FAITHFUL + GOULD

Member of the SNC-Lavalin Group

Retro Fit Sprinkler Project (Ph 3)

Tender Documents – Honeywall Estate

Unitas Stoke on Trent Ltd

18 December 2019

Notice

This document and its contents have been prepared and are intended solely as information for Unitas Stoke on Trent Ltd and use in relation to the Tendering of the proposed works.

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This document has 126 pages including the cover.

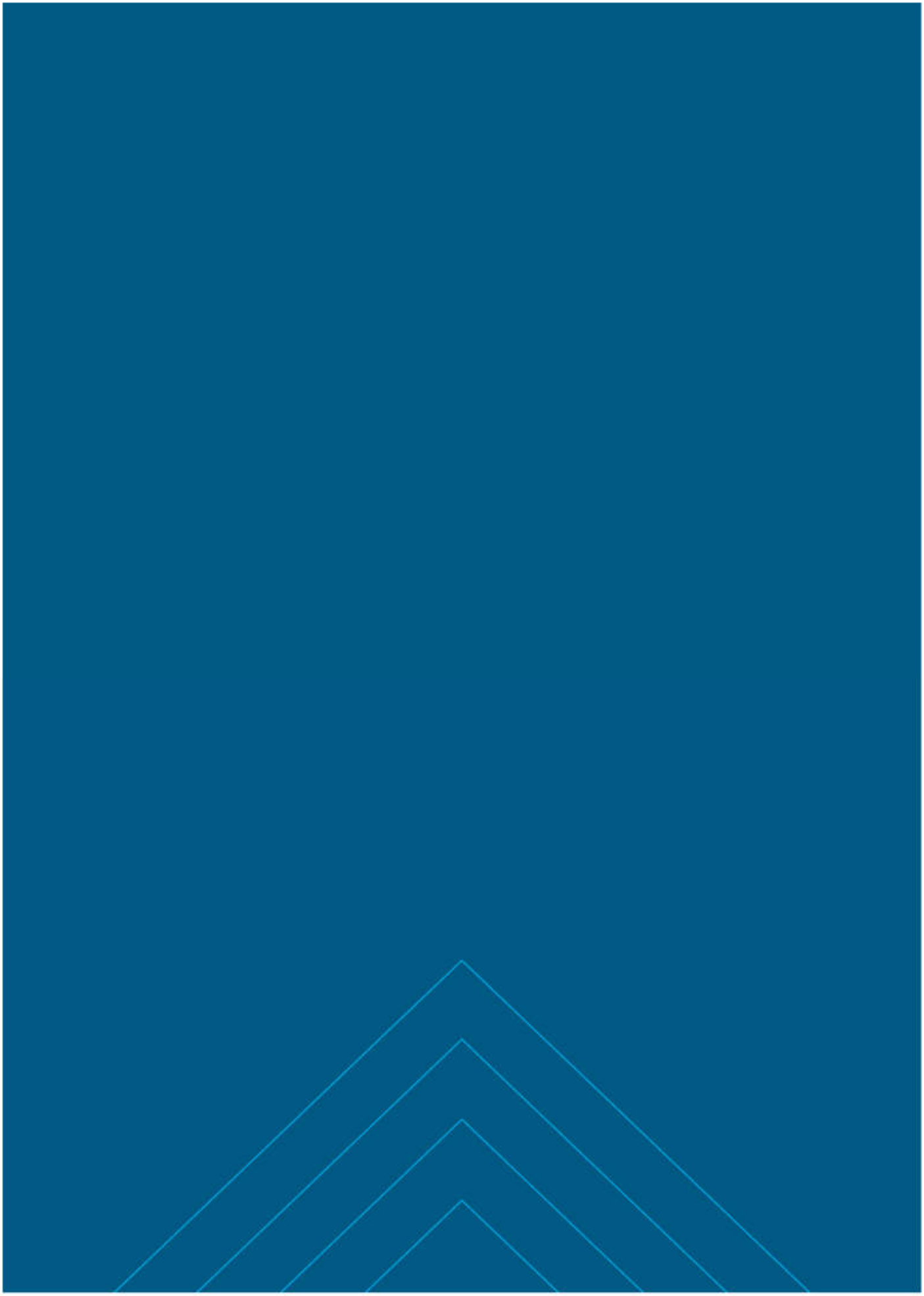
Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	Tender draft	DW	RJ	DB	DB	20.12.19
Rev 2.0	Pre Tender revision	DW	RJ	DB	DW	30.01.20

Client signoff

Client	Unitas Stoke on Trent Ltd
Project	Retro Fit Sprinkler Project (Ph 3) (Phase 3)
Job number	5183413
Client signature / date	

Contents



1. Section 1 - General Preliminaries

To be read in conjunction with:

- The 'General Preliminaries' set out below.
- The JCT Design and Build preliminaries – Section 2.

1.1. The details contained within this document are based on the current information available and we will not be held responsible for unknown site conditions or the performance of new materials in the system designed by others.

1.2. The requirements of all relevant British Standards, Industry Codes of Practice guidelines should be complied with at all times.

1.3. Before tendering the contractor should examine the drawings and specification documents, visit the site and ascertain all local conditions and restrictions, accessibility, the full extent and nature of the work, the supply and conditions affecting labour and the execution of the contract generally.

1.4. ACCESS AND SAFE WORKING

1.5. The Contractor shall ensure that they comply at all times with all current Health and Safety legislation. On any contract which involves site operations of 30 working days or more, or 500 or more total person hours, the contract will become notifiable under the CDM Regulations.

1.6. The contractor shall ensure that all ladders, whether used in conjunction with scaffolding or independently, are securely fixed at all times during use and that any necessary fixings are installed in a proper manner, removed on completion with disturbed areas made good to the satisfaction of the Employers Agent.

1.7. The Contractor is to note that access to the communal areas will be provided by the employer.

1.8. STORAGE AND SITE ACCOMMODATION

1.9. The Contractor shall allow for all costs in association with the storage of all materials, site accommodation and welfare facilities. Location of all such arrangements shall be subject to agreement with the employer (proposed areas identified by employer elsewhere). All areas used must be reinstated to the Employers Agents satisfaction and at the Contractor's expense.

1.10. PLANT AND TOOLS

1.11. The Main Contractor / Sub-Contractor shall provide all necessary plant, equipment, scaffolding, tools, dust sheets and everything else required for the safe and proper execution of the Contract. Details of safety procedures, training and method statements ensuring safe use of plant, tools and scaffolding are to be provided in the Health & Safety plan prior to commencement.

1.12. SERVICE SUPPLIES

1.13. The Main Contractor shall make all necessary arrangements with the employer where the use of utility services are required. The employer will provide Temporary accommodation for the sole use for the purposes of carrying out the works.

Residents' supplies must under no circumstances be used unless agreed previously with the supervising officer. The Contractor shall as soon as practicable after the Date of Possession provide the Contractor's person in charge with a mobile telephone.

1.14. HEALTH, SAFETY AND WELFARE

1.15. The Contractor shall, during the whole course of the Contract, provide and maintain all necessary health, safety and welfare measures and amenities. The contractor shall comply with all the provisions laid down in the current regulations and any other enactment or regulation relating to the working rules of any industry for people employed on the site, including those employed by sub-contractors.

1.16. The Contractor will be required to produce a copy of his Safety Plan for inspection by the Employers Agent and client appointed Health and Safety Advisor.

1.17. SANITARY FACILITIES

1.18. Operatives may not use the communal sanitary facilities or those of residents/occupants. The Contractor is to provide all temporary requirements. Any temporary facilities are to be removed leaving the site clean and tidy on completion. Under no circumstances should communal facilities be used for cleaning tools, etc.

1.19. WORK IN AND AROUND OCCUPIED PROPERTIES

1.20. The Contractor shall allow for carrying out the Works whilst the buildings are in occupation. The Contractor shall give all occupants adequate notice when the work is due to commence. Every care shall be taken to cause as little disturbance and nuisance as possible to other residents during the progress of the Works.

1.21. The Contractor shall bring to the attention of the relevant persons, structure of a temporary nature, planting etc. which requires removal prior to commencement of Works. The Employers Agent should be informed immediately of any failure to co-operate in this respect.

1.22. The site shall be maintained free from hazards and obstructions which might endanger or inconvenience. Where this is not possible the Contractor shall provide and erect suitable barriers and warning signs. The Contractor shall provide and display suitable "wet coatings or Hot works or similar" signs in large (50mm high) lettering signs in appropriate locations. Such warnings must not be chalked on paving or other surfaces.

1.23. The Contractor is to give consideration to avoiding any risks to residents/occupants and their visitors who will not have the benefit of protective clothing. Any operations which give rise to risks shall, as far as practicable, be confined to areas to which occupants/visitors do not have access. The Contractor shall make full provision of sheeting, hoardings and other temporary works and suitable alternative means of site access, egress and movement around and between areas where work is taking place. Any damage so caused shall be repaired at the Contractor's expense.

1.24. PROTECTION OF THE WORKS

1.25. The Contractor shall allow for providing all necessary protection to the building and grounds while the Works are in progress and shall make good, at his own expense, any damage to existing structures, finishes and landscaping to the Employers Agents satisfaction.

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1.26. **PROTECTION OF RESIDENTS' PROPERTY**

1.27. The Contractor shall allow for providing all necessary protection required of residents, occupants and common areas and wind and weather protection for the property during the progress of the Work. The Contractor shall additionally provide, where required, protection for planting, paving, ornamentation, adjacent finishes etc. Any damage caused shall be made good, at the Contractor's expense, to the Employers Agent's satisfaction.

1.28. SECURITY OF BUILDINGS

1.29. All ladders and other plant placed against the walls of buildings allowing easy access shall be removed at the end of each working day and securely stored to prevent unauthorised use and shall not be left unattended during the working day.

1.30. ASBESTOS COMPONENTS

1.31. The attention of the Contractor is particularly drawn to the use of asbestos fibres in housing construction. It shall be the sole responsibility of the Contractor to ensure that any work carried out on asbestos based or asbestos-cement components complies with the Asbestos (Licensing / none licensable) Regulations, the Control of Asbestos at Work Regulations and all requirements of the Health and Safety Executive, including Codes of Practice L27 and L28.

1.32. Detailed Health and Safety Procedures, together with method statements, must be submitted as part of the Health and Safety Plan with regard to any works to, removal of, or disposal of, Asbestos based products.

1.33. CLEARANCE OF SITE

1.34. The Contractor shall: Remove from site all rubbish and superfluous material as it accumulates and maintain the whole area of the Works in a clean and tidy condition, free of obstructions and hazards. Make allowance for the proper and safe disposal of such material in full compliance with the current regulations.

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2. Section 2 - JCT Design and Build 2016

A PRELIMINARIES/GENERAL CONDITIONS – JCT Design and Build - DB

A10 PROJECT PARTICULARS

110 **THE PROJECT**
- Name: Honeywall Estate, Honeywall House, Dibden, Penkhull, + Southern Courts - Retro Fit Sprinkler Project
- Nature: Design and construction of 4no separate new automatic retro fitted sprinkler systems within the residential occupied and communal spaces of the 4no separate high-rise accommodation buildings located on the Honeywall Estate, Penkhull. The properties are located on 2no separate sites, 3no accommodation blocks to 1no site and 1no (Honeywall House) on the other. Three of the properties are of similar archetype (slight differences to the lower ground floor layouts and storage areas), whereas Honeywall House is of a completely separate size and layout.
  Location: Dibden Court, Penkhull Court, Southern Court, Honeywall, Stoke-on-Trent, Staffordshire, ST4 1PA, located to the eastern side of the council owned residential estate known as Honeywall.

  Location: Honeywall House, Honeywall, Stoke-on-Trent ST4 7HY, located to the western side of the council owned residential estate known as Honeywall.

- Length of contract: 40 weeks (following completion of advance design work and site set up / mobilisation)

120 EMPLOYER (CLIENT)
- Name: Unitas Stoke-on-Trent Limited
- Address: Civic Centre, Glebe Street, Stoke-On-Trent, United Kingdom, ST4 1HH (Registered Company Nr. 10669801)
- Contact: All contact shall be made through the EA. Refer clause A10/140

125 THE PROJECT SPONSOR
- Name: Unitas Stoke-on-Trent Limited
- Address: Alton House, Cromer Rd, Stoke-on-Trent ST1 6AY
- Contact: Robert Hazel
- Telephone: 01782 236235
- Email: robert.hazel@unitas.co.uk

130 PRINCIPAL CONTRACTOR (CDM)
- Name: The Contractor

140 PERSON EMPOWERED BY THE CONTRACT TO ACT ON BEHALF OF THE EMPLOYER (hereinafter referred to as the EA)
- Title: Employer's Agent (and Contract Administrator)
- Name: Faithful + Gould Ltd
- Address: Woodcote Grove, Ashley Road, Epsom, Surrey, KT18 5BW
- Contact: Mr. David Watkiss
- Telephone: 01782 222249
- Email: dave.watkiss@fgould.com

150 PRINCIPAL DESIGNER
- Name: The Contractor

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160 EMPLOYER'S HEALTH + SAFETY ADVISOR
- Name: Townsend & Renaudon
- Address: Lakeside House, 3 Trentham Office Village, Bellringer Road, Stoke-On-Trent, Staffordshire
- Contact: David Morris

170 QUANTITY SURVEYOR
- Name: The Employer's Agent

190 CLERK OF WORKS
- N/A

200A EMPLOYER'S MONITORING CONSULTANT
- Description: Services Engineer
- Name: Buro Happold Limited
- Address: Camden Mill, Lower Bristol Road, Bath, Somerset, BA2 3DQ
- Contact: Tom Bentley
- Telephone: 01225 320600

- Or in the event of it ceasing to be the Monitoring Consultant, such other Monitoring Consultant as the Employer shall appoint for this purpose, acting at its sole discretion.
- The Contractor shall note that the Employer has procured preliminary design information or services from these Monitoring Consultants and that such information forms part of the Employer's Requirements.
- These companies will be retained by the Employer to provide monitoring services and will not be novated.
- The Contractor shall check and verify the accuracy of such design information, take full retrospective responsibility for the pre-contract design undertaken by the above monitoring consultants and complete the design of it.
- The Employer will retain the services of these consultants following contract award to provide a post contract monitoring service only.

