centres are to be carried on and fixed with truss clips to 50x100mm softwood wallplate at eaves.
- 12.4 Roof bracing to be in accordance with B.S 5268, the Building Regulations and the NHBC standards as indicated on the drawings by specialist. All timber to be treated accordingly.
- 12.5 Mild steel lateral engineered restraint straps 1500mm long x 1.2mm thick x 30mm wide to be firmly anchored down into gable walls and fixed over last 3 trusses at all gables at maximum 1.2m or 2m centres depending on house type, along the bottom and top chords of trusses. Roof trusses are to be noggled to take the lateral restraint straps, with minimum 100x38mm noggins. Anchors to be turned down 100mm into wall cavity and fixed with 2 No.12 x 50 mm woodscrews or 75x4mm (8SWG) round nails to each truss.
- 12.6 Bottom cord of truss to be ex 38mm wide, unless otherwise designed by the subcontractor.
- 12.7 Provide 600mm wide boarded walkway on bearers from ceiling hatch to any tanks or equipment located in the loft, with adequate headroom for operative. Ensure U-value under walkway does not differ from remainder of roof.
- 12.8 All truss calculations should be issued to the engineer for approval.
- 12.9 Wall plates: to be 100 x 50mm s.w. anchored by 30x5mm galvanised mild steel straps generally at max 1200mm ctrs except where this conflicts with structural openings - in such locations, straps to be installed within 100mm each side of opening. Wall plates to be in accordance to NHBS 7.2.6.
- 12.10 1.2mm Engineered straps to be fixed to wall with min. 3No. screws at least one of which must be located within 150mm of the bottom end of the strap.
Strap depths to be 1500mm on 3-storey dwellings - 1200mm elsewhere.
Restraints to be to NHBC 7.2.8.
- 12.11 Where roof construction features wall plate supported on steel beam, wall plate to be bolted to top flange of beam with M12 4.6 grade bolts at 750mm ctrs staggered each side of beam web.
- 12.12 UPVC fascias, bargeboards and soffit boards throughout all as indicated on elevations. Colour grey.
- 12.13 A fully executed collateral warranty to be provided from the roof truss designer.
- 12.14 Roof finish to be concrete interlocking tiles, Marley Eternit fibre cement artificial slates or Equal Approved to BS EN 492 on 38 x 25 treated softwood battens at spacing as required by manufacturer fixed on Agrément Certified breathable membrane Proctor Roofshield. Battens to comply with NHBC standards clause 7.2.17 and B.S 5534: 2014 + A1:2015 and BS 8000-0:2014.

Ensure a minimum drop of 10mm to breather membrane between timber rafters. Roof tile profile to be suitable for specified pitch (as per manufacturers' recommendations).

- 12.15 Verges to be Marley Ashmore dry verge system. Verges to be installed in accordance with manufacturers recommendations.
- 12.16 Ridge and Hip tiles will be fixed with dry-ridge system, in accordance with manufacturers' recommendations. Hips to plain-tiled roofs to be either Bonnet Hip Tiles (where equal pitch each side of hip) or 'Baby Ridge' tiles (where unequal pitches each side of hip). Ridge tiles to provide a 5mm vent.
- 12.17 All valleys shall be in GRP.
- 12.18 All eaves are to incorporate an eaves carrier fixed to a tilted soft wood fillet. The eaves are to be unvented. **Contractor is requested to price also for an eaves vent – cold roof – 10,000mm²/m as an alternative option. NHBC 7.2.15 should fully vented roof be selected.**

12.19 Roof insulation

Plain ceilings will be insulated with two layers (one 150mm layer between truss bottom chord and one 300 mm layer perpendicular) total thickness 450mm Knauf Loft Roll 40 Insulation or equal approved to all main roofs and stopped at eaves with a proprietary insulation stop. Ceiling under insulation to be 1 layer of 12.5mm Gyproc wallboard or equal approved, taped & skimmed.

Room-in-Roof and Sloping Ceilings (See also CEILINGS section). All to achieve a minimum **U Value of 0.16W/m²K**

Warm Roof 0.13 W/m²K (HTA) – where ceiling soffit follows pitch in roof - 140mm Xtratherm XT/PR (ensure 50mm gap at top edge), underdrawn with 50mm Xtratherm XT/TL-MF below rafters (Composite plasterboard 50mm insulation / 12.5mm plasterboard 62.5mm total). Note: maintain a 50mm ventilated cavity over the insulation.

Where the insulation follows the slope of the roof – Use a Proprietary ventilator incorporating gauze fly screen to be installed at eaves providing permanent ventilation equivalent to a continuous 25mm gap, or, Soffit board to be provided with fly-screen protected ventilation slots, equivalent in area to a continuous gap along both sides of roof of 25mm, and provide the equivalent of a continuous 5mm wide continuous gap at ridge level.

T-Fall Stud Partitions. All to achieve minimum **U Value of 0.16 W/m²K**

100 thick timber stud partitions filled with mineral wool quilt insulation, single layer 12mm ply to Loft void side: Layer 82.5mm thick. Kingspan 'Kooltherm K18' insulated dry-lining comprising 12.5mm plasterboard and 70mm of insulation to internal (room side).

Flat Roof. All to achieve a minimum **U Value of 0.13W/m²K**

Sarking Board: fix ply deck 18 thick to roof joists / firrings; Sarking underlay: fix vapour control layer to top of Ply deck. Insulation: Fix slab insulation on top of Ply / Vapour Control layer: Kingspan Thermaroom TR27 roof board, 180mm overall thickness - fixing method in accordance with manufacturer's directions.

- 12.20 All abutments to walling to have stepped lead up stand flashing under preformed PVC cavity tray.
- 12.21 All perforations through ceiling e.g. soil and vent pipes, ventilation ducts, roof access etc. Are to be fully sealed to prevent heat loss. Where SVP's are to penetrate through the roof at the approval of building control, these are to terminate through the roof with appropriate tiles and flashing as approved by manufacturer. Any pipework / water tanks to be insulated to be to NHBC 8.1.

- 12.22 PVC-u square fascia and soffit from Swish Building Products or similar approved fixed to treated SW battens fixed to rafter ends in accordance with Manufacturers instructions as shown on the drawings comprising:
18mm fascia board or similar approved (grooved) RAL 7015 in 'Grey' and 8mm thick plain soffit board from Swish Building Products or similar approved in 'Grey'
- 12.23 10 year product and installation guarantee required to roofline and rainwater goods. All rainwater goods to be Polypipe to N607; EN 12200; EN1462. Black.
- 12.24 Garage roofs (non integral) to be constructed as above but without insulation.
- 12.25 Loft Hatch: 686x562mm roof-space access hatch on 33x9mm battens in trimmed opening to be provided (Glidevale or equal) - hatch to be insulated and fitted with perimeter draught-seal. Where roof hatch is installed within a habitable room the hatch shall have a LA5 Fire Rating giving a minimum of 1hr fire Protection

All truss standards to NHBC references as per above.

- 12.26 SW timber rafters at maximum 600mm centres to design and specification of appointed Structural Engineer are to be carried on and fixed with truss clips to 50x100mm softwood wallplate at eaves.
- 12.27 Mild steel lateral restraint straps 1500mm long x 5mm thick x 30mm wide to be firmly anchored down into gable walls and fixed over last 3 trusses at all gables at maximum 2m centres along the bottom and top chords of trusses, as indicated on drawings. Roof trusses are to be noggled to take the lateral restraint straps, with minimum 100x38mm noggins.
- 12.28 100mm Kingspan K7 insulation rigid insulation board between rafters with 62.5mm Kingspan K118 insulated plasterboard underdrawn below. Plasterboard to be skimcoated and plastered and painted with matt emulsion paint. Insulation can be Equal or Approved provided that the u-values are met or improved.
- 12.29 Roof finish to be concrete interlocking tiles, Marley Eternit fibre cement artificial slates or equal approved on 38 x 25 treated softwood battens at spacing as required by manufacturer fixed on Agrément Certified breathable membrane or grade '1F' or similar approved sarking felt. Battens to comply with NHBC standards clause 7.2-m5(F) and B.S 5534. Ensure a minimum drop of 10mm to breather membrane between timber rafters.
- 12.30 Strutting to HNBC standard 7.2.10
- 12.31 Dormer construction by specialist designer and using preformed insulated GRP system. NHBC 7.2.13.

13.0 Lead Flashings

- 13.1 All flashings to be code 4, lengths not exceeding 1500mm for roof abutments, fixed in position with lead wedges, Zed Lead or equal approved.
- 13.2 Flashings to be continuous with cavity trays, min 150mm dressed down over tile coverings.
- 13.3 Roof abutment flashings to be mechanically-fixed in accordance with NHBC standards extra guidelines (August 2003). Straps to be secured to top tiling batten at max 500mm centres for sheltered sites, 300-500mm for exposed sites. Spacing to be confirmed and agreed with the Building Control Authority on site.
- 13.4 All weatherproofing to projections through roof and copings to BS5534. Where flashings come into contact with metal, flashings to be non-ferrous metal. See Table 13 NHBC 7.2.20.

14.0 Staircase Construction

To be in accordance with Approved Document K1 Section 1.

- 14.1 Timber staircases to manufacturer's design, to comply with BS 5395 Part 1 and Part 2 and Table 1 of NHBC standards 6.6.5. Staircases to generally to comprise:

Redwood strings
MDF treads
9mm plywood risers to BS EN 636
HDR handrail
Square Hemlock spindles 41mm
Square newel post 90mm.

All stairs to be delivered to site with maximum pre-fabrication, requiring only final assembly.

All handrails to be fixed to newel post using "Bracket-fix" bolted system.

Timber joinery should comply with BS1186: Part 1, be free of resinous knots, splits, shakes and waness and be Class 3 or better.