205A CONTRACTOR'S DESIGN CONSULTANTS:
- The Contractor shall provide a totally integrated design service in respect of the Works.
- The Contractor shall accept entire responsibility for the design and construction of the Works including adopting total responsibility for all design work undertaken previously by Buro Happold Engineering Limited.
- The Contractor should note that the Employer has procured preliminary design information from the Employer's Monitoring Consultants for the mechanical and electrical sprinkler installations and that such information forms part of the Employer's Requirements. The Contractor shall check and verify the accuracy of such design information and shall accept full retrospective responsibility for it and shall complete the design of it. The Employer's Monitoring Consultants will not be novated to the Contractor.
- During the pre-construction and mobilisation period the Contractor will be responsible for; co-ordinating the design team to enable procurement and other activities to commence; monitor and co-ordinate detailed design; buildability, economy and construction efficiency; prepare a detailed pre-contract programme and method statement.
- Following commencement on site the Contractor will be responsible, inter alia, for the co-ordination and completion of the production design work.
- Prior to the award of the Contract, the Contractor shall write to the Employer's Agent formally accepting the design work previously carried out. This confirmation shall be

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included as part of the Contractor's Proposals. However, any failure on the part of the Contractor in this regard shall not diminish the Contractor's design responsibility for the works in entirety and shall not be deemed to signify any form of rejection or any design work undertaken prior to the Contractor's appointment.

- The Contractor shall be responsible for the payment of all post contract design fees in entirety.
- The Contractor is to make its own detailed enquiries in order to satisfy itself regarding the competence and suitability of the information provided and to ensure that any design consultants engaged have sufficient available resources in order to undertake the design completion of the Works on behalf of the Contractor.
- It is a condition of tendering that the Contractor shall enter into and shall procure that any further design consultants engaged directly by the Contractor, enter into collateral warranties in a form equivalent to the appointment (mutatis mutandis).

206A CONSULTANTS' ADDITIONAL SERVICES

- Should the Contractor wish to use additional consultants for the project, then the fees for these additional services should be included, and clearly identified, within the Tender.

210A DETERMINATION OF DESIGN CONSULTANT'S EMPLOYMENT:

- If the Contractor should wish to determine the employment of any of his design consultants for some repeated gross default, whether by act or omission, by the design consultant, the Contractor shall first identify his proposed alternative arrangements and obtain the written consent of the Employer to such proposals.

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A11 TENDER AND CONTRACT DOCUMENTS

110 TENDER DRAWINGS
- The tender drawings and Specifications are:

  As listed in Appendix A of Section 3 of the Employer's Requirements

120 CONTRACT DRAWINGS
- The contract drawings: Same as the tender drawings.

160 PRECONSTRUCTION INFORMATION
- Format: The Pre-construction information Pack has been prepared by the Principal Designer for the Pre-construction Phase and is included separately in Section 3 of these Employer's Requirements. This is supplemented by the information included in these preliminaries in Section A34 and elsewhere in the preliminaries and other tender documents.

210A EMPLOYER'S REQUIREMENTS
- Details: Comprised in the following documents and drawings:

  As listed / detailed in Sections 1 - 16 of the Tender Documents

212A EMPLOYER'S REQUIREMENTS
- In the event of any inconsistency or conflict within the Employer's Requirements the most onerous provision will take precedence.

215A CONTRACTOR'S PROPOSALS
- The Contractor's Proposals to be submitted with the tender should include the following as a minimum:

  a) A priced tender/contract sum analysis fully completed in the form prescribed together with supporting priced preliminaries and a 'builders' type' bill of quantities (including quantified schedules of rates for mechanical and electrical installations) for variation and valuation purposes
  b) A Contract cashflow forecast
  c) Schedule of manufacturers of equipment for mechanical, electrical and any other specialist installations
  d) Details of major sub-contractors intended to be used in the Works
  e) Method statements and risk assessments
  f) Method statements and risk assessments for working with asbestos materials
  g) Health & safety policy
  h) Overall detailed programme for design, materials procurement, site establishment, construction, phasing and commissioning of the Works
  i) CV's of key personnel
  j) Insurance verifications
  k) Information release schedule
  l) Organogram

- The construction programme must in all respects follow the brief contained in the tender documents and Employer's Requirements. If the tenderer seeks to amend or amplify the brief in any way, this intention must be clearly stated in every case. Failure to state such intention will be taken to mean that the contents of the tender documents have been totally satisfied in all respects.

217A CONTRACTOR'S PROPOSALS

- For contractual purposes, the Contractor's Specifications will form part of the Contractor's Proposals.
- The Specification included in the Employer's Requirements (ER) is the minimum requirement. In the event of conflict or discrepancy between the Specifications in the Employer's Requirements and the Contractor's Specifications, the Employers Requirements take precedent.
- Acceptance of the Contractor's Proposals (CP) will not relieve the Contractor of his obligations to comply with the Employer's Requirements unless expressly stated in writing by the Employer's Agent.
- Where the Employer's Requirements expressly specifies a material/product, the Contractor must include for such material/product and note it in his Contractor's Proposals.
- The Contractor is, however, at liberty to attach an addendum to the Contract Sum Analysis indicating potential savings to the tender sum should the substitution of material/products be allowed.

220A TENDER SUBMISSION

- The Contractors offer will be judged on design intent and interpretation, quality control, programme and price.
- The Contractors offer must include for all works shown and described within the Employers Requirements document as being necessary for the complete and proper execution of the Works. The Contractor is to submit with his offer the Contractors Proposals in the format required by this document which shall provide all necessary supporting information including but not limited to his design intention, the Contract Sum Analysis, his construction methods, a method statement, his programme for the design and construction of these and any other matters taken into account in his pricing for the Works.
- The Contractor will also be required to complete and submit a quantified Schedule of Rates in the form of a builder's type bill of quantities together with his Form of Tender and Contractor's Proposals.

221A TENDER SUM

- For avoidance of doubt, the Contractor's tender offer is to be a "fixed price lump sum" offer subject only to adjustment in respect of Change Orders issued by the Employer's Agent.

222A PRICING OF PRELIMINARIES

- The Contractor shall submit with its tender a full preliminaries breakdown. The breakdown shall state periods in weeks and weekly rates for each item. The tenderer shall also include with this tender a fully itemised and priced staff schedule.

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A12 THE SITE/ EXISTING BUILDINGS

110 THE SITE

- Description: The sites are located on:
  Location: Dibden Court, Penkhull Court, Southern Court, Honeywall, Stoke-on-Trent, Staffordshire, ST4 1PA, located to the eastern side of the council owned residential estate known as Honeywall.

  Location: Honeywall House, Honeywall, Stoke-on-Trent ST4 7HY, located to the western side of the council owned residential estate known as Honeywall.
- The Contractor shall be deemed to have inspected the site and its surroundings and to have satisfied himself before the date of the contract as to the form and nature of the site, the extent, nature and difficulty of the Works, the means of access into the building for all materials, plant and equipment and the materials necessary for the completion of the Works, the means of communication with the restrictions of access to the site, the accommodation he may require and in general to have obtained for himself all necessary information as to risks, contingencies and all other circumstances influencing or affecting the Works.
- The Contractor shall not be entitled to any extension of time or to any additional payment on the grounds of misunderstanding or misrepresentation or any such matter, nor shall the Contractor be released from any of the risks accepted or obligations undertaken by him under the Contract on the grounds that he did not or could not have reasonably foreseen any matter which might affect or might have affected the execution of the Works.

120 EXISTING BUILDINGS ON/ ADJACENT TO THE SITE

- Description: All accommodation blocks and sites, associated grounds and other residential buildings are currently occupied by members of the public and will be so throughout the duration of the contract.
- The accommodation blocks and their grounds will remain fully operational for the entire duration of the building works and will be open to all residents, employers' staff and visitors. It should be noted that the Works are of secondary importance to the continued operation of the building. The Contractor shall allow for carrying out all work with as little avoidable annoyance to and interference with, the existing buildings as is reasonably possible.
- The Contractor shall be aware that the continued smooth-operation of the building is of primary importance and that the Works shall be undertaken in such manners as are necessary to prevent any undue inconvenience, disturbance, disruption or interruption to the residents and visitors. Allow here for any inconvenience which may be caused to the building works by reason of the uninterrupted continued use of the existing buildings, roads and services, etc., thereto.
- No access will be permitted to workmen to areas of the existing building or its grounds not directly affected by the Works, at any time other than for the purposes of the Works and then only after prior arrangement with the Employers Agent.
- All mains services must be kept fully operational at all times throughout the Contract, unless specifically agreed with the Employers Agent and such agreement is received in writing.
- The Contractor should ensure the safety of the existing pedestrian and vehicular traffic routes within the confines of the building and surrounding grounds with regard to the construction works.

140 EXISTING UTILITIES AND SERVICES

- Drawings and other information: Limited information available from client at request. Connection to existing mains water feeds are available from within the lower and upper ground floor storage areas of each of the properties. The exception to this is Southern Court, no store areas are present and main water feeds enter the building within the tenant occupied apartments. It will therefore be necessary to excavate and expose

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the incoming main externally to provide new connection into the communal areas of the property.
The Southern Court General Arrangement drawing shows topographical information and positioning of incoming water supply: -

Wardell Armstrong – Southern Court Footpath General Arrangement Drawing ref ST1 6621-005

Any existing services records detailed on Unitas and Buro Happold Details / drawing references is indicative only.

142A EXISTING UTILITIES AND SERVICES

- The Contractor may be able to ascertain a certain level of information from the documentation contained within the Employer's Requirements. However, it is the Contractor's ultimate responsibility to determine the exact nature, capacity, location and level of these services for excavation works for all connection purposes prior to commencing the Works and for marking such positions and for protecting existing services throughout the duration of the Contract. Damage occurring to any services will be made good at the Contractor's own expense.
- The Contractor shall allow for all service protection and diversions necessary to execute the works.
- The Contractor shall carry out its own searches for existing services and shall allow for all liaison, approvals and works to divert / reroute any existing services and provide the required new services to the site.

141A EXISTING DRAINAGE SYSTEMS

- The Contractor may be able to ascertain a certain level of information from the tender documentation contained within these Employer's Requirements. However, it is the Contractor's ultimate responsibility to determine the exact nature, capacity, location and level of the drainage services for connection or renewal purposes prior to commencing the Works and for marking such positions and for protecting any existing services throughout the duration of the Contract.
- The Contractor shall be responsible and shall include in its tender for retaining, protecting, maintaining, diverting and renewing existing drainage systems as required and installing new systems as required to suit the proposed works. Damage occurring to any existing services will be made good at the Contractor's own expense.

170 SITE INVESTIGATION, SOILS AND GROUND WATER

- It is the Contractor's ultimate responsibility to determine the exact nature, capacity and location prior to commencing the Works. Any damage will be made good at the Contractor's own expense.

171A SITE INVESTIGATION

- Should the Contractor request to undertake further ground investigations this shall be carried out only by prior approval with the EA. The Contractor is hereby advised that no claim will be entertained with regard to lack of information regarding ground conditions as the responsibility for determining ground conditions rests with the Contractor.

200 ACCESS TO THE SITE

- Description: Location and access for all deliveries of construction materials and site personnel will be from Honeywall via the B5041 AND A52.
- Limitations: Refer to the Pre-Construction Information Pack
- Internal speed restrictions shall be adhered to at all times.
- The site will continue to function as a live residential estate and the contractor shall avoid impeding any delivery, residents, or visitors' vehicles which will be continually entering and departing the site daily.

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- The Contractor shall use the site access road for vehicle drop off and put down only. Parking of vehicles will not be permitted all vehicles to use public carparks. 2x car parking spaces (in addition to those allocated for welfare / storage / office accommodation) will be provided only.

207A CLEANING OF ROADS
- During the Works the Contractor shall keep the access roads clean and free from mud and debris throughout the duration of the Works and upon completion.

210 PARKING
- Restrictions on parking of the Contractor's and employees' vehicles: No parking on site
- Parking of contractor's vehicle will not be permitted anywhere within the estate, circulation routes and resident spaces.
- With the exception of 2no vehicles all other vehicles to be parked at contractors' own cost. No parking on site will be permitted.

211A DELIVERIES
- Restrictions on deliveries: The Contractor shall liaise with the EA to ensure that deliveries of materials and the loading and unloading of skips are coordinated so as to cause the least impact to residents.
- The Contactor shall also liaise with the Local Authority regarding any restrictions which may be imposed on deliveries for whatever reason during the course of the works, as no claim will be entertained regarding the impact which this may have on the works.
- Details of the Contractor's delivery arrangements shall be provided within the tender submission.

212A CONTRACTOR'S COMPOUND
- Contractors site office and welfare facilities to be provided by the contractor in a location deemed suitable by the client. All services water, gas and electric are to be provided at contractors cost. Internet services, computer terminals and other sundries to be provided at contractors cost and included within their bona fide tender price.
- Contractor compound will be situated to Eastern site as shown below:

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- Secondary storage compound will be situated to Honeywall House site as shown below:

- The Contractor is to be responsible for the provision of all necessary fences including to the full contractor accommodation enclosure, gates, and the like, and for keeping the whole area clean and tidy throughout the duration of the Works, for the removing of the whole upon completion and for all necessary making good and reinstatement to match adjacent soft landscaping and to meet the satisfaction of the EA.
- As the Contractors compound will be immediately visible from the residential apartments the contractor shall maintain the tidiness and upkeep of this area and treat this as a matter of paramount importance.
- The Contractor shall provide its proposal taking full consideration of all associated constraints within its tender submission for the approval of the EA.

216C SECURITY OF THE WORKS: The Contractor shall provide adequate security measures for any materials which are stored both within and outside the grounds.

The Contractor should note that additional contracts will be running concurrently with this scheme and further liaison will be required between all Contractors and the Employer to ensure that all entrances, car parks and roads are not impeded or affected during the building works.

217C MAINTAINED ACCESS/EGRESS ROUTES
- The Contractor shall maintain at all times safe and clear access routes suitably signed, illuminated and protected for emergency vehicles to all perimeters of the existing buildings as far as practicable.
Furthermore, the Contractor is to ensure that escape/fire routes are safe and clear at all times and suitably signed, illuminated and protected.

218A RULES AND REGULATIONS
- Compliance: Conform to the employers' rules and regulations for contractors undertaking work within the confines of the building and its grounds including, but not limited to, site speed restrictions, noise restrictions and fire procedures and fire evacuation plan.