The following should meet BS1186: Part 2:

Fits of joints
Laminating
Construction of joints
Construction of finger joints
Moving parts
Surface finish
Gluing.

- 14.2 Generally floor to floor heights are as follows:

GF to FF height to be 2667mm; FF – SF 2602mm (where applicable)

Timber Total rise: GF to FF 2667 mm comprising typically 14 risers and 13 goings,
FF to SF 2602 mm comprising typically 14 risers and 13 goings

Note, the floor to floor heights will be confirmed following further information regarding the floor joists.

230mm strings to be white wood and nosing with MDF treads. See drawings for more information. The treads are to be level and rise and going kept consistent. Where there are tapered treads and risers (HT D and E), the rise of the tapered treads should be the same as that of the adjacent parallel treads and the going should be uniform and no less than the going of the associated straight flight, measured from the centre line of the straight flight. The going should also be a minimum of 50mm at the narrowest point.

- 14.3 Maximum pitch to be 42 degrees in accordance with Approved Document Part K of the Building Regulations.
- 14.4 Minimum headroom of 2m to be maintained at all times, and unobstructed landings to be maintained at top and bottom in accordance with NHBC standards 6.6- D6. Plywood riser headroom, pitch, rising and going to be in accordance with building regulation requirements.
- 14.5 Handrails to be located 900mm constant height above pitch-line, and between 900-1100mm for landing areas.

- 14.6 Handrails to ensure a firm handhold, have ends shaped or return to the wall and be continuous and smooth / unobstructed.
- 14.7 57mm x 63mm handrails on suitable wall brackets shall be provided to one side of the staircase. "Pigs Ear" type handrail is not acceptable.
- 14.8 Handrails bracketed to walls to be installed with min. 25mm clearance between rail and side wall.
- 14.9 Timber balustrade / spindles to be spaced at maximum 100mm centres and constructed so as not to be easily climbable by children.

15.0 Joinery and fixtures and fittings

- 15.1 All timber to be treated to NHBC standards as per the tables below.

Table 1: Timber component groups and preservative treatment

Component group	Examples	Use class	Desired service life	Preservative type required				Preservative treatment not required
				Copper organic ⁽¹⁾	Water-based organic ⁽¹⁾	Organic solvent or microemulsion ⁽¹⁾	Boron ⁽²⁾	
Internal joinery, intermediate floor joists	Architraves, internal doors, intermediate floor joists	1	60	✓	✓	✓	✓	Unless a specific request for treatment against insect attack has been made.
Roof timbers (dry)	Pitched roofs: rafters, purlins, joists, wall plates	1	60	✓	✓	✓	✓	Unless a specific request for treatment against insect attack has been made.
Roof timbers (dry) in areas with house longhorn beetle	As above	1	60	✓	✓	✓	✓	Where timber used is: ■ softwood – heartwood only ⁽³⁾ and of durability class 1 – 3 ⁽⁴⁾ or ■ hardwood.
Roof timbers (risk of wetting)	Flat roofs joists, sarking, tiling battens, valley boards, timbers exposed to risk of condensation, porch posts – coated and held clear of the ground and standing water, in a free draining shoe made from suitably durable material such as galvanized or stainless steel.	2	60	✓	✓	✓	✓	Where timber used is: ■ heartwood only ⁽³⁾ and of durability class 1 – 2 ⁽⁴⁾
Roof timbers (risk of wetting) in areas with house longhorn beetle	As above	2	60	✓	✓	✓	✓	Where timber used is heartwood only ⁽³⁾ and of durability class 1 – 2 ⁽⁴⁾ .



Table 1 (continued): Timber component groups and preservative treatment

Component group	Examples	Use class	Desired service life	Preservative type required				Preservative treatment not required
				Copper organic ⁽¹⁾	Water-based organic ⁽¹⁾	Organic solvent or microemulsion ⁽¹⁾	Boron ⁽²⁾	
External walls/ ground floors	Timber frames, ground floor joists, I-beam studwork	2	60	✓	✓	✓	✓	Where timber used is heartwood only ⁽³⁾ and of durability class 1 – 2 ⁽⁴⁾ .
Sole plates ⁽⁵⁾		2	60	✓	✓	✓	✓	Where timber used is heartwood only ⁽³⁾ and of durability class 1 – 2 ⁽⁴⁾ .
External joinery, coated (not in ground contact) ⁽⁶⁾	Window frames, door frames, doors, cladding (coated), soffits, fascias, barge boards	3	30	⁽⁷⁾	⁽⁷⁾	✓	✓	Where timber used is heartwood only ⁽³⁾ and of durability class 1 – 2 ⁽⁴⁾ .
Uncoated external timbers (not in ground contact)	Decking (where the deck is up to 600mm from ground level) ⁽⁸⁾ , cladding (uncoated)	3	15	✓	✓	X	X	Where timber used is heartwood only ⁽³⁾ and of durability class 1 – 2 ⁽⁴⁾ .
Timber in contact with the ground	Decking timber in ground contact (where the deck is up to 600mm from ground level) ⁽⁸⁾	4	15	✓	X	X	X	Where timber used is heartwood only ⁽³⁾ and of durability class 1 – 2 ⁽⁴⁾ .
Timber in contact with the ground	Timber retaining walls up to 1m high and within garden areas ⁽⁷⁾	4	15	✓	X	X	X	Where timber used is heartwood only ⁽³⁾ and of durability class 1 – 2 ⁽⁴⁾ .
Timber in contact with the ground	Timber retaining walls greater than 1m high and within garden areas ⁽⁷⁾	4	30	✓	X	X	X	Where timber used is heartwood only ⁽³⁾ and of durability class 1 ⁽⁴⁾ .
Timber in contact with the ground	Timber retaining walls up to 600mm high and in a boundary situation ⁽⁹⁾	4	30	✓	X	X	X	Where timber used is heartwood only ⁽³⁾ and of durability class 1 ⁽⁴⁾ .

Notes

1. Preservative treatment of timber should be in accordance with the recommendations of BS 8417, Table 4.
2. Preservative treatment of timber should be in accordance with the recommendations of BS 8417, Table 5.
3. Almost always, packs of timber contain sapwood. It should be assumed that timber is sapwood and preservative treated accordingly unless the timber has been specifically selected as heartwood only.
4. Natural durability classes are given in Table 2.
5. Sole plates should be positioned above DPC. Preservatives used should be resistant to leaching or, for boron, treatment should be to full cross-section retention standard. Treatment should be carried out in accordance with BS 8417.
6. The hardwoods known as Meranti, Seraya or Lauan should be treated in the same way as European redwood / Scots Pine when used for joinery.
7. The pressure treatment process used for these types of preservative will cause timber to swell, so these treatments are generally not used for window or door frames and other uses where dimensional precision is required.
8. Decking that is more than 600mm in height should have a desired service life of 60 years. Reference should be made to Chapters 7.1 'Flat roofs and balconies' and 10.1 'Drives, paths and landscaping'.
9. Where timber structures more than 600mm high are used for retaining ground in boundary situations, they should be designed with a desired service life of 60 years. Reference should be made to Chapter 10.2 'Drives, paths and landscaping'.

- 15.2 A letter of intent from the supplier must confirm the requirement can be met before placing orders.
- 15.3 Skirting Boards and Architraves
 - 15.3.1 Architraves to be 57x18mm; Skirting's to be 119 x 14mm. Two coat primed MDF Sam Chamfered SP601.
 - 15.3.3 Cut Tiled Skirting in WC's, bathrooms and en-suites.
 - 15.3.4 Skirting to be sealed at the junction with the floor for air tightness purposes.
 - 15.3.5 Skirting boxing for all pipes to be formed by framing out skirting, unless otherwise agreed on site with the client/clerk of works.
 - 15.3.6 Internal SVP's to be boxed in with plasterboard on 63x38mm CLS framing. SVP to be wrapped in Rockwool insulation.
 - 15.3.7 Window Boards to be 25mm thick bull-nosed two-coat primed MDF water resistant window board. Extending beyond the reveals of the opening.
- 15.4 Wet areas such as bathrooms / WCs to have tiled cills.

- 15.5 Door linings and frames to be two coat primed MDF, width of lining as follows: Timber stud wall-width of lining 94mm (63mm stud lined with two layers 12.5mm Gyproc plasterboard and 3mm skim.
- Door linings can also be treated softwood / rebated casing set.
- 15.6 Loft access hatches to be Timloc loft hatch 1169/25. 690mmx525mm opening size. 0.25 U-value drop down insulated proprietary hatch, plain design. Supplied with loose "T" handle operating pole.
- 15.7 Two-coat primed MDF curtain batten 50x18mm extending 150mm beyond window reveal either side. No curtain tracking is to be provided

15.8 Cloakroom WC's, Bathrooms and En-suites:

Allow for plywood patressing between studs where we have wall mounted sanitaryware. Refer to bathroom specifications.

- 15.9 Allow for plywood patressing between studs for fitting of kitchen units and radiators. Refer to plans locations.