220 USE OF THE SITE
- General: Do not use the site for any purpose other than carrying out the Works.

230 SURROUNDING LAND/ BUILDING USES
- General: Adjacent or nearby uses or activities are as follows:

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- Residential apartments and community meeting spaces.
  The Contractor shall undertake all necessary steps to mitigate the effect of the works upon surrounding land and adjacent uses.
- The construction site will be surrounded on all four sides by the grounds of the Penkhull estate all areas of which will be in use throughout the duration of the works.
- The Contractor should take the upmost care to ensure that no staff, guests or visitors can access the works/ site / storage compound.

240 HEALTH AND SAFETY HAZARDS

- General: The nature and condition of the site/ building cannot be fully and certainly ascertained before it is opened up.
- Information: The accuracy and sufficiency of the information contained within these Employer's Requirements is not guaranteed by the Employer or the Employer's Agent. Ascertain if any additional information is required to ensure the safety of all persons and the Works.
- Site staff: Draw to the attention of all personnel working on the site the nature of any possible contamination and the need to take appropriate precautionary measures.

250 SITE VISIT

- Before tendering: Ascertain the nature of the site, access thereto and all local conditions and restrictions likely to affect the execution of the Works.
- Arrangements for visit: Dave Watkiss of Faithful+Gould, No 2 Canal Arm, Festival Park, Stoke-on-Trent ST1 5UR Tel: 01782 222249
- The Contractor shall be deemed to have inspected the site and its surroundings and to have satisfied himself before the date of the contract as to the form and nature of the site, the extent, nature and difficulty of the Works, the means of access, plant and equipment and the materials necessary for the completion of the Works, the means of communication with and the restrictions of access to the site, the accommodation he may require and in general to have obtained for himself all necessary information as to risks, contingencies and all other circumstances influencing or affecting the Works.
- The Contractor shall not be entitled to any extension of time or to any additional payment on the grounds of misunderstanding or misrepresentation or any such matter, not shall the Contractor be released from any of the risks accepted or obligations undertaken by him under the contract on the grounds that he did not or could not have reasonably foreseen any matter which might affect or might have affected the execution of the Works.

255A EXISTING DRAWINGS AND SURVEYS:

- The Contractor has had an opportunity to and shall be deemed to have inspected and examined the Site, its physical and other conditions (including without limitation the sub-surface conditions), its surroundings all existing structures thereon and thereunder any existing site infrastructure and services and generally to have obtained for itself all necessary information as to risks contingencies and all other circumstances influencing or affecting the Works and their execution, particular attention is drawn to the required excavation works.
- No failure on the part of the Contractor to discover or foresee any such condition, risk, contingency or circumstance, whether or not the same ought reasonably to have been discovered or foreseen, shall entitle the Contractor to any adjustment of the Contract Sum or to any extension of time. The Contractor shall not have nor make any claim in contract, tort or by way of innocent or negligent misrepresentation in respect of information provided, or statements made, by or on behalf of the Employer in respect of such risks, contingencies or circumstances relating thereto.
- The Contractor will not be entitled to rely upon any survey, report or other document prepared by or on behalf of the Employer regarding any such matter as is referred to in this clause and the Employer makes no representation or warranty as to the accuracy or completeness of any such survey, report or document. The Employer will have no liability arising out of or in relation to any such survey, report or document or

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from any representation or statement, whether negligently or otherwise made, therein contained. Any such survey, report or document is provided without prejudice and merely with the intention of assisting the Contractor.

295 CONDITION SCHEDULE

- Prior to commencement of the Works, the Contractor shall prepare jointly with the EA, a condition schedule of all internal circulation spaces, entrances, external areas, boundaries, external and internal roads, kerbs, services, site works, drains, hard and soft landscaping, etc likely to be affected by the works. The Schedule is to be fully detailed and annotated and supported by a comprehensive photographic record. It will be verified by the EA and a copy will be forwarded to the Employer for record purposes. Any damage as a consequence of carrying out the Works will be made good by the Contractor at his own expense to the satisfaction of the EA.

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A13 DESCRIPTION OF THE WORKS

120 THE WORKS

- Description: The Works comprise the design and construction of 4no separate new automatic retro fitted sprinkler systems within the residential occupied and communal spaces of the 4no separate high-rise accommodation buildings located on the Honeywall Estate, Penkhull. The properties are located on 2no separate sites, 3no accommodation blocks to 1no site and 1no (Honeywall House) on the other. Three of the properties are of similar archetype (slight differences to the lower ground floor layouts and storage areas), whereas Honeywall House is of a completely separate size and layout.

  Location: Dibden Court, Penkhull Court, Southern Court, Honeywall, Stoke-on-Trent, Staffordshire, ST4 1PA, located to the eastern side of the council owned residential estate known as Honeywall.

  Location: Honeywall House, Honeywall, Stoke-on-Trent ST4 7HY, located to the western side of the council owned residential estate known as Honeywall.

124A SITE CLEARANCE

- The Contractor will be responsible for ascertaining and including all costs associated with removal of any contaminated materials, asbestos, or any other hazards, hazardous materials or substances on the site. The Contractor is responsible for any survey works he considers necessary and is deemed to have knowledge of these items and to have included the cost of removal and disposal of them to special licensed tips etc within his tender.
- The Contractor shall deemed to have included in his tender for any Land Fill Tax that may become payable under this Contract.
- The Contractor is entirely responsible for dealing with any such problems to the satisfaction of the Local Authority, Environment Agency, and any other interested bodies. Allow for compliance with these bodies' requirements.

130 WORK BY OTHERS CONCURRENT WITH THE CONTRACT

- Description: See A13/130 and section A50.

145A STATUTORY OBLIGATIONS

- Allow for measures necessary to control noise, excess light spillage, pollution, and comply with all other statutory obligations.

146A TRAFFIC REGULATIONS

- Allow for measures necessary to ensure compliance

147A TRAFFIC MANAGEMENT

- The Contractor shall be responsible for and provide a detailed Method Statement/Proposals for any temporary traffic management on or adjacent to the site, particularly during excavation works. Comply with the traffic management instigated by the Highways Authority.

148A WORKS OUTSIDE SITE BOUNDARY

- If the existing roads and footpaths are affected by the works the Contractor shall allow for reconstructing and resurfacing the roads and pavements and realigning the kerbs as required to the satisfaction of the Local Authority.
- The Contractor shall be responsible for obtaining all necessary permissions and consents, temporary road closures and hoarding licenses, diversions, for this work and for complying with all health and safety requirements in association with this work including, barriers, signage, protection, watching and lighting.

Total to Collection:
£ £

149A ADJACENT HIGHWAYS AND FOOTPATHS

- The Contractor shall be responsible for ensuring all adjacent highways and footpaths are adequately supported and shall be responsible for proving the stability to the satisfaction of the Local Authority or other interested parties.
- Allow for any temporary support and all other costs involved.

152A STATUTORY REQUIREMENTS

- The Contractor will be responsible for and pay all costs in respect of Building Regulation approval which may be necessary in change order variations or for any other design changes that he may propose.

160A DESIGN RESPONSIBILITY:

- The design responsibility for the complete works rests with the Design and Build Contractor.
- The drawings and information issued with the Employer's Requirements are for the purpose of assisting in clarifying these Requirements and do not ATTRACT design responsibility. The Contractor may vary the details provided that the Employer's Requirements and outline specification are not compromised and are in accordance with the Conditions of Contract.
- The drawings issued with the Tender shall be adopted by the Contractor and he shall be responsible for the same.

161A DESIGN RESPONSIBILITY

- Notwithstanding the design input carried out by the existing Design Team to date, the Contractor is reminded that this project is to be let on a "Design and Build" basis and the total design responsibility for the complete works rests entirely and solely with the Design and Build Contractor and the Design and Build Contractor shall:

  - Be responsible for developing his design around the Employer's Requirements and will be required to take full responsibility for this and all other elements of the works.
  - Take full responsibility for the Contractor's Proposals and Employer's Requirements and for any mistake, inaccuracy, discrepancy or omission.
  - Diversion, lowering and reinforcement of any external services crossing the site or site boundary affected by the works i.e. excavation works and connection of existing sprinkler system.
  - Irrespective of any soil investigation reports, is responsible for designing suitable, drainage, etc, and satisfying himself as to the accuracy of the reports.
  - Changes in ground conditions from those stated in the reports will not detract from the Contractor's design responsibility nor give rise to amendment of costs to the contract.
  - Any design information issued with a change in the Employer's Requirements will be for the purpose of assisting in clarifying that change and will not attract a design responsibility on the part of the Employer.
  - Provision of all test certificates and confirmation thereof in accordance with the documents.
  - The above list is not exhaustive.

- The Contractor is fully responsible for all design work and design issues relating to the works and the descriptions of the works set out in the Tender Documents and Employer's Requirements are intended as indications of the Employer's requirements and are not to be taken as complete, finalised or warranted designs. It is the responsibility of the Contractor to check and take responsibility for all design details and information contained therein in relation to the works and to carry out such amendments or further design work as may be necessary in order to enable the works to be carried out effectively and to an appropriate standard.

Total to Collection:
£

£

- The Contractor will be fully responsible in all respects for the design of the Works including (without limitation) all design work prepared before or after the date of this Contract and including (without limitation) any design contained in the Tender Documents / Employer's Requirements; adopt and take responsibility for any design work in relation to the Works which may be carried out or which may have been carried out by professional consultants or specialist sub-contractors or any other person employed by the Contractor at the request of the Employer.

- It is the contractor's responsibility to design and construct the Works in accordance with the Tender Documents and Employers Requirements, planning consents, good building practice and all relevant current statutory requirements, British Standard, Codes of Practice, Local Bye Laws, Fire Precautions Act, Building Regulations, requirements of the local fire officer, and the like including preparing all necessary drawings, calculations and documents.

162A DESIGN OF PROVISIONAL ELEMENTS

- Where provisional sums are included within the Employer's Requirements the design responsibility for any such item rests with the Design and Build Contractor. The Contractor will be deemed to have included within his original tender sum calculation for any design input required in the expenditure of a Provisional Sum, and the sum shall include for all associated overheads and profit. Any specialist design costs related to the provisional sum expenditure shall also be deemed to be within those sums.

163A VARIATIONS

- Any variations should not materially change the layout of the works or access thereto or materially change the building. Details of any variation must be submitted to the EA for approval prior to implementation.

164A CONSULTANCY AGREEMENT

- In addition to the requirements of Clause A10/205A the Contractor will be required to enter into Consultancy Agreements with each of his directly engaged design consultants in a form acceptable to the Employer. Such Agreements will not prejudice, restrict or otherwise detract from the Employer's rights and remedies, whether through the Contract or otherwise. Copies of such Consultancy Agreements shall be made available to the Employer upon request and collateral warranties will be required from such design consultants to the Employer in a form acceptable to the Employer.

165A PROFESSIONAL INDEMNITY INSURANCE

- The Employer requires the Contractor to have and maintain Professional Indemnity Insurance cover of not less than £2,000,000.00 (two million pounds) for each and every occurrence or series of occurrences arising out of any one event.
- However, in respect of the Design Warranties between the Employer and the Contractor's Design Consultants and the Contractor's Sub-Contractors/Suppliers, the Employer requires the following levels of Professional Indemnity Insurance cover for each and every occurrence or series of occurrences arising out of any one event:

1. Structural Engineer:	£2,000,000.00
2. Building Services Engineer or Building Services sub-contractor:	£2,000,000.00
3. MEP / Civil Engineer:	£2,000,000.00
4. Each other Sub-Contractor and/or Supplier having a design responsibility:	£2,000,000.00

- The Contractor shall, as and when reasonably required to do so by the Employer, produce documentary evidence and receipts showing that all Professional Indemnity Insurances have been taken out and are being maintained.

Total to Collection:
£

£

- All Professional Indemnity Insurances shall be renewed and maintained for a minimum period of 12 years following Practical Completion of the Works.

166A COLLATERAL WARRANTIES:
- The Contractor shall procure that each sub-contractor having a design responsibility and each design consultant enters into collateral warranties in favour of Unitas Stoke on Trent Ltd or any other parties which the Employer may stipulate in forms required by the Employer. Refer to preliminaries Section A30.
- The Contractor shall accept that it will be a pre-requisite of payment that each of the individual consultant's and sub-contractor's design warranties, where required from the Employer, be completed and executed prior to the inclusion of any respective payment within the main contract interim applications and payments.
- Sub-Contractor Warranties to Unitas Stoke on Trent Ltd or any other parties which the Employer may stipulate will be required, but not limited, to the following elements of Works:
- Structural works (if required)
- Mechanical and electrical installations
- Civils / MEP works
- Specialist services installations

- The Contractor is also advised that all consultants employed by the Contractor will be required to enter into collateral warranties in favour of Unitas Stoke on Trent Ltd.
- Nothing contained within any direct warranty between the Employer and the Specialist Sub-Contractors or consultants shall in any way reduce or restrict the Contractor's liability to the Employer under the Contract.

167A WARRANTIES
- It is the Contractor's responsibility to promptly process and present in their final format, after agreement with the Employer's Agent all warranties for the Works.

170A ENVIRONMENTAL PROTECTION ACT 1990
- The Contractor is to note that his Structural Engineer (if required) must be covered by their Professional Indemnity Insurance, for any liabilities regarding the Environmental Protection Act that may arise from a Site Investigation which is undertaken for the purposes of the Contract. The Contractor is also responsible for complying with Section 34 of the Act and shall allow in his tender for any costs arising from such compliance.

171A RELEASE OF INFORMATION SCHEDULE
- The Contractor shall progressively issue such drawings, details, specifications, levels, setting out, dimensions and samples in accordance with a separate Release of Information Schedule. It shall be a condition of the tender that the aforementioned Release of Information Schedule shall be agreed with the Employer prior to the appointment of the Contractor.

172A CONTRACTOR'S PROPOSALS
- Acceptance of the Contractor's Proposals will not relieve the Contractor of his obligations to comply with the Employer's Requirements unless expressly stated in writing by the EA.

173A TENDER SUM
- for avoidance of doubt, the Contractor's tender offer is to be a "fixed price lump sum" offer subject only to adjustment in respect of Change Orders issued by the EA.

174A TEST CERTIFICATES
- To be submitted to the Employer for Mechanical, Electrical and Drainage Works prior to final connection to Service Mains.

Total to Collection:
£

£

- Provide and submit test certificates in relation to all other aspects of the work including, but without limitation, mortar strengths, water test, fire test certificates, including balancing certificates.
- The Contractor must rectify all defects apparent at Practical Completion within a period of one month of Practical Completion and in accordance with section A33 hereof.

175A CONTROL OF QUALITY CERTIFICATES
- The Contractor is to submit certificates if so requested on quality control for materials and workmanship to the Employer.

177A APPROVALS
- The Contractor shall obtain approval from the Local Authority / designated and ensure that the Scheme meets the requirements of the Local Fire Officer. Prior to Practical Completion the Contractor is to obtain a FIRAS Certificate (or equivalent recognised body) which covers all aspects of the works.

178A TESTING AND COMMISSIONING
- The Contractor shall include in his tender for all fuels necessary to carry out testing and commissioning of services installations to the satisfaction of the EA. Refer to specific Employers Requirements for full details of specialist sprinkler installation testing and commissioning requirements.

179A PROGRAMME
- The Contractor is referred to Clauses A32:210. In addition, the Contractor shall incorporate/overlay his procurement schedule onto the bar chart programme.

180A ACCESS FOR EMPLOYER, HIS AGENT, EMPLOYER'S MONITORING CONSULTANTS, LOCAL AUTHORITY OR ANY ONE AUTHORISED BY EMPLOYER
- Provide at all reasonable times access to the works, and to other places where work is being prepared for the Contract together with appropriate PPE.
- The Employer's representatives will be entitled to attend all project meetings.

190A PROHIBITED MATERIALS
- The Contractor shall use all reasonable skill and care not to specify for use and not to approve the use in the Works of any materials which by their nature or application contravene any British Standard or EU equivalent current at the time of specification or codes of practice or which are generally known or which ought to be known to be deleterious to health and safety or to the durability of buildings and/or other structure and/or finishes and/or plant and machinery in the particular circumstances in which they are used or which contravene the recommendations of Ove Arup and Partners' publication Good Practice in the Selection of Construction Materials (1997).

Total to Collection:
£
£

A20 JCT DESIGN AND BUILD CONTRACT (DB)

222 JCT DESIGN AND BUILD CONTRACT
- The contract: JCT Design and Build Contract (DB), 2016 Edition.
- Requirement: Allow for the obligations, liabilities and services described.

THE RECITALS

First

THE WORKS

- Comprise: The Works comprise the Design and construction of 4no separate new automatic retro fitted sprinkler systems within the residential occupied and communal spaces of the 4no separate high-rise accommodation buildings located on the Honeywall Estate, Penkhull. The properties are located on 2no separate sites, 3no accommodation blocks to 1no site and 1no (Honeywall House) on the other. Three of the properties are of similar archetype (slight differences to the lower ground floor layouts and storage areas), whereas Honeywall House is of a completely separate size and layout.

Location: Dibden Court, Penkhull Court, Southern Court, Honeywall, Stoke-on-Trent, Staffordshire, ST4 1PA, located to the eastern side of the council owned residential estate known as Honeywall.

Location: Honeywall House, Honeywall, Stoke-on-Trent ST4 7HY, located to the western side of the council owned residential estate known as Honeywall.

Fifth

DIVISION OF THE WORKS INTO SECTIONS

- The Fifth Recital will not be deleted.

ARTICLES

3
EMPLOYER'S AGENT
- Employer's Agent: See clause A10/140.

5
PRINCIPAL DESIGNER
- Principal Designer: See clause A10/150.

6
PRINCIPAL CONTRACTOR
- Principal Contractor: See clause A10/130.

9
LEGAL PROCEEDINGS
- Amendments: Not Required

CONTRACT PARTICULARS

Fourth recital and clause 4.5

Total to Collection:
£

£

CONSTRUCTION INDUSTRY SCHEME (CIS)

- Employer at the Base Date is a contractor for the purposes of the CIS.

Fifth Recital

DESCRIPTION OF SECTIONS

- Description of Sections: Not applicable

Sixth Recital

FRAMEWORK AGREEMENT

- Framework agreement: Not applicable

Seventh Recital and Part 1 of Schedule 2

SUPPLEMENTAL PROVISIONS – PART 1

- Named subcontractors: Supplemental Provision 1 Does not apply

- Valuation of changes – Contractor's estimate: Supplemental Provision 2 Does not apply

- Loss and expense – Contractor's estimates: Supplemental Provision 3 Does not apply

Seventh Recital and Part 2 of Schedule 2

SUPPLEMENTAL PROVISIONS - PART 2

- Acceleration quotation: Supplemental Provision 4 Does not apply
- Collaborative working: Supplemental Provision 5 applies
- Health and safety: Supplemental Provision 6 applies
- Cost savings and value improvements: Supplemental Provision 7 Does not apply
- Sustainable developments and environmental considerations: Supplemental Provision 8 Does not apply
- Performance indicators and monitoring: Supplemental Provision 9 Does not apply
- Notification and negotiation of disputes: Supplemental Provision 10 applies
- Where Supplemental Provision 10 applies, the respective nominees of the parties are:
  - Employer's nominee: A Senior Director (to be named)
  - Contractor's nominee: A Senior Director (to be named)
  - Or such replacement as each party may notify to the other from time to time.

Article 4

EMPLOYER'S REQUIREMENTS, CONTRACTOR'S PROPOSALS, CONTRACT SUM ANALYSIS

- Preliminaries and Contract Conditions together with all drawings, documents, and sections / appendices referred to therein.
  - Contractor's Proposals: To be completed by the Contractor and shall comprise the Employer's Requirements, The Contractor's Proposals together with the completed Contract Sum Analysis.
  - Contract Sum Analysis: To be completed by the Contractor in the format contained within the Employer's Requirements.
  - Specific Requirements: Provide details and proposals for the phasing, and excavation for the required Works.

Total to Collection:
£

£

Article 8

ARBITRATION
- Article 8 and clauses 9.3 to 9.8 (arbitration) does not apply

Clause 1.1
BASE DATE
- Base Date: 1st March 2020

Clause 1.1

DATE FOR COMPLETION OF THE WORKS

- Date for completion of the Works (where completion by sections does not apply): 29.01.2021

Clause 1.7

ADDRESSES FOR SERVICE OF NOTICES

- Employer:
 - Address: Unitas Sot Ltd
 C/O Faithful+Gould, No 2 Canal Arm, Festival Park, Stoke on Trent ST1 5UR
- Contractor: The Contractor
 - Address: To be advised
 - Fax Number: To be advised

Clause 2.3
DATE OF POSSESSION OF THE SITE
- Date of Possession of the site: 27th April 2020

Clause 2.4
DEFERMENT OF POSSESSION OF THE SITE
- Clause 2.4 applies
 - Where clause 2.4 applies, maximum period of deferment is 6 weeks

Clause 2.17.3
LIMIT OF CONTRACTOR'S LIABILITY FOR LOSS OF USE, ETC.
- Limit of Contractor's liability for loss of use: £2,000,000

Clause 2.29.2
LIQUIDATED DAMAGES
- Damages: At the rate of £3,500 per week or part thereof.
Clause 2.35

RECTIFICATION PERIOD
- Period: 12 months from the date of practical completion of the Works.

Clause 4.6
ADVANCE PAYMENT AND ADVANCE PAYMENT BOND
- Advance payment: Clause 4.6 does not apply.

Clause 4.7
METHOD OF PAYMENT – ALTERNATIVE B
- Payment: Periodically, in accordance with Alternative B.

Clause 4.7.2

INTERIM PAYMENTS – INTERIM VALUATION DATES

- The first Interim Valuation Date is: 3rd May 2020 and thereafter the same date in each month or the nearest Business Day in that month. Payment terms will be 30 days from receipt of payment certification.

Clause 4.15.4
LISTED ITEMS – UNIQUELY IDENTIFIED
* Listed items: A bond is not required.

LISTED ITEMS – NOT UNIQUELY IDENTIFIED
- Listed items: A bond is not required.

Clause 4.17
CONTRACTOR'S RETENTION BOND
- Clause 4.17 does not apply.

Clause 5.5
DAYWORK
- Percentage additions to each section of the prime cost or, if they apply in respect of labour, the All-Inclusive Rates, are set out in the following document: The Contractors Proposals

Clause 6.4.1
CONTRACTOR'S PUBLIC LIABILITY INSURANCE: INJURY TO PERSONS OR PROPERTY
- Insurance cover for any one occurrence or series of occurrences arising out of one event: £10,000,000.00

Clause 6.7 and Schedule 3
WORKS INSURANCE – INSURANCE OPTIONS APPLICABLE
- Schedule 3:
 - Insurance option C applies
 - Percentage to cover professional fees: 15%
- Where Insurance Option C applies:

PROFESSIONAL INDEMNITY INSURANCE

- Level of cover: Amount of indemnity required:
 - relates to claims or series of claims arising out of any one event;
 - and is £ 2,000,000.00
- Expiry of required period of Professional Indemnity Insurance: 12 years from the date of Practical Completion of the works

Clause 6.17
JOINT FIRE CODE
- The Joint Fire Code: does not apply

Clause 7.2
ASSIGNMENT/ GRANT BY EMPLOYER OF RIGHTS UNDER CLAUSE 7.2
- Clause 7.2 applies

Clause 7.3.1

PERFORMANCE BOND OR GUARANTEE
- Bond or guarantee from bank or other approved surety: Does not apply
Clause 7.4
THIRD PARTY RIGHTS AND COLLATERAL WARRANTIES
- Details: Collateral warranties will be required from the following subcontractors or categories of subcontractor:
  - Name or category: All sub-contractors with a design responsibility:
  - Types of warranty required from each subcontractor: SCWa/E 2016.
  - Professional Indemnity Insurance required: Level: for each and every occurrence or series of occurrences arising out of any one event; Amount: £2,000,000.00
  Period: 12 years from Practical Completion of the Works.

Clause 8.9.2

PERIOD OF SUSPENSION (TERMINATION BY CONTRACTOR)
- Period of suspension: 1 month

Clauses 8.11.1.1 to 8.11.1.6
PERIOD OF SUSPENSION (TERMINATION BY EITHER PARTY)
- Period of suspension: 1 month

Clause 9.2.1

ADJUDICATION
- The Adjudicator is: to be appointed by the Nominator
- Nominating body: Where no Adjudicator is named or where the named Adjudicator is unwilling or unable to act (whenever that is established): Royal Institution of Chartered Surveyors

Clause 9.4.1
ARBITRATION
- Does not apply

THE CONDITIONS

SECTION 1: DEFINITIONS AND INTERPRETATION

1.5
RECKONING PERIODS OF DAYS
- Amendments: Not required

1.11
APPLICABLE LAW
- Amendments: Not required

SECTION 2: CARRYING OUT THE WORKS

SECTION 3: CONTROL OF THE WORKS

SECTION 4: PAYMENT

SECTION 5: CHANGES

Total to Collection:
£

£

SECTION 6: INJURY, DAMAGE AND INSURANCE

SECTION 7: ASSIGNMENT, THIRD PARTY RIGHTS AND COLLATERAL WARRANTIES

SECTION 8: TERMINATION

SECTION 9: SETTLEMENT OF DISPUTES

PROJECT BANK ACCOUNT

- General: To be deleted

EXECUTION

- The Contract: Will be executed as a deed

Total to Collection:
£

£

A30 TENDERING/ SUBLETTING/ SUPPLY

MAIN CONTRACT TENDERING

110 SCOPE
- General: These conditions are supplementary to those stated in any Invitation to Tender or on any form of tender.

145 TENDERING PROCEDURE
- General: In accordance with the principles of JCT Practice Note (series 2) 'Main Contract Tendering'

156A DESIGN CONSULTANTS WARRANTIES – EMPLOYER
- The Agreement: Procure that within 14 days of being notified so to do, all Design Consultants having a design responsibility enter into Deeds of Collateral Warranty with the Employer.
- Maximum number of warranties which the Employer may require: 1 from each Design Consultant having a design responsibility.

157A SUB-CONTRACTORS' WARRANTIES – EMPLOYER:
- The Agreement: Procure that within 14 days of being notified so to do, all sub-contractors having a design responsibility enter into Deeds of Collateral Warranty with the Employer in the form JCT SCWa/E, completed in accordance with Part 2 of the Contract Particulars.
- Maximum number of warranties which the Employer may require in the form JCT SCWa/E: 1 from each sub-contractor having a design responsibility.

160 EXCLUSIONS
- Inability to tender: Immediately inform if any parts of the work as defined in the tender documents cannot be tendered.
- Relevant parts of the work: Define those parts, stating reasons for the inability to tender.

170 ACCEPTANCE OF TENDER
- Acceptance: No guarantee is offered that any tender will be recommended for acceptance or be accepted, or that reasons for non-acceptance will be given.
- Costs: No liability is accepted by the Employer for any cost incurred in the preparation of any tender.

190 PERIOD OF VALIDITY
- Period: After submission or lodgement, keep tender open for consideration (unless previously withdrawn) for not less than 90 days.
- Date for possession/ commencement: See section A20.

195A CONTRACTOR'S DESIGN
- Scope: Undertake and take full responsibility for the design of all works as summarised in Clause A13/120.
- Drawings and supporting documentation: Submit with tender.

PRICING/ SUBMISSION OF DOCUMENTS

210 PRELIMINARIES IN THE SPECIFICATION
- Measurement rules: Preliminaries/ General Conditions have not been prepared in accordance with SMM7 / NMR.

Total to Collection:
£

£

220 PRICING OF PRELIMINARIES

- Charges: If the Contractor requires interim payments to include fixed and time related charges for specific items in the Preliminaries, those charges must be clearly shown against the items.

250 PRICED DOCUMENTS

- Alterations: Do not alter or qualify the priced documents without written consent. Tenders containing unauthorised alterations or qualifications may be rejected.
- Measurements: Where not stated, ascertain from the drawings.
- Deemed included: Costs relating to items, which are not priced, will be deemed to have been included elsewhere in the tender.
- Submit: Fully priced 'builder's type' bill of quantities (including quantified schedules of rates for mechanical and electrical installations) in support of the submitted contract sum analysis.

310 TENDER

- General: Tenders must include for all work shown or described in the tender documents as a whole or clearly apparent as being necessary for the complete and proper execution of the Works.

315 SPECIFICATION WITHOUT QUANTITIES

- Where and to the extent that quantities are not included in the specification, tenders must include for all work shown or described in the tender documents as a whole or clearly apparent as being necessary for the complete and proper execution of the Works.

320 PRICING OF SPECIFICATION

- Alterations and qualifications to the specification must not be made without the written consent of the EA. Tenders containing unauthorised alterations or qualifications may be rejected. Costs relating to items in the specification which are not priced will be deemed to have been included elsewhere in the tender.