16.0 External Doors - U value of 1.4 W/m²K

- 16.1 All doors to be (RAL 7015) to BS4873 and BS PAS 24-1:999 'doors of enhanced security' All doors shall also be tested to BS PAS 23:1 1999 'general performance requirements for door assemblies'. These must be certified by an independent UKAS accredited certification body. Doors are also to comply with Part Q of the Approved Documents. Main entrance door to be composite.
- 16.2 No build ups allowed to head or legs. Doors to fit structural openings.
- 16.3 Composite main entrance door to be composite declared U value of 1.3 W/m²K or better. Insulation to have a Global Warming Potential (GWP) of less than 5.
- 16.4 Structural openings to be provided to the main and rear entrance doors as such to provide min 800mm clear door opening width.
- 16.5 Level access to main entrance door. To level access entrances max 15mm upstand of weather bar to meet part M.
- 16.6 The external doorsets including all factory fitted ironmongery shall be obtained from Phoenix or other similar approved.
- 16.7 Each lock shall have three keys. Locks shall be to BS 3621. Self locking locks are not permitted. Exposed ironmongery shall be obtained from Thomas Laidlaw's Orbis suite or an equal and approved manufacturer and range and shall comprise the following generally: -
- Lock – 55 backset and 1700 chrome faceplate with multipoint locking system.
 - Lock Keeps – Adjustable chrome keep sets.
 - Cylinder – 30-10-30 anti drill key/thumbturn or key/key cylinder. Thumbturn to meet NHBC requirements.
 - Hinges – 1 1/2 pair class 9 101 twin ball bearing chrome hinges. Centre hinge fitted with integral security pin.
 - Letterplate – 12 inch sleeved letter plate, with internal cover.
 - Viewer – 160 degree.
 - Door Numbers
 - Security Chain – to be fitted.
 - Hardware to be SAA finish
- 16.8 Doors and frames are to be RAL 7015 Grey.

- 16.9 Rebates shall be of adequate size for double glazing, letterbox apertures shall be factory pre-cut and be at mid-height, minimum 400 clear of door locks. Doors shall be complete with weatherboard or rain deflector. A thermal barrier will be provided.
- 16.10 External doors and frames shall be of robust construction with proper provision for weatherproofing and draughtproofing applied to external side of door frame. Screw fixed draughtproofing shall be the manufacturer's tested and approved product or equal and approved.
- 16.11 Frames shall be included as part of the doorsets, set back from the face of the wall. Planted stops shall not be used to external door frames. Fix frames into openings with stainless steel cramps in accordance with the manufacturer's recommendations.
- 16.12 Glazing to external doors shall be double glazed with minimum 24 thick units. Anti-vandal tapes shall be used for the bedding of the glazing. All glazing shall be in toughened or laminated glass. All glazing requirements to be as described in the window section where applicable.
- 16.13 All frames shall be pointed externally with Arbocol 1000 silicone sealant manufactured by Adshead Ratcliffe and Co. Limited, or other equal and approved, applied by trained specialists. Colour to match external door frame colour.
- 16.14 All external doors to have Stormguard Trimline Superseal thresholds fitted, to give level access with maximum 15 mm upstand.
- 16.15 All door openings are to have insulated vertical damp-proof courses. The insulation should be CFC/HCFC free and should have an ODP of zero and GWP of less than 5.
- 16.16 French doorsets to suit structural opening and threshold maximum 15mm high for wheelchair access and to have restrictor stays. Glazing to be toughened safety glass to BS EN 12150.
- 16.17 Bi-fold doorsets where applicable to suit structural opening and threshold maximum 15mm high for wheelchair access and to have restrictor stays. Glazing to be toughened safety glass to BS EN 12150.
- 16.18 Door stops shall be provided to prevent damage to wall finishes.
- 16.19 Double garage door to be cedar hard wood or similar approved up and over door to approval of client.
- 16.20 Door hinges to Table 1 of NHBC standards 6.7.4 – External doors 1 ½ pairs x 100mm.
- 16.21 Rear door off utility to be UPVC with declared U value of 1.3 W/m²K or better. Insulation to have a Global Warming Potential (GWP) of less than 5.

17.0 Internal Doors

- 17.1 A letter of intent from the supplier must confirm the requirement can be met before placing orders.
- 17.2 Internal doorways must provide a minimum 800mm clear opening.
- 17.3 Linings and frames shall be softwood or MDF with rebates worked on the solid or with planted stops. Architraves shall be 57 x 18mm with packings to enable full architraves to be fixed on both sides of all jambs and heads (except inside cupboards where cover fillets may be used).
- 17.4 Internal doors to be Premdoor Premium Ladder Moulded with 18mm standard gap to be left from underside the door to top of screed.

- 17.5 All ironmongery shall be from Carlisle Brass or similar approved to be selected by Ascent Homes Ltd.
- 17.6 Internal doors are to be fitted with a 20mm clearance from the structural floor dependant on floor finish.
- 17.7 Door hinges to table 1 NHBC standards 6.7.4 – Internal doors : 1 pair x75mm ; Fire door to manufacturers recommendations, Airing / cylinder cupboards 1 ½ pairs x75mm.

18.0 Windows and Glazing – U-values 1.40W/m²K

- 18.1 Windows to be provided by specialist manufacturers and installed fully in accordance with manufacturer's instructions and guidelines. Generally Grey upvc profile (RAL 7015) manufactured in accordance with Building regulations and NHBC guidelines. All windows, to be provided with proprietary insulated cavity closers.
- 18.2 Required U-value: 1.40 W/m²/k (g factor 0.63) backed by manufacturers test certification. All windows to ground floor & easily accessible (e.g. above porches) are to be tested & certified (BSI kite mark or similar) to BS 7950:1997 'Specification for enhanced security performance of casement and tilt/turn windows for domestic applications'.
- 18.3 Windows shall also meet relevant performance standards for relevant material - PVC-U (BS7412).
- 18.4 All windows to have BBA approval.
- 18.5 In accordance with Approved Document Part N1 1998 all glazing below 1500mm above finished floor level in both doors and sidelights within 300mm of door jamb and all other areas of glazing below 800mm above finished floor level must be either:
 - a. toughened or laminated and break safely to B.S.6206, or
 - b. robust i.e. 8mm annealed glass in panes not exceeding 1.1m in both height and width, or
 - c. 6mm annealed glass in small panes i.e. maximum width 250mm and area 0.5m².
- 18.6 No build ups or trims to be used. Windows to fit structural openings.
- 18.7 All frames to be fabricated to BS4873:2009, corners mitred, all transoms and mullions to be mechanically jointed.
- 18.8 All sections to have suitable aperture chambers with correctly detailed inlet and outlet slots, to provide drainage of any water ingress from both the glazing platform and between the outer and inner frames of casements. Condensation to discharge via appropriate draining holes/seals and to drain externally.
- 18.9 Drainage holes to be concealed and capped. Drainage channels to be completely separate from reinforcement chambers.
- 18.10 External cills to be formed aluminium and, colour-matched, able to withstand ladder impact and to include moulded end caps. Cills to protrude a minimum of 20 mm beyond the wall face.
- 18.11 Glazing details: Insulating glass units incorporating low emissivity glass(hard coating), (en = 0.1), Argon filled. Fix glazing with double-seal black tubular EPDM weatherstrip to BS 4255, Part 1: Class A: 1986. The strip should be capable of being removed without the need to remove or disturb glazing or necessitate the removal of the frame from the structure. Glass to be fixed within the frame with internal beading gaskets fitted between the frame and double glazed unit. U-Value to be 1.4 or better. A 10 year warranty is to be provided for double glazed units. Glass fitted shall be in accordance with the latest British Standard to comply with Part N of the Building Regulations. Fensa approved installer to be used, fully compliant with Part L.

- 18.12 Ironmongery/Accessories: Espagnolette multi-point locking system in stainless steel. Handles to be Titon "Medway" cranked locking handle or similar approved. Single lockable espagnolette handle to operate minimum of 4 Nr locking points including 2 Nr shootbolts. Top-hung and side-hung, fully reversible friction hinges to comply with BS 7950 to be stainless steel and manufactured to BS EN 10088-2,1995.

All upper floor opening lights located above ground floor projections (e.g. projecting Hall, Porch, Bay) and all windows at second floor level to be fitted with EASY-CLEAN hinges to permit cleaning of glass from inside. Hinge to allow for casement to open to permit external cleaning from the interior in accordance with BS 8213: Part 1: 1991: Section 3.

ALL opening lights at second floor and third to be fitted with suitable restrictors to prevent the opening of the window by more than 100mm - restrictors to be easily by-passed by an adult without use of tools and located out of reach of small children.

- 18.13 Appropriate trickle ventilators (System 3 Approved Document F), 2500 mm² for all rooms except wet rooms. All furniture to be fixed through frame and into stainless steel reinforcing using torque screws. Shoot bolts to extend through stainless steel keep.

- 18.14 Fixing: To manufacturers recommendation.
- 18.15 Anti-vandal tape shall be used for the bedding to glazing, all in accordance with BS 8000 Part 7 and NHBC Standards 6.6.7
- 18.16 Windows shall be set back from the face of the wall (minimum 50 mm) and shall have projecting sills. Fix frames into openings to manufacturer's recommendations and in accordance with the relevant British Standard.
- 18.17 Windows shall have locking handle fasteners, night ventilators, fasteners, stays etc with chrome. Screw lengths shall be adequate to prevent ironmongery working loose.
- 18.18 Consideration shall be given to the positioning of window openings and ventilator controls to take into account that certain dwellings may be occupied by the elderly or infirm.
- 18.19 Laminated or toughened glass shall be used where regulations dictate. Glazing to lounges, kitchens, bedrooms and other habitable rooms to be clear float glass. Glazing to non-habitable rooms to be obscure glass (Cotswold pattern).
- 18.20 All units to be hermetically sealed double glazed units incorporating 20mm air gap and low 'e' glass to accord with current building regulations.
- 18.21 All windows to have 10 year guarantee
- 18.22 External pointing to match frames.
- 18.23 Ground Floor windows to be top hung windows with restricted hinges.
- 18.24 First Floor windows to generally be top hung with hook and pin type restrictors.
- 18.25 Emergency windows are required to all first floor and second floor (where applicable) habitable rooms in accordance with Approved Document Part B1 Building Regulations. The min opening area required is 0.33m² with a clear opening height or width of 450mm. Window opening sizes therefore need to provide min clear opening of 450mm x 735mm (or 735mm x 450mm) actual opening between 800mm-1100mm above finished floor level. All egress windows to be fitted with egress before easy clean hinges. Non locking with green push button.

The requirement will also apply to habitable rooms at ground floor level where the room does not open directly onto a Hall leading to an exit.

Locks fitted to stays on Emergency Egress Windows may only be key-operated at ground floor level - stays above ground floor level may only be button-operated.

18.26 All window hardware/ironmongery to be by Secuirstyle with their 12 year 'partnership pledge' audited warranty to be provided.

18.27 All frames shall be pointed externally with Arbocol 1000 silicone sealant manufactured by Adshead Ratcliffe and Co. Limited, or other equal and approved, applied by trained specialists. Colour to match window colour.

19.0 Curtain Walling - U-Value of 1.6 W/m²/k. (If applicable)

19.1 Aluminium polyester powder coated (RAL to suit site) thermally broken double-glazed curtain walling system to achieve a combined frame + glazing U-Value of 1.6 W/m²/k.

19.2 All curtain walling to have preformed pressed aluminum sills, jambs and closer flashings as required as well as preformed corner angle flashings, all with butt strapped joints. All accessories to colour match curtain walling and to be of sufficient gauge to maintain visual line and continuity.

19.3 Incorporated components: EPDM and carrier angles (where applicable) to be included and supplied by curtain walling manufacturer. – Glazing to comply with all air pressure / water pressure testing.

20.0 Finishes (Plastering)

20.1 Plasterboard to be fixed with screws at no greater than 225mm centres

20.2 Moisture resistant plasterboard to be provided to bathroom walls. Moisture resistant plasterboard to be skimmed.

20.3 All internal blockwork to be dry-lined to BS EN 520:2004+A1:2009 generally (see Notes 1 & 2 below) with 12.5mm 'British Gypsum Gyproc Wallboard' on 'Gyproc Dri-Wall' adhesive dabs OEA. All perimeters of plasterboard on external walls, including around service entries, to be sealed with continuous band (i.e. not individual dabs) of adhesive.

20.4 Ceilings to be 15mm plasterboard and skim to ceilings (min. density 10kgs/m² to underside of intermediate floors).

20.5 Internal non load bearing walls to be 12.5mm plasterboard and skim to internal block work walls. 12.5mm plasterboard screwed to stud partitions skimmed (min.density10kgs/m² to bathroom / W.C.).

20.6 Plasterboard to walls and ceilings throughout may either be finished with plaster skim coat or prepared for direct decoration with the decorative face and tapered-edges facing the room and with the joints taped and filled all as per manufacturers recommendations.

Note 1:

Lining to all block or stud partitions forming shower enclosures and also at the head of and alongside baths to be 12.5mm 'BRITISH GYPSUM Gyproc Wallboard MR'.OEA

Note 2:

Dry-lining to solid party-walls must be 15mm 'BRITISH GYPSUM Gyproc Wallboard' OEA (9.8 kg/m² board weight) or 15mm 'BRITISH GYPSUM Gyproc Wallboard MR' OEA (9.8 kg/m² board weight) if adjacent to shower enclosure or bath as described above.

Note re. Identification of Plasterboards On Site

- 'BRITISH GYPSUM Wallboard' has an IVORY face and BROWN back.
- 'BRITISH GYPSUM Wallboard MR' has a GREEN face and GREEN back.
- 'BRITISH GYPSUM SoundBloc' has a BLUE face and BROWN back.
- 'BRITISH GYPSUM SoundBloc MR' has a BLUE face and GREEN back.
- 'BRITISH GYPSUM Fireline' has a PINK face and BROWN back.

20.7 Ceilings 2-Storey Dwellings - Ceilings Directly Under I-Beams:

Except over garages, ceilings to be 15mm 'BRITISH GYPSUM Wallboard' OEA 10 kg/m² board weight) under specialist engineered joists.

There is no requirement for Intumescent Hoods or Fire collars in ceilings under I-beams, subject to the maximum hole sizes of: 100mm holes for extract fans and 85mm for lights @ 900mm centres.

Garage ceilings to be 15mm 'BRITISH GYPSUM Fireline' OEA board.

Perimeter noggings are not required where 15mm plasterboard specified.

For Ceilings over garages see spec under section 32.1

20.8 Ceilings 2-Storey Dwellings – Ceilings Directly Under Roof-Spaces:

Except over garages, ceilings to be 15mm 'BRITISH GYPSUM Wallboard' OEA board.

Garage ceilings to be 15mm 'BRITISH GYPSUM Fireline' or similar approved board.

20.9 Insulation: above horizontal ceilings to roof spaces to be 450mm mineral fibre comprising 100mm quilt between trusses overlaid with 350mm quilt laid perpendicular.

20.10 3-Storey Dwellings:

In general, ceilings throughout 3-storey dwellings to be 15mm 'BRITISH GYPSUM Wallboard'. OEA

20.11 Where Ground Floor plan features a Store located below straight-flight staircase, stair soffit to be lined with 2-layers 12.5mm 'BRITISH GYPSUM Wallboard' OEA.

20.12 Where Store occurs below winder staircase, 60mm mineral wool to be pinned to underside of flight.

20.13 Room in Roof:

Notwithstanding the ceiling specifications described in this section, where house types feature a separating wall AND top floor features an area of raking ceiling fitted directly under rafters, all areas of raking ceilings must have an additional layer of plasterboard (12.5mm 'BRITISH GYPSUM Wallboard') fitted immediately behind the ceiling lining specified.

Ceilings formed by the bottom chord of Attic trusses to be insulated with 100mm quilt min 10Kg/m³.

21.0 Decoration/Tiling

21.1 Internal Timber: All timber to have knots suitably treated, wood work, one coat primer, two undercoats and one coat white gloss to all timber.

21.2 Decoration generally shall be a mist coat and two full coats emulsion paint to plaster. Paint to staircase walls shall be suitable for washing down. Artex type finishes are not acceptable.

21.3 Colours to be provided as below:

- Crown or similar approved white matt emulsion to ceilings
- Crown or similar white matt emulsion to walls
- Crown or similar white gloss to woodwork.

- 21.4 Provide ceramic tiles to BS 643 to be selected by Ascent Homes Ltd.
- 21.5 Kitchens to have: 100mm upstand on worktops to match these. S/S splashback to behind the cooker. See drawings showing extent of decoration.
- 21.6 Bathroom / ensuite and wc tiling as per drawings. Square edged metal trim. Cut tile as skirting with square edge metal trim.
- 21.7 Setting out of wall tiles to be agreed with client prior to commencing works.
- 21.8 Silicone sealant to be provided between tiling and worktop / sanitary ware. Where tiling taken down to FFL to be sealed with silicone to prevent air leakage.
- 21.9 Staircases to be finished with 1 primer, 2 undercoat and 1 finish coat Crown or similar approved white satinwood.
- 21.10 Cylinder cupboards slatted shelves to remain unpainted.

Tiling

- 21.1 Provide ceramic tiles to BS 643 to be selected by Ascent Homes Ltd.
- 21.2 Bathroom / ensuite and wc tiling as per drawings. Square edged metal trim. Cut tile as skirting with square edge metal trim to top edge.
- 21.3 Chipboard floor decking overlaid with 10mm JACKOBOARD Plano fixed in accordance with below:

Substrate preparation - Substrate must be rigid (not floating), able to support loads, dry, free from surface contamination and harmful infestation. Any unevenness must be corrected using self-levelling screeds or other such suitable materials as recommended by the manufacturer.

To avoid cracks forming in the tiles or grout lines care must be taken to ensure that the moisture content of any timber substrate equates to its equilibrium moisture content since the deformation of the wood as a result of the drying process could otherwise cause cavities to form beneath the construction boards.

Application - The timber floor should be rigid, true, firmly attached to any supporting elements and free from any gaps. The floor should be primed using a suitable primer. Using a 5 – 8mm notched trowel, a continuous bed of cement based single part flexible adhesive should be laid on the floor. The boards must be firmly bedded into the adhesive by gently pushing back and forth. The boards should be laid in a 'brick bond' pattern and checked for level with a spirit level. Once the adhesive bonding of the construction boards is cured the construction boards must be additionally fixed with screws and washers (JACKOBOARD 36mm dia. galvanised fixing washers with bugle head dry wall screws or equal). At least 5 fixings per m² are required and the screws should penetrate a minimum of 20mm into the timber substrate. Care must be taken to avoid any services when screwing through timber floors. The screws should be spaced at least 30mm from the edge of the construction board and tightened until the head is flush with the surface.

Treatment of joints - Once the adhesive fixing the JACKOBOARD® Plano is cured the joints between the boards must be reinforced. In dry areas the joints between the construction boards must be reinforced with an alkaline resistant glass fibre tape (e.g. JACKOBOARD® glass fibre tape) with a minimum width of 120mm. In wet areas the joints between the boards are sealed with waterproof tape (e.g. JACKOBOARD® sealing tape) and cement-based single part flexible tile adhesive. In wet areas with high humidity levels (Shower area), the joints should be sealed with a suitable waterproofing system. We recommend the use of the JACKOBOARD® Waterproofing Sealing Set or the combination of JACKOBOARD® glass fibre tape and JACKOBOARD® Board Fix Adhesive.

If relevant, care must be taken to seal any penetrations in the construction board, e.g. for pipes, screws or anchors, using suitable sealing agents (e.g. JACKOBOARD® pipe collars).

Tiling can begin as soon as the joints between the boards are sealed. Use cement based single part flexible tile adhesive.