350 PC AND PROVISIONAL SUMS

- Contractor's profit on PC Sums: Included in Preliminaries sections A51 and A52, not in the pricing document.
- Provisional sums and items: Included in Preliminaries sections A53, A54 and A55 not in the pricing document.
- Submit: A copy of sections A51-A55 (as applicable), priced to include profit, attendance and percentage adjustments with the tender.

355A EMPLOYER'S PROVISIONAL SUMS AND CONTINGENCY

- The Contractor's tender shall include the full amount of the Employer's provisional sums and contingency sum listed in Preliminaries section A53 and A54. These sums are to be expended in whole, in part or not at all, at the sole discretion of the EA. Any amount not so expended shall be deducted from the Contract Sum and Final Account without any gratuity, allowance or further payment whatsoever to the Contractor.

410 FLUCTUATIONS

- The Contract will be executed on a firm price basis with no adjustment for price fluctuations for any reason whatsoever.

440 TENDER / CONTRACT SUM ANALYSIS

- Content of the Analysis: A breakdown of the Contract Sum into at least the following categories: priced contract sum analysis as included with the tender documents.
- Form: supported by a 'builder's type' priced bills of quantities and including quantified schedules of rates for all key sub-contract packages, in particular the mechanical and electrical (Sprinkler) installations.
- Fully priced copy: Submit with tender.

Total to Collection:

£ £

480 PROGRAMME
- Programme of work: Prepare a summary showing the sequence and timing of the principal parts of the Works and periods for planning and design. Itemize any work which is excluded.
- Submit: 2 copies with tender.

490 INFORMATION RELEASE SCHEDULE
- Compatibility with programme: At the same time as submitting the proposed programme or summary, confirm that it is compatible with the Information Release Schedule.
- Alternative proposals: If any part of the programme is not compatible with the Schedule submit alternative proposals and reasons for varying the times for release of information.

500 TENDER STAGE METHOD STATEMENTS
must be submitted with the Tender describing how and when the Contractor proposes and undertakes to carry out the following:
- The Works together with all design, planning, programming, co-ordination and quality aspects of the project.

510 ALTERNATIVE METHOD TENDERS
- General: In addition to and at the same time as tendering for the Works as defined in the tender documents, alternative methods of construction/ installation may be submitted for consideration. Alternatives, which would involve significant changes to other work, may not be considered.
- Alternative tenders: Such alternatives will be deemed to be alternative tenders, and each must include a complete and precise statement of the effects on cost and programme.
- Safety method statement: Carry out a health and safety risk assessment for each alternative and where appropriate provide a safety method statement suitable for incorporation in the Health and Safety Plan.
- Full technical data: Submit for each alternative together with details of any consequential amendments to the design and/ or construction of other parts of the Works.
- Submit: with tender.

515 ALTERNATIVE TIME TENDERS
- General: In addition to and at the same time as tendering based upon the date or period specified in section A20, an alternative tender based upon a different date for completion or period may be submitted.
- Date for completion: If any such tender is accepted the date for completion inserted in the Contract will be the date stated in the alternative tender or determined from the period stated in the alternative tender.

520 DESIGN DOCUMENTS
- Scope: Include the following in the Contractor's Proposals:
  - Design drawings.
  - Technical information.
  - Submit: With tender.

530 SUBSTITUTE PRODUCTS
- Details: If products of different manufacture to those specified are proposed, submit details with the tender giving reasons for each proposed substitution. Substitutions, which have not been notified at tender stage, may not be considered.
- Compliance: Substitutions accepted will be subject to the verification requirements of clause A31/200.

Total to Collection:
£ £

535A P.C. SUPPLY

- The Contractor shall note that where any items have been included within the tender as a PC Sum for supply, this shall be deemed to also include for supply, delivery to site and offloading. The Contractor when pricing these items shall include for removal to store and installation as required. Any items measured shall be deemed to be the net area and the P.C. will be deemed to relate to the areas measured. No adjustment will be made within the final account for waste or attendance. Invoices shall be provided by the Contractor regarding costs.

540 QUALITY CONTROL RESOURCES

- Statement: Describe the organisation and resources to control the quality of the Works, including the work of subcontractors.
- QA staff: Identify in the statement the number and type of staff responsible for quality control, with details of their qualifications and duties.
- Submit: with tender.

550 HEALTH AND SAFETY INFORMATION

- Content: Describe the organisation and resources to safeguard the health and safety of operatives, including those of subcontractors, and of any person whom the Works may affect.
- Include:
  - A copy of the contractor's health and safety policy document, including risk assessment procedures.
  - Accident and sickness records for the past five years.
  - Records of previous Health and Safety Executive enforcement action.
  - Records of training and training policy.
  - The number and type of staff responsible for health and safety on this project with details of their qualifications and duties.
  - Submit: with tender.

570 OUTLINE CONSTRUCTION PHASE HEALTH AND SAFETY PLAN

- Content: Submit the following information within one week of request:
  - Method statements on how risks from hazards identified in the pre-construction information and other hazards identified by the contractor will be addressed.
  - Details of the management structure and responsibilities.
  - Arrangements for issuing health and safety directions.
  - Procedures for informing other contractors and employees of health and safety hazards.
  - Selection procedures for ensuring competency of other contractors, the self-employed and designers.
  - Procedures for communications between the project team, other contractors and site operatives.
  - Arrangements for cooperation and coordination between contractors.
  - Procedures for carrying out risk assessment and for managing and controlling the risk.
  - Emergency procedures including those for fire prevention and escape.
  - Arrangements for ensuring that all accidents, illness and dangerous occurrences are recorded.
  - Procedures for ensuring that all persons on site have received relevant health and safety information and training.
  - Arrangements for consulting with and taking the views of people on site.
  - Arrangements for preparing site rules and drawing them to the attention of those affected and ensuring their compliance.
  - Monitoring procedures to ensure compliance with site rules, selection and management procedures, health and safety standards and statutory requirements.
  - Review procedures to obtain feedback.

Total to Collection:
£ £

SUBLETTING/ SUPPLY

630 DOMESTIC SUBCONTRACTS
- General: Comply with the Construction Industry Board 'Code of Practice for the selection of subcontractors'.
- List: Provide details of all subcontractors and the work for which they will be responsible.
- Submit: With tender.

800 TOLERANCES
- The Contractor is to ensure that there is an adequate exchange of information with and between all sub-contractors, suppliers and others employed by the Employer with regard to the sizes of components, openings and locations.

810 ARTISTS AND TRADESMEN
- Associated Works may be carried out concurrently with the Contract Works by other Contractors directly engaged by the Employer and the Contractor is to allow for affording access facilities to the site, the use of standing scaffolding and standing power-operated hoisting plant, the provision of temporary lighting, electricity and water supplies, clearing away rubbish, provision of space for the siting of offices, provision of facilities for the storage of materials, adequately heated, illuminated and ventilated, the use of mess rooms, sanitary accommodation and welfare facilities and co-operation with such directly-engaged Contractors.

900 RELATED SECTIONS:
A50 Work/Materials by/on behalf of the Employer.

Total to Collection:
£ £

A31 PROVISION, CONTENT AND USE OF DOCUMENTS

DEFINITIONS AND INTERPRETATIONS

110 DEFINITIONS
- Meaning: Terms, derived terms and synonyms used in the preliminaries/ general conditions and specification are as stated therein or in the appropriate British Standard or British Standard glossary.

111A EA means the person nominated in the Contract as Employer's Agent (EA) or an authorised representative.

113A APPROVAL (and words derived there from) means the approval in writing of the EA unless specified otherwise.

120 COMMUNICATION
- Definition: Includes advise, inform, submit, give notice, instruct, agree, confirm, seek or obtain information, consent or instructions, or make arrangements.
- Format: In writing to the person named in clause A10/140 unless specified otherwise.
- Response: Do not proceed until response has been received.

130 PRODUCTS
- Definition: Materials, both manufactured and naturally occurring, and goods, including components, equipment and accessories, intended for the permanent incorporation in the Works.
- Includes: Goods, plant, materials, site materials and things for incorporation into the Works.

135 SITE EQUIPMENT
- Definition: All appliances or things of whatsoever nature required in or about the construction for completion of the Works but not materials or other things intended to form or forming part of the Permanent Works.
- Includes: Construction appliances, vehicles, consumables, tools, temporary works, scaffolding, cabins and other site facilities.

140 DRAWINGS
- Definitions: To BSRIA BG 6/2009 A design framework for building services. Design activities and drawing definitions.
- CAD data: In accordance with BS 1192.

145C DRAWING REVISION STATUS
- Definition: All drawings referred to specifically in this Section 1 - Preliminaries and General Conditions and elsewhere within these Employer’s Requirements shall be deemed to be the latest revision status as listed in Section 1 – Appendix A: Tender Drawings.

150 CONTRACTOR'S DESIGN
- Meaning: Design to be carried out or completed by the Contractor and supported by appropriate contractual arrangements, to correspond with specified requirements.

155A SUBMIT PROPOSALS
- Meaning: (and words derived there from) Submit information in response to specified requirements to the CA unless otherwise instructed.

160 TERMS USED IN SPECIFICATION

- Remove: Disconnect, dismantle as necessary and take out the designated products or work and associated accessories, fixings, supports, linings and bedding materials. Dispose of unwanted materials. Excludes taking out and disposing of associated pipework, wiring, ductwork or other services.
- Fix: Receive, unload, handle, store, protect, place and fasten in position and disposal of waste and surplus packaging including all labour, materials and site equipment for that purpose.
- Supply and fix: As above but including supply or products to be fixed. All products to be supplied and fixed unless stated otherwise.
- Keep for reuse: Do not damage designated products or work. Clean off bedding and jointing materials. Stack neatly, adequately protect and store until required by the Employer/ Purchaser or for use in the Works as instructed.
- Make good: Execute local remedial work to designated work. Make secure, sound and neat. Excludes redecoration and/ or replacement.
- Replace: Supply and fix new products matching those removed. Execute work to match original new state of that removed.
- Repair: Execute remedial work to designated products. Make secure, sound and neat. Excludes redecoration and/ or replacement.
- Refix: Fix removed products.
- Ease: Adjust moving parts of designated products or work to achieve free movement and good fit in open and closed positions.
- Match existing: Provide products and work of the same appearance and features as the original, excluding ageing and weathering. Make joints between existing and new work as inconspicuous as possible.
- System: Equipment, accessories, controls, supports and ancillary items, including installation, necessary for that section of the work to function.

170 MANUFACTURER AND PRODUCT REFERENCE

- Definition: When used in this combination:
  - Manufacturer: The firm under whose name the particular product is marketed.
  - Product reference: The proprietary brand name and/ or reference by which the particular product is identified.
- Currency: References are to the particular product as specified in the manufacturer's technical literature current on the date of the invitation to tender.

200 SUBSTITUTION OF PRODUCTS

- Products: If an alternative product to that specified is proposed, obtain approval before ordering the product.
- Reasons: Submit reasons for the proposed substitution.
- Documentation: Submit relevant information, including:
  - manufacturer and product reference;
  - cost;
  - availability;
  - relevant standards;
  - performance;
  - function;
  - compatibility of accessories;
  - proposed revisions to drawings and specification;
  - compatibility with adjacent work;
  - appearance;
  - copy of warranty/ guarantee.
- Alterations to adjacent work: If needed, advise scope, nature and cost.
- Manufacturer's guarantees: If substitution is accepted, submit before ordering products.
- Submit certified English translations of any foreign language documents.

Total to Collection:
£ £

210 CROSS REFERENCES
- Accuracy: Check remainder of the annotation or item description against the terminology used in the section or clause referred to.
- Related terminology: Where a numerical cross-reference is not given the relevant sections and clauses of the specification will apply.
- Relevant clauses: Clauses in the referred to specification section dealing with general matters, ancillary products and execution also apply.
- Discrepancy or ambiguity: Before proceeding, obtain clarification or instructions.

220 REFERENCED DOCUMENTS
- Conflicts: Specification prevails over referenced documents.

230 EQUIVALENT PRODUCTS
- Inadvertent omission: Wherever products are specified by proprietary name the phrase 'or equivalent' is to be deemed included.

240 SUBSTITUTION OF STANDARDS
- Specification to British Standard or European Standard: Substitution may be proposed complying with a grade or category within a national standard of another Member State of the European Community or an international standard recognised in the UK.
- Before ordering: Submit notification of all such substitutions.
- Documentary evidence: Submit for verification when requested as detailed in clause A31/200. Any submitted foreign language documents must be accompanied by certified translations into English.

250 CURRENCY OF DOCUMENTS
- Currency: References to published documents are to the editions, including amendments and revisions, current on the date of the Invitation to Tender.

260 SIZES
- General dimensions: Products are specified by their co-ordinating sizes.
- Timber: Cross section dimensions shown on drawings are:
  - Target sizes as defined in BS EN 336 for structural softwood and hardwood sections.
  - Finished sizes for non-structural softwood or hardwood sawn and further processed sections.

280A FIX ONLY: means all labours in unloading, handling, storing and fixing in position, including use of all plant.

290A SUPPLY AND FIX: unless stated otherwise all items are to be supplied and fixed complete.

DOCUMENTS PROVIDED ON BEHALF OF EMPLOYER

410 ADDITIONAL COPIES OF THE DRAWINGS/ DOCUMENTS
- Additional copies: Issued on request but will be charged to the Contractor.

440B DIMENSIONS
- The accuracy of dimensions scaled from the initial concept scheme designs, general arrangement drawings and sketch details and drawings is not guaranteed as scaled dimensions cannot be relied upon. Obtain from the EA any dimensions required but not given in figures on the drawings nor calculable from figures on the drawings. The Contractor must confirm for himself all site dimensions. In the event of any significant discrepancy between the drawings, inform the EA without delay and request his further instructions.

Total to Collection:
£

£

460 THE SPECIFICATION
- Coordination: All sections must be read in conjunction with Main Contract Preliminaries/ General conditions.

470 DIVERGENCE FROM THE STATUTORY REQUIREMENTS
- Divergence: Between the drawings or specification and the requirements of the Building Regulations, other Statutes, statutory undertakers and other regulatory authorities.
- Action: Inform immediately.

DOCUMENTS PROVIDED BY CONTRACTOR/ SUBCONTRACTORS/ SUPPLIERS

500A CONSTRUCTION DRAWINGS
- The Contractor shall provide no later than the commencement on site free issue drawings to the EA, 3 copies in paper format with versions also on disk or electronic transfer and with all subsequent revisions to be similarly issued to the EA.