21.4 Setting out of wall tiles (horizontal/vertical) to be confirmed by sales prior to commencing works.

21.5 Silicone sealant to be provided between tiling and worktop / sanitary ware. Where tiling taken down to FFL to be sealed with silicone to prevent air leakage.

21.6 Bath panels to be fully tiled but removable – Refer to specific detail.

22.0 Floor Finishes

22.1 Seal all concrete floors.

22.2 Bathroom and shower rooms floors to be finished in ceramic tiles selected by client.

22.3 Showers to have cut floor tiles for skirtings.

22.4 No carpets or barrier matting to be included as standard. Upgrades/incentives available.

23.0 Kitchen Fittings

23.1 The kitchens shall be from (depending on site) range with final choice to be confirmed by Ascent Homes Ltd.

24.0 Sanitary Fittings

24.1 The bathrooms/en-suites/cloak WC's are to be from the Abacus range with final choice confirmed by Ascent Homes.

24.2 Include for waste services and connections.

24.3 Plumbing for automatic washing machine to be where shown on the kitchen manufacturer's drawing.

24.4 Inset sinks where used, must have the exposed edge of the worktop cut out, adequately sealed and protected to prevent water getting to the core.

24.5 Baths shall be from the Abacus range with final choice confirmed by client.

24.6 Ensure shower type is from the Abacus Range.

24.7 WC to be from the Abacus range with final choice confirmed by the client.

24.8 Each WC shall be complete with SAA toilet roll holder.

24.9 WHBs to be from the Abacus range with final choice confirmed by the client.

24.10 Taps shall be lever action and chromium plated generally.

24.11 Lavatory basin lever action taps shall be restricted to a flow rate of maximum 3 litres/minute.

24.12 All sanitary appliances and taps to have in-line isolating valves on hot and cold pipework as appropriate.

- 24.13 Classi-seal to be fitted to all baths.
- 24.14 All waste fittings to have 75mm deep seal traps and separate connections to s.v.p.'s and to be installed in accordance with BS EN 12056-2:2000.
- 24.15 Polypipe waste pipework in accordance with BD4514-2001 & EN1329-1
- 24.16 Baths and showers on joisted floors to have flexible joint to wall.
Wastes to wash-hand basins to be 32mm diameter for runs not exceeding 1.7m and 40mm diameter for runs up to 3m. Baths and showers to have 40mm diameter trap for runs up to 3m length.
Washing machine and (where applicable) Dishwasher spaces to be plumbed-in.
- 24.17 Where possible showers are to be mains fed but where circumstances dictate due to no. of bathrooms, electric showers are to be used (to Ascent Homes approval).
- 24.18 All exposed pipework to be boxed in where possible. Exposed bottle traps to cloakrooms to be Vessini Designer Bottle Trap by Abacus or equal approved.
- 24.19 Joiner to allow to plywood patressing between studwork to fixing of wall mounted fittings.
- 24.20 Low profile shower tray to sit directly on top of moisture resistant floor board (installed in line with manufacturers details). Silicone joint to perimeter against wall creating waterproof seal. Floor tiles to abut face of shower tray.

25.0 Drainage, Soil & Waste Disposal Installations

- 25.1 Drainage to be in accordance with the current Engineering layout and comply with current Building Regulations Part H, British Standards (B.S.8301), Codes of Practice, and NHBC Standards.
- 25.2 All underground drainage to be Polypipe products with appropriate flexible joints and fittings conforming to BS4460-2000 & EN1401-1. Pipes to be generally 110mm diameter unless otherwise stated laid at falls not shallower than 1:80.
- 25.3 All drains passing underneath, within 1m of buildings or which are under paved surfaces with less than 300 mm cover to be encased in concrete minimum 150mm thick, with flexible collars incorporated at pipe joints. Drains passing through walls to be bridged with concrete lintels and sealed. Pipes to be rocker pipes with flexible joints.
- 25.4 Drains under building to have 100mm minimum surround of granular fill bedding factor to pipe manufacturer's specification.
- 25.5 Where house drainage connections are made via Y-junctions, access to the run must be provided by roddable gullies or SVP access points.

Note:

Sewers serving more than one property should be kept as far as is practicable (preferably min. 5m) away from any building where a future extension is likely e.g. to rear or side of house.

- 25.6 Manhole/Inspection Chambers to be either, Prefabricated system (subject to depth) or, in 225mm Class 'B' Engineering bricks laid in 'water bond' in cement mortar on minimum 150mm concrete base. Covers and frames to B.S EN 124, set in concrete top and surround.
Internal manholes to be provided with screw down double seal covers.

- 25.7 Generally all waste pipes to be Polypipe PVCu. All fittings to have 75mm deep seal traps on waste pipe work to BS 4514.
- 25.8 Waste pipe sizes as follows:
 - 40mm diameter trap / wastes to baths, showers, sinks and washing machines.
 - 32mm diameter trap / wastes to wash basins.
- 25.9 Overflows to WC cisterns shall discharge internally.
- 25.10 Provide 40 diameter x 700 high standing waste with waste attachment to washer position space in kitchens. Cut-out to be provided in base unit end panel for washing machine waste and feeds.
- 25.11 Waste pipes shall be concealed in horizontal pipe boxings in bathrooms and within kitchen fittings in kitchens.
- 25.12 SVP stacks to terminate minimum 1000mm above head of any structural opening, and fitted with durable plastic cowl.
- 25.13 Soil vent pipe and MEV to terminate with the tile manufacturer's proprietary roof ridge ventilator tile to match tilecolour with flexible pipe connection to suit diameter of SVP and MEV. Vent tiles to only be installed where required.
- 25.14 Additional stacks in ground floor WC's to be fitted with air admittance valves.
- 25.15 Anti-vacuum traps to be utilised on wash basins with waste lengths exceeding 1.7m.
- 25.16 Soil, waste and overflow pipes, where exposed internally, shall be white.
- 25.17 The whole of the installation shall be internal and shall be protected from freezing.
- 25.18 All houses are to be fitted with a pressure reducing valve at mains entry of the water supply if required due to water pressure.
- 25.19 Access is to be provided to all Durgo valves installed.
- 25.20 Soil and Vent Pipes: 110mm diameter PVC-U soil and vent pipes to BS EN 12056-2:2000 to discharge either via ridge vent or proprietary ventilation tile. External soil pipes and wastes to be 'Black' coloured uPVC unless indicated otherwise.
- 25.21 Polypipe waste pipework in accordance with BS 4514-2001 & EN1329-1
- 25.22 External svp outlet must terminate minimum 900mm above the head of any opening into building within 3m and be fitted with proprietary balloon grating.
- 25.23 Provisions to be made for access to svp at each floor level.
- 25.24 SVP's within internal plasterboard ducts to be surrounded with 25mm thick un-faced mineral wool throughout their length. See also 'FIRE RESISTANCE' section.

26.0 Hot & Cold water installations

26.1 WATER SERVICES

- 26.1 The hot water installation to be to M&E design to be compatible with associated proposed heating design. IE air source heat pumps.

- 26.2 Polypipe is the preferred supplier for all pipework for below and above ground drainage as well as rainwater disposal.
- 26.3. Provide hot and cold water services to sanitary fittings, etc. and to washing machine/dishwasher positions in kitchens complete with Pegler stop valves, inside base units.
- 26.4 Control valves and stop tap heads shall be labelled, and where practicable be positioned to maximise access by those confined to wheelchairs, or the elderly or infirm. Positioning of stopcocks, valves, etc, to be accessible at the entry point to the building. Drain tap to be provided at the lowest point.
- 26.5 All hot water outlets to be complete with a thermostatic blending valve.
- 26.6 No pipework shall be buried in concrete floors. Only where absolutely essential shall pipework be located within concrete floors and in such cases it shall be in properly detailed ducts with screw fixed removable covers.
- 26.7 Cold-water rising-main to enter via insulated sleeve min. 750mm deep.
- 26.8 An external cold water tap is to be provided to all units.
- 26.10 Service / isolation valves To be provided to all necessary draw off points, i.e. W.C's, WHB, baths, etc.
- 26.11 The Contractor is to complete a microbial contamination risk assessment on the hot and cold water system. Action must be taken to avoid any risks of contamination (e.g. through location and labelling of pipes). The risk assessment and action taken should be in accordance with guidance from HSE ACoP and/or CIBSE TM13. While these guidance documents refer to nondomestic situations, similar principles apply to domestic use. One copy of the completed risk assessment is to be provided to the Employer's Agent.

27.0 Heating

To be fully compliant with Approved Document L1A

- 27.1 Vailant Ecofit Sustain Boilers as per Myson Heating Design.
- 27.2 Room temperatures are to be maintained through appropriately sized standard radiators. Radiators to be Myson Premier Compact. To be supplied pre-finished and protected by plumbing sub-contractor. Heated towel rails to bathrooms and en-suites. Refer to Myson drawings for heat output.
- 27.3 Stop tap heads shall be easily accessible and labelled. Radiator valves shall be Peglers Terrier or equal and approved and incorporate a drain-off facility.
- 27.4 Programmer and controls: The control of the system is to be via a dual time & temperature zoned control system as per design drawings. The main programmer should be 24hr digital type remote from boiler location. Zone 1 to be living room, Zone 2 to be remainder of dwelling.
When the external temperature is -3 the following room temperatures need to be achieved:
All habitable Rooms/ Halls/Landings: 21Degrees
Bathroom: 22 Degrees
Incorporate room thermostat RDH10, type to be confirmed.
- 27.5 The electricity supply to the boiler shall be by means of a fused switch which shall NOT have a neon indicator light.
- 27.6 The programmer/controller shall be of simple operation and integral with the combination boiler. Programmer/controllers that have removable pegs are not acceptable.