510 CHANGES/ AMENDMENTS TO EMPLOYER'S REQUIREMENTS
- Contractor's changes to Employer's Requirements: Support request for substitution or variation with all relevant information.
- Employer's amendments to Employer's Requirements: If considered to involve a variation, which has not already been acknowledged as a variation, notify without delay (maximum period 7 days), and do not proceed until instructed. Claims for extra cost, if made after the variation has been carried out, may not be allowed.
- Submit: two copies.

600 CONTRACTOR'S DESIGN AND PRODUCTION INFORMATION
- General: Complete the design and detailing of parts of the Works as specified.
- Provide:
  - Production information based on the drawings, spec & other information.
  - Liaison to ensure coordination of work with related building elements &services.
- Master programme: Make reasonable allowance for completing design/ production information, submission (including to the Principal Designer), comment, inspection, amendment, resubmission and re-inspection. Ten working days are required for comment from the EA.
- Design/ production information: Submit two copies, one can be returned with comments. Ensure that any necessary amendments are made without delay.
- Contractor's changes to Employer's Requirements: Support request for substitution or change with all relevant information.
- Employer's amendments to Employer's Requirements: If considered to involve a change, which has not already been acknowledged as a change, notify without delay (maximum period 7 days), and do not proceed until instructed. Claims for extra cost, if made after it has been carried out, may not be allowed.
- Final version of design/ production information: Submit to the EA the required number of copies.

605A CONTRACTOR'S DESIGN PORTION: DESIGN AND PRODUCTION INFORMATION
- When preparing the master programme make reasonable allowance for completing design/production information, including submission to the CDM for comment, inspection by the EA, and any subsequent amendment(s), resubmission(s) and re-inspection(s).
- During the Contract submit to EA the required number of copies of design/ production information. The EA will note any comments on one copy, then return to the Contractor and this will be deemed to be a direction, notice or instruction under the Contract.

Total to Collection:
£ £

- Ensure that any necessary amendments are made without delay. Unless and until the EA confirms that resubmission is not required, submit copies of amended drawings etc. to EA, and ensure incorporation of necessary amendments all as before.
- If submitted design/production information differs from the Employer's Requirements, each such difference must be the subject of a request for substitution or Variation, supported by all relevant information.

- Should any amendment required by the EA be considered to involve a Variation which has not already been acknowledged as a Variation by the EA, notify the EA without delay and in any case within 7 days, and do not proceed with ordering, fabrication, erection or installation until subsequently instructed. Claims for the extra cost of such work, if made after it has been carried out, may not be allowed.
- Complete final version of all design/production information and submit to the EA the required number of copies.

620 AS BUILT DRAWINGS AND INFORMATION
- Contractor’s designed work: Provide drawings/ information:
  - to the EA and as required by the CDM Regulations for the formation of the health and safety file.
- Submit: At least two weeks before date for completion.

625A AS BUILT DRAWINGS AND INFORMATION
must be provided to the Employers Agent as a pre-condition to Practical Completion and must include:
- A copy of the design calculations relating to the ‘as built’ development
- Full mechanical and electrical services layouts and equipment drawings (1:50 scale)
- Three paper copies of all drawings shall be provided and also all drawings shall be provided as a CD Autodesk or similar format.

628A CERTIFICATES OF CONFORMITY
- The Contractor must produce Certificates of Conformity to demonstrate compliance with the Specifications for the following stages of the Works:

  Mortar Mix Design
  Drainage

  The Certificate of Conformity is to be provided to the Employer’s Agent on completion of the Works.

630 TECHNICAL LITERATURE
- Information: Keep on site for reference by all supervisory personnel:
  - Manufacturers' current literature relating to all products to be used in the Works.
  - Relevant British Standards.

640 MAINTENANCE INSTRUCTIONS AND GUARANTEES
- Components and equipment: Obtain or retain copies, register with manufacturer and hand over on or before completion of the Works.
- Information location: In the Building Manual.
- Emergency call out services: Provide telephone numbers for use after completion.

645A INSURANCE BACKED GUARANTEES
- The Contractor shall provide insurance backed 12 year guarantees where available for materials and installations, comprising, but not limited to:
  - Sprinkler System

Total to Collection:
£ £

- Comply with the requirements of such including employing approved installers and ensuring the works are tested and inspected in accordance with the insurers and manufacturers requirements.

DOCUMENT/ DATA INTERCHANGE

850 ELECTRONIC DATA INTERCHANGE (EDI)

- Data: Types and classes of communication: Electronic transfer of drawings and specifications.
- Parties: Between: Contractor and EA (and others whom the EA instructs, the Contractor to issue documents to).
- Requirements: Proprietary software and hardware to enable the transfer of such documentation. All electronic transfer of drawings and specification to be subsequently confirmed in paper format.

Total to Collection:
£ £

A32 MANAGEMENT OF THE WORKS

GENERALLY

110 SUPERVISION
- General: Accept responsibility for coordination, supervision and administration of the Works, including subcontracts.
- Coordination: Arrange and monitor a programme with each subcontractor, supplier, local authority and statutory undertaker, and obtain and supply information as necessary for coordination of the work.

111A SKILLED WORKPEOPLE
- The Contractor shall employ in the execution of the Works skilled workmen in their various trades and callings and the EA shall be at liberty to instruct the Contractor of any persons employed by the Contractor in the execution of the Works who shall be guilty of misconduct or shall, in the EA's opinion, be incompetent or negligent in the performance of his duties and such persons shall not again be employed on any portion of the works.

112A LABOUR
- if the labour position in the district becomes unsatisfactory the Contractor will be required to adequately augment his labour force by the recruitment of people from other districts. Tenders shall include for this and for all additional expenses including higher rates of wages and allowances, travelling expenses, travelling time, cost of conveyance, loading etc.

113A ARTISTS AND TRADESMEN
- associated works will be carried out concurrently with the Contract Work by other Contractors employed direct by the Employer and the Contractor is to allow for affording access facilities to site, use of water and electricity, storage of materials and co-operation with such Contractors employed direct.

114A WORKING IN SECTIONS
- any additional costs the Contractor may be involved in as a result of the works being carried out in sections, places awkward of access, small quantities, isolated positions etc., must be allowed for in his Tender, as no extra will be allowed for at the settlement of the final account for any additional cost the Contractor may consider he has been involved in after the Works have been started.

120 INSURANCE
- Documentary evidence: Before starting work on site submit details, and/ or policies and receipts for the insurances required by the Conditions of Contract.

130 INSURANCE CLAIMS
- Notice: If any event occurs which may give rise to any claim or proceeding in respect of loss or damage to the Works or injury or damage to persons or property arising out of the Works, immediately give notice to the Employer, the person named in clause A10/140 and the Insurers.
- Failure to notify: Indemnify the Employer against any loss, which may be caused by failure to give such notice.

140 CLIMATIC CONDITIONS
- Information: Record accurately and retain:
  - Daily maximum and minimum air temperatures.
  - Delays due to adverse weather, including description of the weather, types of work affected, and number of hours lost.

Total to Collection:
£

£

150 OWNERSHIP
- Alteration/ clearance work: Materials arising become the property of the Contractor except where otherwise stated. Remove from site as work proceeds.

155A LABOUR AND PLANT RESOURCES
- Keep an accurate record of daily labour resources, classified by trade and grade and functioning plant on site.

160A WORK BY THE STATUTORY UNDERTAKERS
- The Statutory Undertaker's apparatus present within the area of the works and adjacent to the site is to be ascertained by the Contractor.
- The Contractor must contact the Statutory Undertakings prior to commencing the works and must make arrangements with them for the location and protection of all services within the area of the works. Where necessary, the Contractor shall allow for hand dig excavations to ascertain the accurate locations of the various services.
- Any abandoned sewers, pipes or other services discovered in the course of the works shall be either removed or grouted in accordance with the Specifications. The prior approval of the authority concerned must be obtained before disconnecting and removing any apparatus.
- Private services to individual properties have not generally been listed or shown on the drawings. The Contractor shall make arrangements with the Statutory Undertakings and others concerned for the phasing of all necessary disconnections and diversions of private services affected by the works.
- In the event that the Employer pays for the Statutory Services direct no profit and overheads or management shall be payable on this element of work. Allowance should be included elsewhere in the preliminaries and not as an addition to the provisional sums.

PROGRAMME/ PROGRESS

210 PROGRAMME
- Master programme: When requested and before starting work on site, submit in an approved form a master programme for the Works, which must include details of:
  - Design, production information and proposals provided by the Contractor/ Subcontractors/ Suppliers, including inspection and checking (see section A31).
  - Planning and mobilization by the Contractor.
  - Earliest and latest start and finish dates for each activity and identification of all critical activities.
  - Running in, adjustment, commissioning and testing of all engineering services and installations
  - Work resulting from instructions issued in regard to the expenditure of provisional sums (see section A54)
  - Work by or on behalf of the Employer and concurrent with the Contract (see section A50). The nature and scope of which, the relationship with preceding and following work and any relevant limitations are suitably defined in the Contract Documents.
- Exclusions: Where and to the extent that the programme implications for work which is not so defined are impossible to assess, the Contractor should exclude it and confirm this when submitting the programme.
- Submit: 6 copies to the EA.

Total to Collection:
£

£

220A THE PROGRAMME
- must show earliest and latest start and finish dates for each activity and identify all critical activities. It must be of the bar chart type, unless agreed otherwise.
- The Contractor must be required to ensure that the programme is altered as necessary during the course of the Works to indicate any rescheduling which may be required to overcome any problems encountered during the execution of the Works and indicating completion within the defined contract period.

230 SUBMISSION OF PROGRAMME
- Further information: Submission of the programme will not relieve the Contractor of the responsibility to advise of the need for further drawings or details or instructions in accordance with the Contract.

240 COMMENCEMENT OF WORK
- Notice: Before the proposed date for commencement of work on site give minimum notice of ten days (excluding public holidays).

250A MONITORING
- Progress: Record on a copy of the programme kept on site.
- Avoiding delays: If any circumstances arise which may affect the progress of the Works submit proposals or take other action as appropriate to minimize any delay and to recover any lost time.
- At maximum monthly intervals (or such reduced internals as otherwise directed by the EA), the Contractor shall comprehensively reconcile the actual and predicted programme against the target programme, including providing detailed written reports and commentaries.

260A SITE MEETINGS
- General: The EA will hold regular site meetings to review progress and other matters arising from administration of the Contract.
- Frequency: Monthly.
- Location: Contractor's site offices.
- Accommodation: Ensure availability at the time of such meetings, adequately heated, lit, complete with furniture and where appropriate provide food and refreshments for those attending (maximum 10 people)
- The Contractor shall allow for all of his senior permanent site staff and additionally his Contracts Director, Contract/Project Manager, Design Co-ordinator, Services Engineer, Design Consultants and Project Quantity Surveyor(s) if not permanently based on site and arrange for Sub-Contractors and suppliers to be present as requested. If so instructed, other Directors of the Contractor shall attend the meetings.
- Attendees: Attend meetings and inform subcontractors, suppliers and Design Consultants when their presence is required.
- Chairperson (who will also take and distribute minutes): Employer's Agent.

261A SITE MEETINGS: The EA may invite other parties with an interest to attend the site meetings.

265A CONTRACTOR'S PROGRESS REPORT
- General: Submit a progress report at to the EA at least 2 days before the site meeting.
- Content: Notwithstanding the Contractor's obligations under the Contract the report must include:
  - A progress statement by reference to the master programme for the Works.
  - Details of any matters materially affecting the regular progress of the Works.
  - Subcontractors' and suppliers' progress reports.
  - Any requirements for further drawings or details or instructions to enable the EA to fulfil his obligations under the Conditions of Contract.
  - Forecast of final cost

Total to Collection:
£

£

- Cash flow comparing actual costs versus projected costs
- Statement of labour, plant and materials on site.
- Health and Safety Report.
- Labour and Materials Availability Report
- Quality Control Methods and any results.
- Warranty status.
- Security Matters.
- Concerns.

270 CONTRACTOR'S SITE MEETINGS

- General: Hold meetings with appropriate subcontractors and suppliers shortly before main site meetings to facilitate accurate reporting of progress.

280 PHOTOGRAPHS

- Number of locations: max 15.
- Frequency of intervals: weekly.
- Image format: electronic jpeg and pdf.
- Number of images from each location: 4.
- Other requirements: all photographs to be burned to CD at completion. Four copies to be issued to EA.

285 EARLY POSSESSION/ TAKE OVER OF PARTS OF THE WORKS BY THE EMPLOYER

- Possession/ takeover of parts of the Works: As completed, provided all necessary access, services and other associated facilities are also complete.

290 NOTICE OF COMPLETION

- Requirement: Give notice of the anticipated dates of completion of the whole or parts of the Works.
- Associated works: Ensure necessary access, services and facilities are complete.
- Period of notice (minimum): 6 weeks

300A ADVERSE WEATHER: Use all reasonable and suitable building aids and methods to prevent or minimise delays during adverse weather conditions.

310 EXTENSIONS OF TIME

- Notice: When a notice of the cause of any delay or likely delay in the progress of the Works is given under the conditions of contract, written notice must also be given of all other causes which apply concurrently.
- Details: As soon as possible submit:
  - Relevant particulars of the expected effects, if appropriate, related to the concurrent causes.
  - An estimate of the extent, if any, of the expected delay in the completion of the Works beyond the date for completion.
  - All other relevant information required.

CONTROL OF COST

410A CASH FLOW FORECAST AND FORECAST OF FINAL COST

- Submission: Before starting work on site, submit a forecast showing the gross valuation of the Works at the date of each Interim Certificate throughout the Contract period. Base on the programme for the Works.
- Allow for updating and revising such cash flow forecast on a monthly basis to take account of actual payments and produce and provide a detailed forecast of final cost on a monthly basis.

Total to Collection:
£

£

420 REMOVAL/ REPLACEMENT OF EXISTING WORK
- Extent and location: Agree before commencement.
- Execution: Carry out in ways that minimize the extent of work.

430A PROPOSED INSTRUCTIONS
- Validity: The Contractor MUST only take instruction from the EA as named in clause A10:140. No instruction shall be taken from any other person, company or interested party.
- Estimates: If a proposed instruction requests an estimate of cost, submit without delay and in any case within seven days.
- Include:
  - A detailed breakdown of the cost, including any allowance for direct loss and expense.
  - Details of any additional resources required.
  - Details of any adjustments to be made to the programme for the Works.
  - Any other information as is reasonably necessary to fully assess the implications of issuing such an instruction.
- Inability to comply: Inform immediately if it is not possible to comply with any of the above requirements.