- 27.7 Pipework shall be concealed as much as possible being generally combined with wastes in ducts in bathrooms and kitchens. The pipework shall be insulated to minimise heat losses and to protect it from freezing. The insulation should have an ODP of zero and GWP of less than 5.
- 27.8 All fittings supplied with domestic hot and cold water to have in-line isolating valves, fitted to pipework in a convenient location.
- 27.9 No pipework shall be buried in concrete floors. Only where absolutely essential shall pipework be located within concrete floors and in such cases it shall be in properly detailed ducts with screw fixed removable covers.
- 27.10 Where horizontal pipework is exposed, it shall be set out neatly and fixed to walls immediately above skirting level. All vertical pipe drops and horizontal pipe runs over 1.00 m in length shall be boxed in. Horizontal pipework shall be at skirting level, i.e. in a boxed skirting. In living rooms, all pipework shall be boxed in. Access for maintenance/servicing should be provided.
- 27.11 Allow for providing a heat source within airing cupboard only.
- 27.12 Ensure adequate enclosed storage for linen with provision for heated airing with ventilation to comply with the Design and Quality Standards and related publications.

28.0 Electrical Services

Electrical layouts are schematic only - completed installation must comply with I.E.E. Regulations and all relevant Codes of Practice including NICEIC good practice and the requirements of the local electricity company. All electrical work to meet Part P (Electrical Safety) and to be designed, installed, and inspected by a competent person. Prior to completion the Approved inspector must be satisfied that part P has been complied with. The Electric Installation Certificate is to be issued for the work by a person qualified and competent to do so.

Care should be taken to ensure that socket outlets and switches are staggered (i.e. not located back-to-back) where they occur on opposite sides of party walls.

Meter cabinets are to be Built into the outer leaf of wall:

- Shall be structurally adequate and prevent moisture / damp ingress
- Openings to have DPC's and Cavity Trays.

Note 1:

The above requirement for staggers will not generally be indicated on Layout plans, but note that sockets are overdrawn for clarity, allowing appropriate staggers to be achieved within the general zone allocated for the outlets.

- 28.1 Installations to comprise the following:

Refer to M&E design intent drawings. Subcontractor to provide design layouts for approval.

- Split consumer unit with RCB for
- Lighting and power
- External Lighting
- Cooker unit
- Remote switched controls labelled for refrigerator, washing machine, dishwasher, cooker hob ignition
- Fused spur for intruder alarm, alarm installation
- Door bell and transformer integral with consumer unit

- Smoke alarms interconnected between each floor
- Carbon monoxide detector
- Heat detector
- Extract fans in kitchen, bathroom, en-suite, toilet with humidistat control and labelled isolater
- TV aerial installation (cable and socket only) with amplifier
- Smart meters
- Switched fused spur linked to unswitched socket in cooker space for cooker hub ignition.
- Focal fire point spur
- Future cooker hood spur

28.2 The installation shall have at least the following number of socket outlets (refer to M&E drawings for locations) in line with NHBC requirements: -

- Living room : 8
- Dining room : 4
- Hall : 2
- Utility: Refer to HT
- Study: 2 double
- Kitchen : 8
- Garage: 1 double
- Bedrooms : 6 for main bedroom. 4 for others unless noted otherwise.
- Landing : 1 double
- Store: 1 double

For variations see individual House Type M & E layouts.

Particular attention is drawn to the requirements of BS 7671:2008+A3:2015 regarding the locations of electrical components within rooms containing baths and/or showers - all fans and light fittings in these rooms to be rated IP44. Lights must be drum-type (not batten) fittings featuring horizontally mounted lamps.

- 28.4 Provide an additional single switched socket adjacent to the BT socket outlet in the hallway.
- 28.5 Ceiling rose pendant to be provided in all dwellings. Spotlights to kitchens, bathrooms and en-suites. No spotlights in cloaks.
- 28.6 All internal electrical fittings shall be Hager Sollysta or similar approved.
- 28.7 Light switches shall be Hager Sollysta or similar and approved.
- 28.8 Lights within rooms with two or more entrance doors are to be on a 2 way switching with switches appropriately located.
- 28.9 All fused spurs will be engraved or clearly labelled. Grid switches shall be provided in kitchens for appliances.
- 28.10 In addition to the foregoing, the cooker position shall have a control unit and low level spur outlet. The refrigerator, washing machine and dishwasher shall have low level socket outlets operated by above-bench neon indicator switches to one side.
- 28.11 Socket outlets shall be generally 450 above floor level. Socket outlets shall be 150 above worktops. Lighting switches shall be 1200 above floor level to top of switchplate.
- 28.12 Light fittings in bathrooms shall be fully enclosed fittings. No pull cords are to be provided in bathrooms or WCs.
- 28.13 Lighting in circulation areas shall have 2-way switching.

- 28.14 100% of the fixed internal light fittings shall be dedicated efficient fittings. Lamps having a luminous efficacy greater than 40 lumens per circuit-watt, and a total output greater than 400 lamp lumens must be installed in accordance with Approved Document L1A (2010 Edition).
- 28.15 External space and security lighting shall be dedicated energy efficient fittings dusk to dawn with PIR and daylight cut off sensors to the front and rear of all dwellings, maximum 50 Watts to the rear, mounted at a suitable height (no higher than 2.40 m above ground level), maximum 2.00 m above ground level to the rear of all dwellings, and properly adjusted. Light fittings must be located sufficient distance from boiler flues so as not to be affected by heat/gases. 2 Nr fittings will be required to the rear of all dwellings. All external light fittings to be Compact Fluorescent type.
- 28.16 Wet rooms shall be fitted with Vent Axia Lo-Carbon dMev/HT Plus extract fans complete with run-on timers operated by the light switches. Common ducts shall not be used and each dwelling shall be ventilated to outside air with unobtrusive draught free self closing grilles incorporating weather protection and flyscreen. Non return shutters shall be incorporated at fan positions. Extract fans must be located sufficient distance from boiler flues so as not to be affected by heat/gases.
- 28.17 All dwellings shall have a door bell with mains power transformer.
- 28.19 Consumer units shall be split load Ashley, MK Sentry, Crabtree or Wylex and shall have miniature circuit breakers, RCD and isolating switches. Two spare ways shall be provided on the consumer unit. Where MK is used the MK Shield of Safety is to be obtained, with the benefits chosen. Consumer units shall be mounted at 1350 – 1450mm above FFL and positioned to facilitate easy access for those confined to wheelchairs, or the elderly or infirm (not to be located in bedrooms or living room).
- 28.20 All wiring shall be concealed and protected with capping or conduit. All fittings shall be properly set out and positioned. Haphazard, uncoordinated positioning of fittings and equipment will not be accepted.
- 28.21 Install British Telecom telephone duct and draw wire to a point in the entrance hall and living room of each dwelling.
- 28.23 All electrical controls, socket outlets and switching must be clearly labelled. Switch plates for all appliances must be appropriately engraved.
- 28.24 Heights of all other electrical components to comply with Section 8 of Approved Document M:
- switches to lights and fans, doorbell push-button, electrical components over worktops and immersion heater switches to be centred 1150mm AFFL.
 - electrical components over bedroom cabinets to be centred 925mm AFFL.
 - socket outlets in Garages to be centred min. 1350mm AFFL.
 - room thermostat to be centred 1500mm AFFL.
 - all electrical components other than the above to be centred 500mm AFFL.
- 28.25 Installation to comply with current IEE Regulations All wiring to be to current EEC colours. DQS, and NHBC requirements to be incorporated into the design. All wiring laid beneath loft insulation to be correctly sized to avoid heat build up.
- 28.26 Limit electric sockets / aerial positions etc to be located on party walls with the exception of Kitchen party walls that are to be lined so that any aperture cut into the plaster does not affect the integrity of the sound insulation qualities of the wall.
- 28.27 Confirmation of AICO E1261ENRC (or similar approved) Carbon Monoxide alarm OEA located in accordance with manufacturer's instructions with a 240V mains connections and DC battery backup to a separately used circuit at consumer unit.

- 28.28 Certificates, the electrical subcontractor will be required to supply his electrical test certificates 2 weeks prior to the relevant plot handover.
- 28.29 All sockets in Garages to be protected by residual current circuit breakers.
- 28.30 Heat Detector to be Aico (Ei144)
- 28.31 Fans and light fittings MUST NOT be located immediately above baths and shower trays. Where fan is indicated immediately adjacent to bath or shower tray, the fan must be located within the wall construction and together with the grille kit must be of a type approved for this location.
- 28.32 Refer to Appliance Control Panel User Manual for details of Grid Assemblies in Kitchen/Utility Rooms (refer to working drawings).
- 28.33 Light fittings and extractor fans are to be mounted on ceilings or at high-level on walls as indicated on M&E drawings.
- 28.34 Where possible showers are to be mains fed but where circumstances dictate due to no. of bathrooms, electric showers are to be used (to Ascent Homes approval).
- 28.35 Electrical accessories in partitions to protected areas. Three storey houses with protected halls/stairways:

Where possible back to back accessories i.e. accessories located within the same cavity between two timber or metal studs, should be avoided. Where accessories are back to back (possibly at different heights but within the same cavity) the accessory on the side at risk of fire (the room side of the partition) should be fire protected.

An accessory larger than a double socket when installed on the side at risk of fire should be protected regardless of whether it shares a cavity with other accessories. This should also apply to consumer units and to individual accessories located within 150mm of each other within the same cavity.

Acceptable fire protection measures (where 30 minutes fire resistance is required) include:

Appropriately fire rated back box liners and cover pads that fit over the rear of the back box, or

An additional layer of minimum 12.5mm plasterboard with appropriate edges seals which fully encase the recessed back box of the accessory, or

An alternative fire protection method which is supported by manufacturer's test data.

Note 2:

In general, Kitchen & Utility Room appliances are to be fed by a dedicated ring-main separate from the rest of the dwelling. However, in the case of 3-storey dwellings featuring a Utility Room at Ground Floor level with a Kitchen at First Floor the Utility Room is to be fed from a dedicated ring serving Ground Floor only, with the Kitchen on a separate dedicated ring.

29.0 Security Installations

- 29.1 No intruder alarm is to be provided, but a fused spur is to be installed to facilitate the future installation of an alarm should be provided.

30.0 FIRE RESISTANCE / PROTECTION

30.1 Structure:

All steel beams to be encased to provide half-hour fire protection and where within floor construction to be painted with intumescent paint providing half-hour fire protection.

On semi-detached and terraced units minimum 50mm thick mineral wool cavity barrier to be provided within the boxed eaves in line with party wall.

Mineral wool fire-stop to be provided under roof covering at top of party walls above and below the sarking felt.

Where accommodation occurs above an integral garage, the garage ceiling to be 1no. layer 12.5mm 'BRITISH GYPSUM Fireline' or similar approved board with all joints taped and filled. Where garage has an integral through to the dwelling, the lintel is to be fire protected on the garage side with 1 layer 12.5mm 'BRITISH GYPSUM Fireline' or similar approved board, with all joints taped and filled.

Where drawings indicate joists/I-Beams built-in to walls separating a garage from other accommodation, these walls to be built up between joists to u/side of first floor decking.

Fire-stops to be provided where fire resisting walls and floors are perforated by holes for pipes, ducting and flues.

Pipes or ductwork passing through integral garages and through upper floors in all 3-storey dwellings to be boxed-in with 2No. layers 12.5mm plasterboard, joints staggered, taped and filled fixed over s.w. framing.

Half-hour fire resistance to be maintained between ground and first floor accommodation at recessed light-fitting locations - light fittings to be fitted with an appropriate shroud by manufacturer or contained in boxing formed from 12.5mm plasterboard on s.w. framing.

30.2 Fire Doors:

Any doors linking accommodation to Garages to be fire-resistant grade FD30 and contained within frames (inc door cill) incorporating intumescent strips and Smoke seals. Door to be fitted with a self closing device.

Generally in 2.5 - 3-storey dwellings, all doors separating rooms (other than WC's and Bathrooms) from the main circulation spaces (Hallway/Stairwell/Landings) to be grade FD30 - fire-door to Bathroom may be required if Bathroom gives access to hot-water cylinder or boiler located in Store.

Roof hatches at second floor level, within the protected shaft, of a 2.5 or 3 storey dwelling, need not be fire rated. Additionally the same applies to ceiling hatches at second floor level within a bedroom, if this is the only habitable room at that level. If roof access hatch occurs in Bedroom ceiling of 3-storey house, with more than one habitable room at that level, then it must be grade FD30.

30.3 Smoke Alarms:

Dwellings must either be protected by an automatic fire detection and alarm system in accordance with BS 5839-1:2013 to at least L3 standard or be provided with a suitable number of mains-operated self-contained smoke alarms to BS EN 14604:2005.

Mains units with secondary power supply are acceptable. They should be permanently wired to a separately fused circuit at the distribution board, and may operate at a lower voltage via a mains

transformer. Wiring must be in accordance with I.E.E. Regulations but need have no special fire surviving properties.

Smoke alarms must be positioned in circulation areas, i.e. on landing and close to kitchen with a minimum of one unit to each storey.

Alarms must be located within 7.5m of doors to habitable rooms - for the purposes of this requirement, kitchens ARE habitable rooms.

Where more than one alarm is fitted, they should be interconnected, in accordance with manufacturer's instructions.

Smoke alarms fixed to ceilings should be located minimum 300mm from any wall or electrical fitting.

A central position is preferable, e.g. on Landing.

Units designed for wall mounting should be fixed 150-300mm below ceiling.
Smoke alarms should not be fixed over staircases for ease of maintenance.

30.4 **Carbon Monoxide Detectors: (TBC by engineer – to conform to Part J of the Approved documents)**

Mains operated with battery backup unit, which can be fixed within the property. These are sealed units, which have a life span of six years. The batteries in the units do not require replacing. Each unit carries specific user instructions including details of the helpline if required. Refer to individual house type working drawing for exact position.

CO Alarms should be fixed:

- 1-3m horizontally from the appliance. Preferably fitted to walls 150mm vertically down from the ceiling above an internal door..
- Above the height of any doors.
- Within any room where a concealed flue in a void travels to an outside wall.

Alarms must not be located:

- In an enclosed space i.e. cupboard.
- Directly above a sink.
- Next to a door or window.
- Next to an extract fan or vent.
- In a damp or humid location.
- In the immediate vicinity of a cooking appliance.

31.0 **Ventilation**

Design air permeability rates – 5m³h/m² (based on EVERY dwelling to be tested)

31.1 Properties to be ventilated via System 3, in conjunction with Approved Document Part F1 of the Building Regulations (2010 Edition).

31.2 Extract Ventilation Rates of Fans to be in accordance with Table 5.1a and Whole Dwelling Ventilation Rates in Table 5.1b

31.3 Background ventilators are to be installed in windows to all habitable rooms – providing total ventilation areas in accordance with Table 5.2c of APD Part F (2010 Edition). Controllable background ventilators having a minimum equivalent area of 2500 mm² should be fitted in each room, except wet rooms, from which air is extracted.

- 31.4 All extract fans to be wall-mounted where possible.
- 31.5 Extract ventilation to outside is required in each kitchen, utility room, WC without windows, and bathroom. The extract fans will be intermittent (manually operated) and in internal rooms with door but no window the fans will be fitted with 15 minute overrun facility and in the case of rooms with no natural light fans will be switched with the light.
- 31.6 Minimum extract airflow rates in litres/second are as follows:-
- Kitchens - 60l/s or 30l/s if incorporated within cooker hood
Utility Rooms - 30l/s
Bathrooms/Shower Rooms - 15l/s
W.C. - 6l/s (where applicable)
- Adequate replacement air to be available to all rooms via 10mm gap under doors.
- Note: All fans and cooker hoods to be tested (testing Airflow) and commissioned by the installation Subcontractor in accordance with 'The Domestic Ventilation Compliance Guide Table 2'. This data to be sent to Building Control body within 5 days of the test.
- 31.7 Fans and ducts must be installed in compliance with the 'Good Practice Guide' in Approved Document F1 2010 Appendix E.
- 31.8 Unless otherwise described on Layout Drawing, ceiling-mounted fans to be ducted either through joist zone to external wall or through roof void to eaves soffit (grille painted to match soffit).
- 31.9 MECHANICAL EXTRACTOR FANS are to be built in as work progresses and have the complete housing perimeter sealed to the wall finish. The opening through the external wall is to be made good and sealed using silicone mastic beads.
- 31.10 Extract ducts passing through roof void are to be insulated or a 'condensate drain' is required. All ducts to be run in rigid or semi-rigid pipes. NHBC 8.1.12
- 32.0 Means of Escape**
- 32.1 All habitable rooms (except kitchen) in the upper storey(s) of a house served by one stair should be provided with a window in accordance with Approved Document B1.
- 32.2 Window to have clear unobstructable opening of at least 0.33m², and min. 450mm high / 450mm wide. Bottom of clear opening should be max. 1100mm above finished floor level.
- 32.3 Ref. Building Regs Approved Document Part B1, Items 2.12, 2.13 and Diagram 3.
- 32.4 Escape windows to be non-lockable with green push button.
- 33.0 Builder's Work**
- 33.1 Allow for all necessary Builder's Work in connection with the services installation.
- 33.2 Provide all necessary casings, ducts, access doors, ventilation, cutting away for and making good supports, etc. All ducts, casings, etc. containing pipework are to be insulated to provide sound deadening reduction.
- 33.3 Provide incoming ducts, meter boxes, etc. as required by the water, gas, electricity and telephone service companies in compliance with their requirements and details. Set out meter boxes properly avoiding damage to the cabinets. Ground mounted (semi-concealed) meter boxes are not permitted.

- 33.4 Where floor ducts are required in concrete ground floors for hot and cold water and heating installation pipework they shall be complete with removable screw-fixed 18 mm thick WBP plywood covers. These are to be restricted to the perimeter.
- 33.5 All penetrations for services, flues, fans etc. through the external fabric and the timber frame are to be carried out either before plasterboarding or should be adequately sleeved to ensure the vapour barrier is not interrupted.

34.0 Rainwater Goods

- 34.1 All rainwater goods to be in accordance with Approved Document H and must be provided for all roofs greater than 6m² in area to NHBC satisfaction by Polypipe. Rainwater Goods to be 'Black' coloured uPVC unless indicated otherwise.
- 34.2 Rainwater goods to be Polypipe PVCu gutters dispersing to 68mm dia. 65mm round downpipes fitted flush to wall. All gutters / rwps to be fixed in accordance with manufacturer's recommendations, including black brackets, connectors, bends branches, stop ends etc.
- 34.3 Polypipe Rainwater goods in accordance with N607; EN12200; EN1462.
- 34.4 All down pipes connected directly to storm water sewers, to Local Authority approval.
- 34.5 Refer to site drainage layout for exact position of connections.
- 34.6 Minimum 100mm approved section upvc rainwater gutters to discharge into 63mm dia. down pipes (maximum roof area 37m² per outlet - Approved Document H3). Roofing contractor to advise if alternative sizes are required.