440 MEASUREMENT
- Covered work: Give notice before covering work required to be measured.

450 DAYWORK VOUCHERS
- Before commencing work: Give reasonable notice to person countersigning daywork vouchers.
- Content: Before delivery, each voucher must be:
  - Referenced to the instruction under which the work is authorized.
  - Signed by the Contractor's person in charge as evidence that the operatives' names, the time daily spent by each and the equipment and products employed are correct.
- Submit: weekly.

460 INTERIM VALUATIONS
- Applications: Include details of amounts requested under the Contract together with all necessary supporting information.
- Submission: At least seven days before established dates.

470A PRODUCTS NOT INCORPORATED INTO THE WORKS/UNFIXED MATERIALS
- At the time of each Interim Payment disclose to the EA which of the unfixed materials and goods on site are free from, and which are subject to, any reservation of title inconsistent with passing of property as required by the Conditions of Contract, together with their respective values. The value of unfixed materials and goods will not be included in Interim Payments unless evidence of freedom from reservation of title is provided. Arrange for all Sub-Contractors and Suppliers to complete Materials on Site Declarations in respect of on-site materials and goods included in Interim Applications for Payment, where such materials have been provided by a specialist Sub-Contractor or Supplier. The originals of all materials on Site Declarations are to be retained by the Employer's Agent.
- The Contractor is also to ensure that the Contractor's materials and the domestic sub-contractor's materials are separately identifiable on site otherwise the items in question will be excluded from any Interim Payment.
- Furthermore, complete and arrange for all Sub-Contractors to complete, materials on site Declaration Forms in the format in included in Appendix G of these Employer's Requirements in respect of on-site materials and goods included in Interim Applications for Payment.

Total to Collection:
£

£

475A LISTED PRODUCTS STORED OFF SITE

- No payment will be made for materials or good off site.

480 LABOUR AND EQUIPMENT RETURNS

- Records: Provide for verification at the beginning of each week in respect of each of the previous seven days.
- Records must show:
  - The number and description of craftsmen, labourers and other persons directly or indirectly employed on or in connection with the Works or Services, including those employed by subcontractors.
  - The number, type and capacity of all mechanical, electrical and power-operated equipment employed in connection with the Works or Services.

Total to Collection:

£

£

A33 QUALITY STANDARDS/ CONTROL

STANDARDS OF PRODUCTS AND EXECUTIONS

110 INCOMPLETE DOCUMENTATION

- General: Where and to the extent that products or work are not fully documented, they are to be:
  - Of a kind and standard appropriate to the nature and character of that part of the Works where they will be used.
  - Suitable for the purposes stated or reasonably to be inferred from the project documents.
  - Contract documents: Omissions or errors in description and/ or quantity shall not vitiate the Contract nor release the Contractor from any obligations or liabilities under the Contract.

120 WORKMANSHIP SKILLS

- Operatives: Appropriately skilled and experienced for the type and quality of work.
- Registration: With Construction Skills Certification Scheme.
- Evidence: Operatives must produce evidence of skills/ qualifications when requested.

130 QUALITY OF PRODUCTS

- Generally: New (Proposals for recycled products may be considered).
- Supply of each product: From the same source or manufacturer.
- Whole quantity of each product required to complete the Works: Consistent in kind, size, quality and overall appearance.
- Tolerances: Where critical, measure a sufficient quantity to determine compliance.
- Deterioration: Prevent. Order in suitable quantities to a programme and use in appropriate sequence.

135 QUALITY OF EXECUTION

- Generally: Fix, apply, install or lay products securely, accurately, plumb, neatly and in alignment.
- Colour batching: Do not use different colour batches where they can be seen together.
- Dimensions: Check on-site dimensions.
- Finished work: Not defective, e.g. not damaged, disfigured, dirty, faulty, or out of tolerance.
- Location/ fixing of products: Adjust joints open to view so they are even & regular.

136A PROHIBITED MATERIALS

- Any materials or substances which at the time of specification are not approved or no recommended or are identified as being deleterious, unsatisfactory or of unsuitable quality.

140 COMPLIANCE

- Compliance with proprietary specifications: Retain on site evidence that the proprietary product specified has been supplied.
- Compliance with performance specifications: Submit evidence of compliance, including test reports indicating:
  - Properties tested.
  - Pass/ fail criteria.
  - Test methods and procedures.
  - Test results.
  - Identity of testing agency.
  - Test dates and times.
  - Identities of witnesses.
  - Analysis of results.

Total to Collection:
£

£

150 INSPECTIONS

- Products and executions: Inspection or any other action must not be taken as approval unless confirmed in writing referring to:
  - Date of inspection.
  - Part of the work inspected.
  - Respects or characteristics which are approved.
  - Extent and purpose of the approval.
  - Any associated conditions.

155A PROTECTION OF PRODUCTS

- Prevent over-stressing, distortion and any other type of physical damage.
- Keep clean and free from contamination. Prevent staining, chipping, scratching or other disfigurement, particularly of products exposed to view in the finished work.
- Keep dry and in a suitably low humidity atmosphere to prevent premature setting, moisture movement and similar defects. Where appropriate store off the ground and allow free air movement around and between stored products.
- Prevent excessively high or low temperatures and rapid changes of temperature in the products.
- Protect adequately from rain, damp, frost, sun and other elements as appropriate. Ensure that products are at a suitable temperature and moisture content at time of use.
- Ensure that sheds and covers are of ample size, in good weatherproof condition and well secured.
- Keep different types and grades of products separately and adequately identified.
- So far as possible keep products in their original wrappings, packings or containers, until immediately before they are used.
- Wherever possible retain protective wrappings after fixing and until shortly before Practical Completion.
- Ensure that protective measures are fully compatible with and not prejudicial to the products/materials.

160 RELATED WORK

- Details: Provide all trades with necessary details of related types of work. Before starting each new type or section of work ensure previous related work is:
  - Appropriately complete.
  - In accordance with the project documents.
  - To a suitable standard.
  - In a suitable condition to receive the new work.
- Preparatory work: Ensure all necessary preparatory work has been carried out.

170 MANUFACTURER'S RECOMMENDATIONS/ INSTRUCTIONS

- General: Comply with manufacturer's printed recommendations and instructions current on the date of the Invitation to tender.
- Changes to recommendations or instructions: Submit details.
- Ancillary products and accessories: Use those supplied or recommended by main product manufacturer.
- Agrément certified products: Comply with limitations, recommendations and requirements of relevant valid certificates.

173A PROTECTION OF PRODUCT/MATERIALS

- Protect all pre-finished products to be exposed to view when incorporated in the works from any form of damage or detrimental effects to each product(s)/material(s) visual appearance.
- Any product(s)/material(s) so damaged will be interpreted by the EA as being not in accordance with the Contract.
- Submit proposals to the EA for rectification.

Total to Collection:
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175A GENERAL QUALITY OF WORKMANSHIP
- Operatives must be appropriately skilled and experienced for the type and quality of work.
- Take all necessary precautions to prevent damage to the work from frost, rain and other hazards.
- Inspect components and products carefully before fixing or using and reject any which are defective.
- Fix or lay securely, accurately and in alignment.
- Where not specified otherwise, select fixing and jointing methods and types, sizes and spacings of fastenings in compliance with section Z20. Fastenings to comply with relevant British Standards.
- Provide suitable, tight packings at screwed and bolted fixing points to take up tolerances and prevent distortion. Do not overtighten fixings.
- Adjust location and fixing of components and products so that joints which are to be finished with mortar or sealant or otherwise left open to view are even and regular.
- Ensure that all moving parts operate properly and freely. Do not cut, grind or plane prefinished components and products to remedy binding or poor fit without approval.

176A BS 8000: BASIC WORKMANSHIP
- Where compliance with BS 8000 is specified, this is only to the extent that the recommendations therein define the quality of the finished work.
- Where BS 8000 gives recommendations on particular working methods or other matters which are properly within the province and responsibility of the Contractor, compliance therewith will be deemed to be a matter of general industry good practice and not a specific requirement of the EA under the Contract.
- If there is any conflict or discrepancy between the recommendations of BS 8000 on the one hand and the project documents on the other, the latter will prevail.

180 WATER FOR THE WORKS
- Mains supply: Clean and uncontaminated.
- Other: Do not use until:
  - Evidence of suitability is provided.
  - Tested to BS EN 1008 if instructed.

SAMPLES/ APPROVALS

210A SAMPLES
- Products or executions: Comply with all other specification requirements and in respect of the stated or implied characteristics either:
  - To an express approval.
  - To match a sample expressly approved as a standard for the purpose.
  - Samples including, but not limited to, boxing, pipework, sprinkler heads to be provided as required to the EA to enable quality to be established and approved prior to incorporation into the Works.

220 APPROVAL OF PRODUCTS
- Submissions, samples, inspections and tests: Undertake or arrange to suit the Works programme.
- Approval: Relates to a sample of the product and not to the product as used in the Works. Do not confirm orders or use the product until approval of the sample has been obtained.
- Complying sample: Retain in good, clean condition on site. Remove when no longer required.

230 APPROVAL OF EXECUTION
- Submissions, samples, inspections and tests: Undertake or arrange to suit the Works programme.

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- Approval: Relates to the stated characteristics of the sample. (If approval of the finished work as a whole is required this is specified separately). Do not conceal, or proceed with affected work until compliance with requirements is confirmed.
- Complying sample: Retain in good, clean condition on site. Remove when no longer required.

ACCURACY/ SETTING OUT GENERALLY

310 ACCURACY OF INSTRUMENTS:
- Use instruments and methods described in BS 5606, Appendix A to give the following degrees of accuracy in measurement:
  Linear dimensions: as table 4T41 of BS5606
  Angular dimensions: as table 4T42 of BS5606
  Verticality: as table 4T43 of BS5606
  Levels: as table 4T44 of BS5606

311A TOLERANCES:
- The Contractor is to ensure that there is an adequate exchange of information with and between all Sub-Contractors, Suppliers and others employed by the Employer with regard to the sizes of components, openings and locations.

312A TOLERANCES:
- The Contractor shall check dimensions of all components after delivery to site and inform the EA of any departure from permissible deviations and tolerances.

320 SETTING OUT
- General: Submit details of methods and equipment to be used in setting out the Works.
- Levels and dimensions: Check and record the results on a copy of drawings. Notify discrepancies and obtain instructions before proceeding.
- Inform: When complete and before commencing construction.

330 APPEARANCE AND FIT
- Tolerances and dimensions: If likely to be critical to execution or difficult to achieve, as early as possible either:
  - Submit proposals; or
  - Arrange for inspection of appearance of relevant aspects of partially finished work.
- General tolerances (maximum): To BS 5606, tables 1 and 2.

360 RECORD DRAWINGS
- Site setting out drawing: Record details of all grid lines, setting-out stations, benchmarks and profiles. Retain on site throughout the contract and hand over on completion.

SERVICES GENERALLY

410 SERVICES REGULATIONS
- New or existing services: Comply with the Byelaws or Regulations of the relevant Statutory Authority.

420 WATER REGULATIONS/ BYELAWS NOTIFICATION
- Requirements: Notify Water Undertaker of any work carried out to or which affects new or existing services and submit any required plans, diagrams and details.
- Consent: Allow adequate time to receive Undertaker's consent before starting work. Inform immediately if consent is withheld or is granted subject to significant conditions.

Total to Collection:
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430 WATER REGULATIONS/ BYELAWS CONTRACTOR'S CERTIFICATE

- On completion of the work: Submit (copy where also required to the Water Undertaker) a certificate including:
  - The address of the premises.
  - A brief description of the new installation and/ or work carried out to an existing installation.
  - The Contractor's name and address.
  - A statement that the installation complies with the relevant Water Regulations or Byelaws.
  - The name and signature of the individual responsible for checking compliance.
  - The date on which the installation was checked.

435 ELECTRICAL INSTALLATION CERTIFICATE

- Submit: When relevant electrical work is completed.
- Original certificate: To be lodged in the Building Manual.

450A MECHANICAL AND ELECTRICAL SERVICES

- Final tests and commissioning: Carry out so that services are in full working order at completion of the Works.
- Witnessing: All commissioning of services is to be witnessed by the EA or his authorised representative.

SUPERVISION/ INSPECTION/ DEFECTIVE WORK

510 SUPERVISION

- General: In addition to the constant management and supervision of the Works provided by the Contractor's person in charge, all significant types of work must be under the close control of competent trade supervisors to ensure maintenance of satisfactory quality and progress.
- Replacement: Give maximum possible notice before changing person in charge or site agent.

520A COORDINATION OF ENGINEERING SERVICES

- Suitability: Site organisation staff must include one or more persons with appropriate knowledge and experience of mechanical and electrical engineering services to ensure compatibility and co-ordination between engineering and the Works generally.
- Evidence: Submit with tender CVs or other documentary evidence relating to the staff concerned.
- The Mechanical and Electrical Services Co-ordinator is to liaise closely with the EA.
- Monitor/design production information to ensure that it is produced timeously and that mechanical and electrical sub-contractors are aware of each other's service routes and requirements. Co-ordinate presence of mechanical and electrical subcontractors on site with building progress especially in the early part of the construction period.
- Co-ordinate services spatially, within service voids, with each other and with structural and architectural finishes as necessary to resolve co-ordination difficulties. Convene meetings with engineering services subcontractors.
- Report in detail at site progress meetings the progress of the mechanical, electrical and other major specialist services subcontractors, against the master programme and other detailed subcontract programmes. Produce a schedule of information required together with appropriate issue dates to suit the programming of the works.

530 OVERTIME WORKING

- Notice: Prior to overtime being worked, submit details of times, types and locations of work to be done.

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- Concealed work: If executed during overtime for which notice has not been given, it may be required to be opened up for inspection and reinstated at the Contractor's expense.

540 DEFECTS IN EXISTING WORK
- Undocumented defects: When discovered, immediately give notice. Do not proceed with affected related work until response has been received.
- Documented remedial work: Do not execute work which may:
  - Hinder access to defective products or work; or
  - Be rendered abortive by remedial work.