35.0 Mains Services

- 35.1 Northern Electric and Northumbrian Water (or equal and approved) to be used for all mains services. No gas supplies exist to the site – air source heat pumps are proposed.
- 35.2 The Contractor shall include for integrating and installing new, and diverting existing BT, water and electricity services and provide all necessary builder's work and attendances, etc.
- 35.3 The Contractor is to check with the relevant body regarding the exact location, capacity, etc. of the various services before entering into contract. Should there be a variation from the above affecting the work to be carried out by the Contractor then the financial effect of such adjustment will be met by the Contractor.
- 35.4 No telephone installation is included in the Tender but the Contractor shall install 'free issue' materials obtained from British Telecom to provide an underground network of ducts with draw wires through which future connections can be made. Allowances to be made for synchronisation of BT points.
- 35.5 Provide facilities during construction of the works for the installation of underground information cabling by approved companies holding the appropriate franchise for the area.
- 35.6 **If Air source heat pumps are to be installed to specialist design. Type of system selected has to ensure that it does not negatively affect the SAP calculations. Location of units to be agreed PRIOR to installation. Contractor to provide provisional cost for a timber / aluminium surround to conceal the unit. Design of this to be confirmed depending on air flow requirements etc.**

36.0 Street Lighting Installation

36.1 The Contractor is to liaise with the Local Authority and provide a street lighting scheme to comply in every respect with the requirements of the adopting authority and its specification. Agreement must be completed by the handover date.

34.2 Lighting bollards as shown on the site plan to be installed by contractor. Client to confirm type and number. M&E specialist to confirm lighting levels and electric supply to these.

37.0 Drainage

37.1 Drainage requirements to be assessed on site prior to works commencing and an agreed method of disposal to be adopted. The drainage installation both within and beyond the site boundaries shall be in accordance with BS 8301 and to the requirements of the Local Authority and Water Company.

37.2 The Contractor shall liaise with the Local Authority and Water Company as necessary to ascertain their requirements for the removal/diversion of existing foul and/or surface water drainage installations to areas beyond the site boundary arising as a consequence of the development.

37.3 Connect the outfall to the sewer subject to relevant approvals and pay all charges including those for making good public roads and footpaths, etc.

37.4 Drain paved areas to prevent any pooling.

37.5 As large a proportion as possible of the underground drainage system should be adopted by the Sewer Authority under Section 104 of the Water Industry Act. Such drainage should comply in every respect with the adopting authority's approved specification.

37.6 Adequate access for maintenance to non-adoptable drainage must be provided by the use of rodding gulleys and inspection chambers.

37.7 Where conditions require, provide a suitable system of land drainage to suit nature of ground, levels, etc. Discharge through catchpits to surface water drainage system.

37.8 Surface water attenuation and rainwater harvesting systems if required to comply with the Structural Engineer's drawings.

37.9 All drains should be flushed and all building debris removed on completion of the scheme works. CCTV of drains to be undertaken to prove functionality and evidence to be provided on CD/DVD.

37.10 Pipe penetrations through substructure walls to be installed with min. 50mm clearance around pipe, flexible joints located max. 150mm from either wall face and areas around pipe masked with fibreboard.

37.11 Polypipe Underground Drainage 854660-2000 & EN1401-1
 Polypipe Soil, Waste, Traps & Pan Connectors BD4514-2001 & EN1329-1
 Polypipe Rainwater Products N607; EN12200; EN1462
 Polypipe Internal Plastic Plumbing Systems Hot & Cold

38.0 Refuse Disposal

38.1 To be done by Arch.

39.0 External Works - Soft Landscaping

39.1 Include for turfing to the front and rear gardens.

39.2 Clear out all rubbish and debris, rotovate existing substrate and provide sub-soil and top soil where required. Standards for soiling and sub-soiling should be as follows:-

PLANTING	TOPSOIL	SUBSOIL
Tree groups	600	300
Shrubs	300	150
Grass or turf	150	150
Gardens	300	150

- 39.3 The Contractor shall allow for suitably grading all levels of landscaped areas to facilitate grass cutting and maintenance. Gardens shall not exceed gradients of 1:20.

40.0 External Works – Hard Landscaping.

Refer to Architects INDICATIVE Landscape Drawing.

- 40.1 Surfacing materials within the curtilage of the dwellings shall be block paving sets on sand/cement with hardcore base to engineer's specification appropriate hardcore base.
- 40.2 Footpaths to dwellings shall be minimum 900 wide to BS8300. All footpaths shall be constructed with materials which are inherently smooth and slip resistant and shall be prepared to provide gradients not exceeding 1:12 (measured over a 5 m length) or 1:15 (measured over a 10 m length). Footpaths shall also be prepared to provide a maximum cross fall gradient not exceeding 1:40.
- 40.3 Provide a nominally level entrance landing to the primary entrance of each dwelling, minimum 1200 x 1200, complete with protected edges where higher than adjoining levels.
- 40.4 At the rear of each dwelling provide patio. Patio width to be sufficient to extend 1no. paving flag at each side of opening and 2.25m deep. Min. width 2.7m based on 450mm paving flags.
- 40.5 Driveways, adopted road and visitors parking to be (site specific) laid to structural engineers' specification. (Refer to drawing 102 Rev C).
- 40.6 Footpath alterations to be to the Local Authority's adoptable standards as detailed by the Roads and Sewers Engineer.
- 40.7 Access Road to appropriate adoptable standard – specification and details to Engineers drawings.
- 40.8 Service verge crossings to be as per engineer's design and details.
- 40.9 Detached Plots – gate side of plot to receive 2no. 450 x 450 paving flags. Remaining side of plot to be finished with gravel only.
- 40.10 150mm gravel margin to front and rear of properties to help overcome level changes to maintain air brick ventilation.

41.0 External Works – Fencing – Refer to boundary treatment drawing.

- 41.1 Fencing, gates, screens, and the like shall be in accordance with the layout on architects drawings and associated details and shall be carried out in FSC certified treated softwood with stain finish or equal and approved. Timber boarded fencing shall have the boards wired and stapled on with two rows of SA wire.
- 41.2 Typically 1.8m high close boarded fencing with 100mm x 100mm timber posts to the boundary of the site, 1.5m between plots and between rear gardens where noted. Refer to specific site drawings.

- 41.3 1.8m high lockable timber gates to match the 1.8m high fencing. Gates to have 900mm clear opening width.

42.0 External Works – General Items

- 42.1 Street name signs to be installed prior to completion. 4 Nr double post mounted nameplates.
- 42.2 As per the recommendations from the Ecologist the site will be provided with a series of bird boxes as shown on the architects drawing.
- 42.3 Road crossing and refuge to be provided as shown on drawing 101 Rev 5 and done to the appropriate standards approved by Highways. This includes the upgrade to the pavement area to allow safe pedestrian access to the bus stop on the other side of the main road adjacent to the site.

43.0 Limitation of Thermal-Bridging and Air-Leakage

Air Leakage Requirement – 5.0m³/(h.m²) @ 50Pa
Thermal Bridging requirement (Y value) – 0.05W/m²K

- 43.1 **Air Permeability and Pressure Testing-**
 Air Tightness Testing – in order to comply with the current Building Regulations 2010 parts F and L – Air Tightness testing should be carried out on 100% of the dwellings on each development. In order to avoid 100% testing the houses must achieve a Design Air permeability rating of 5.

MENU OF SITE BASED OPERATIONS FOR ENSURING HIGH PERFORMANCE LEAKAGE TEST RESULTS

- 43.2 Continuous ribbon of adhesive to be applied behind all DRY LINING PERIMETERS of external walls including around door/window openings, around electrical socket and switch outlets, and vertical studs where necessary.
- 43.3 SKIRTINGS to have a continuous bead of silicone sealant applied to the rear to top edge and underside.
- 43.4 All timber 'I' JOISTS are to be finished into bearing walls using timber blocking to each side of web and silicone mastic filler applied to all edges or joist end caps.
- 43.5 Top and bottom of SOIL AND VENT PIPE BOXINGS to be closed off and sealed.
- 43.6 KITCHENS AND BATHROOMS/EN-SUITES etc. are to be fully finished with dry lining and skirtings before commencing fitting of vanity/kitchen units/appliances.
- 43.7 DAMAGE TO WALLS while fitting the above must be kept to a minimum and made good/sealed afterwards.
- 43.8 All SERVICE ENTRY POSITIONS are to be fully sealed and areas under baths/kitchen units etc. must be inspected before sealing up with finished panels etc. Services are to include gas, electric and incoming water entry positions.
- 43.9 All WASTE PIPES/PLUMBING PIPES carried through external walls or into stud walls internally are to be fully finished off and sealed. All holes must be kept to the minimum size required.
- 43.10 MECHANICAL EXTRACTOR FANS are to have the complete housing perimeter sealed to the wall finish. The opening through the external wall is to be made good and sealed using silicone mastic beads.

- 43.11 LOFT HATCHES are to have the complete frame perimeter sealed to the ceiling finish.
- 43.12 WINDOW FRAMES are to be sealed with silicone sealant around cavity closer prior to fitting of window frame. Joint between cavity closer and blockwork to be sealed with silicone sealant prior to dry lining.
- 43.13 RADIATOR FEEDS are to be taken through the triangular Manthorpe 'Radseal' outlet box behind the radiator. Dry liners to ensure that plasterboard is tight to gasket around triangular fitting.
- 43.14 BOILER FLUES where passing through external wall are to be sealed using gasket provided by Boiler manufacturer.

44.0 SOUND TESTING

- 44.1 Pre-completion Sound Testing will not be required if the proposals follow the Robust Details approach – achieving Part E 2004. Robust Detail references to be provided to the approved Inspector to satisfy this requirement.
- 44.2 Site Operatives are to ensure that the construction strictly adheres to the Robust Details and are to complete and sign a checklist as work progresses. A Compliance certificate can then be issued to relevant parties. Contractor to register the scheme as appropriate with Robust Details to avoid sound testing in order to meet Part E of the Approved Documents.