550 ACCESS FOR INSPECTION
- Removal: Before removing scaffolding or other facilities for access, give notice of not less than 7 working days

560 TESTS AND INSPECTIONS
- Timing: Agree and record dates and times of tests and inspections to enable all affected parties to be represented.
- Confirmation: One working day prior to each such test or inspection. If sample or test is not ready, agree a new date and time.
- Records: Submit a copy of test certificates and retain copies on site.

590 RESISTANCE TO PASSAGE OF SOUND
- Method: to be undertaken by an appropriately accredited body
- Compliance: in accordance with the requirements of Building Regulations.
  - Copies: Incorporate in the Building Manual.

610 PROPOSALS FOR RECTIFICATION OF DEFECTIVE PRODUCTS/ EXECUTIONS
- Proposals: Immediately any execution or product is known, or appears, to be not in accordance with the Contract, submit proposals for opening up, inspection, testing, making good, adjustment of the Contract Sum, or removal and re-execution.
- Acceptability: Such proposals may be unacceptable and contrary instructions may be issued.

620 MEASURES TO ESTABLISH ACCEPTABILITY
- General: Wherever inspection or testing shows that the work, materials or goods are not in accordance with the contract and measures (e.g. testing, opening up, experimental making good) are taken to help in establishing whether or not the work is acceptable, such measures:
  - Will be at the expense of the Contractor.
  - Will not be considered as grounds for revision of the completion date.

630 QUALITY CONTROL
- Procedures: Establish and maintain to ensure that the Works, including the work of subcontractors, comply with specified requirements.
- Records: Maintain full records, keep copies on site for inspection, and submit copies on request.
- Content of records:
  - Identification of the element, item, batch or lot including location in the Works.
  - Nature and dates of inspections, tests and approvals.
  - Nature and extent of nonconforming work found.
  - Details of corrective action.

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WORK AT OR AFTER COMPLETION

710 WORK BEFORE COMPLETION

- General: Make good all damage consequent upon the Works.
  - Temporary markings, coverings and protective wrappings: Remove unless otherwise instructed.
- Cleaning: Clean the Works thoroughly inside and out, including all accessible ducts and voids. Remove all splashes, deposits, efflorescence, rubbish and surplus materials.
- Cleaning materials and methods: As recommended by manufacturers of products being cleaned and must not damage or disfigure other materials or construction.
- COSHH dated data sheets: Obtain for all materials used for cleaning and ensure they are used only as recommended by their manufacturers.
- Minor faults: Touch up in newly painted work, carefully matching colour and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions.
- Moving parts of new work: Adjust, ease and lubricate as necessary to ensure easy and efficient operation, including doors, windows, drawers, ironmongery, appliances, valves and controls.

711 CLEANING

- Notwithstanding the requirements of Clause A33/710 the Contractor will be responsible for cleaning the works on a regular basis throughout the course of the works to ensure that rubbish and debris does not build up and that the sections of the works and the contractor's compound is maintained in a tidy condition.
- Furthermore, the Contractor will undertake a thorough "Contract clean" of all the sections of the works prior to the access date for the commencement of the works. Upon completion of the access date the Contractor will also prior to practical completion undertake a thorough "commercial clean" of the works leaving the building perfect and fit for immediate occupation and use.
- The burning on site of rubbish must not be allowed under any circumstances.

717A FIRE COMMISSIONING TESTS

- The Contractor shall, prior to the access date carry out tests for all active systems included in the Works. These tests are to be witnessed. The Contractor must provide two working weeks' notice prior to carrying out the tests. Commissioning and Compliance Certificates and 'as built' drainage information are to be provided with copies also issued to the Fire Authority, Building Control and EA.

719A PRACTICAL COMPLETION, SNAGGING AND HANDOVER PROCEDURES

The Contractor's attention is drawn to the following:

- The Contractor shall give the Employer beneficial occupation of the entire Works required by his Artists and Tradesmen not less than six weeks before Practical Completion
- Practical Completion shall have been reached when the Employer at his sole discretion considers the building to be completed in such a way that it is capable of being occupied efficiently, without disturbance and at Practical Completion the Contractor shall ensure that:

A) The Building Manual has been completed as a draft, reviewed and re-issued in its final format (or at the EA's discretion, a firm commitment has been given by the Contractor to issue the Final Building Manuals within a maximum period of one month of the date of Practical Completion subject to an appropriate financial incentive being retained by the Employer pending there issue).

B) The Health and Safety File has been completed as a draft, reviewed and re-issued in its final format (or at the EA's discretion, a firm commitment has been given by the Contractor to issue the Final Building Manuals within a maximum period of one month

of the date of Practical Completion subject to an appropriate financial incentive being retained by the Employer pending there issue).

C) All as built drawings have been issued in both paper and electronic format to the EA (or at the EA's discretion, a firm commitment has been given by the Contractor to issue the Final Building Manuals within a maximum period of one month of the date of Practical Completion subject to an appropriate financial incentive being retained by the Employer pending there issue).

D) All warranties and guarantees have been presented to the EA

E) All testing and commissioning has been completed and any necessary adjustments made.

F) Staff have received adequate training of all systems

- This does not absolve the Contractor from making good all defects subsequently identified, in accordance with access arrangements to be agreed with the Employer.

720 SECURITY AT COMPLETION OF THE WORKS

- General: Leave the Works secure with, where appropriate, all accesses closed and locked.
- Keys: Account for and adequately label all keys and hand over to Employer with itemized schedule, retaining duplicate schedule signed by Employer as a receipt.

725A PRACTICAL COMPLETION OF THE WORKS – PRELIMINARY QUALITY INSPECTIONS GENERALLY: Generally, the Contractor and the EA, will jointly inspect each area of the works concurrently as the work progress to identify, agree and formally schedule all snagging items etc. The Contractor will ensure during the following seven days that all items identified on the snagging schedule are made good to the satisfaction of the EA in order that the works can be handed over at Practical Completion with zero defects (or as close thereto as the EA considers acceptable).
It should be noted that access for making good defects following Practical Completion may be restricted, will be by arrangement with and at the discretion of the Employer and may be outside normal working hours to suit the requirements of the Employer.

The Contractor will be required to implement and undertake his own snagging regime during the course of the work to ensure that the amount of defects is kept to an absolute minimum.

730A MAKING GOOD DEFECTS: Make arrangements with the EA / Employer and give reasonable notice of the precise dates for access to the various parts of the Works for purposes of making good defects. Notify EA when remedial works to the various parts of the Works are completed.
On completion of all items of making good clear away all surplus materials and tools and ensure work area is left in a clean and tidy condition before leaving site.

All Contractors visiting the site for the purposes of making good defects must report to Reception and keep a full daily record of labour on site.

735A MAKING GOOD DEFECTS – SHRINKAGE CRACKING: The Contractor shall allow in his Tender for making good, to the approval of the EA, all shrinkage cracking in decoration between walls and boxing etc and shrinkage / movement in joinery items generally. The Contractor will undertake this operation in conjunction with the making good of general defects.

738A EMERGENCY DEFECTS: The EA may whenever he considers it necessary so to do, notify the Contractor of any defects, shrinkages or other faults which shall appear within the rectification period stated in the Contract Particulars and which are due to materials, goods or workmanship not in accordance with this Contract or to frost occurring before Practical Completion of the Works and the Contractor shall secure

Total to Collection:
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the making good of such defects, shrinkages and other faults within a maximum period of 24 hours for serious defects, shrinkages or other faults that affect or could potentially affect health and safety or the regular day-to-day operation of the buildings and ancillary facilities; within a maximum period of 7 calendar days for any major defects, major shrinkages or other major faults; and within a maximum period of 28 calendar days for all other defects, shrinkages or other faults.

In the event that the Contractor fails to secure the making good of any defects, shrinkages or other faults which shall appear within the rectification period within the maximum periods stated herein the Employer may employ others to make good such defects, shrinkages or other faults and may deduct all costs and expenses thereby incurred from any payments due or becoming due to the Contractor or shall otherwise treat such costs and expenses as a debt due to the Employer from the Contractor.

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A34 SECURITY/ SAFETY/ PROTECTION

SECURITY, HEALTH AND SAFETY

110 PRE-CONSTRUCTION INFORMATION
- Location: The Principal Designer has prepared a Preconstruction Information Pack which is included separately to these preliminaries (Refer to Section 3 of the Employer's Requirements) but information is also included within these project Preliminaries, including but not restricted to the following sections:
  - Description of project: Sections A10 and A11.
  - Client's consideration and management requirements: Sections A12, A13 and A36.
  - Environmental restrictions and on-site risks: Section A12, A35 and A34.
  - Significant design and construction hazards: Section A34.
  - The Health and Safety File: Section A37.

120 EXECUTION HAZARDS
- Common hazards: Not listed. Control by good management and site practice.
- Significant hazards: The design of the project includes the following:
  - Hazard: levels of site following demolition works by others, excavations and live services
  - Control by good management and site practice and comply with all necessary legislation.

130 PRODUCT HAZARDS
- Hazardous substances: Site personnel levels must not exceed occupational exposure standards and maximum exposure limits stated in the current version of HSE document EH40: Workplace Exposure Limits.
- Common hazards: Not listed. Control by good management and site practice.
- Significant hazards: Not listed. Control by good management and site practice and comply with all necessary legislation.

140 CONSTRUCTION PHASE HEALTH AND SAFETY PLAN
- Submission: Present to the Employer/ Client no later than 10 working days before the proposed date for commencement on site.
- Confirmation: Do not start construction work until the Employer has confirmed in writing that the Construction Phase Health and Safety Plan includes the procedures and arrangements required by CDM Regulations.
- Content: Develop the plan from and draw on the Outline Construction Phase Health and Safety Plan, clause A30/570, and the Pre-tender Health and Safety Plan/ Preconstruction information.

150 SECURITY
- Protection: Safeguard the site, the Works, products, materials, and any existing buildings affected by the Works from damage and theft.
- Access: Take all reasonable precautions to prevent unauthorized access to the site, the Works and adjoining property.
- Special requirements: The Contractor shall take all necessary measures to maintain the integrity and security of the existing training ground.

160 STABILITY
- Responsibility: Maintain the stability and structural integrity of the Works and adjacent structures during the Contract.
- Design loads: Obtain details, support as necessary and prevent overloading.

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180 PASSES
- Controlled areas: Passes will be required for access to any parts of the completed building following Practical Completion and during training.
- Authorised persons: Submit a list of the names of all persons requiring passes together with any other related information reasonably required.
- Return of passes: When requested or on completion of the work to which the pass relates.

200 MOBILE TELEPHONES AND PORTABLE ELECTRONIC EQUIPMENT
- Restrictions on use:
  - Not to be used by site operatives.

210 EMPLOYER'S REPRESENTATIVES SITE VISITS
- Safety: Submit details in advance, to the Employer or the person identified in clause A10/140, of safety provisions and procedures (including those relating to materials, which may be deleterious), which will require their compliance when visiting the site.
- Protective clothing and/ or equipment: Provide and maintain on site for the Employer and the person stated in clause A10/140 and other visitors to the site.

220 WORKING PRECAUTIONS/ RESTRICTIONS
- Hazardous areas: Operatives must take precautions.
- Permit to work: Operatives must comply with procedures.

PROTECT AGAINST THE FOLLOWING

310 EXPLOSIVES
- Use: Not permitted.

330 NOISE CONTROL
- Standard: Comply with the recommendations of BS 5228-1, in particular clause 7.3, to minimize noise levels during the execution of the Works.
- Noise levels from the Works: are to be kept below the recommended levels.
- Equipment: Fit compressors, percussion tools and vehicles with effective silencers of a type recommended by manufacturers of the compressors, tools or vehicles.
- Restrictions: Do not use:
  - Pneumatic drills and other noisy appliances outside normal working hours.
  - Radios or other audio equipment.

340 POLLUTION
- Prevention: Protect the site, the Works and the general environment including the atmosphere, lands, streams and waterways against pollution.
- Contamination: If pollution occurs inform immediately, including to the appropriate Authorities and provide relevant information.

350 PESTICIDES
- Use: Not permitted.

360 NUISANCE
- Duty: Prevent nuisance from smoke, dust, rubbish, vermin and other causes.
- Surface water: Prevent hazardous build-up on site, in excavations and to surrounding areas and roads.

370 ASBESTOS CONTAINING MATERIALS
- Duty: Report immediately any suspected materials discovered during execution of the Works.
  - Do not disturb.
  - Agree methods for safe removal or encapsulation.

Total to Collection: £ £

371 DANGEROUS OR HAZARDOUS SUBSTANCES
- Duty: Report immediately suspected materials discovered during execution of the Works.
  - Do not disturb.
  - Agree methods for safe removal or remediation.

375 ANTIQUITIES
- Duty: Report immediately any fossils, antiquities and other objects of interest or value discovered during execution of the works.
- Preservation: Keep objects in the exact position and condition in which they were found.

380 FIRE PREVENTION
- Duty: Prevent personal injury or death, and damage to the Works or other property from fire.
- Standard: Comply with Joint Code of Practice 'Fire Prevention on Construction Sites', published by the Construction Confederation and The Fire Protection Association (The 'Joint Fire Code').

390 SMOKING ON SITE
- Smoking on site: Not permitted.

400 BURNING ON SITE
- Burning on site: Not permitted.

410A MOISTURE
- Wetness or dampness: Prevent, where this may cause damage to the Works.
- Drying out: Control humidity and the application of heat to prevent:
  - Blistering and failure of adhesion.
  - Damage due to trapped moisture.
  - Excessive movement.

420 INFECTED TIMBER/ CONTAMINATED MATERIALS
- Removal: Where instructed to remove material affected by fungal/ insect attack from the building, minimize the risk of infecting other parts of the building.
- Testing: carry out and keep records of appropriate tests to demonstrate that hazards presented by concentrations of airborne particles, toxins and other micro- organisms are within acceptable levels.

430 WASTE
- Includes: Rubbish, debris, spoil, surplus material, containers and packaging.
- General: Minimize production. Prevent accumulations. Keep the site and Works clean and tidy.
- Handling: Collect and store in suitable containers. Remove frequently and dispose off site in a safe and competent manner:
  - Non-hazardous material: In a manner approved by the Waste Regulation Authority.
  - Hazardous material: As directed by the Waste Regulation Authority and in accordance with relevant regulations.
- Recyclable material: Sort and dispose at a Materials Recycling Facility approved by the Waste Regulation Authority.
- Voids and cavities in the construction: Remove rubbish, dirt and residues before closing in.
- Waste transfer documentation: Retain on site.

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440 ELECTROMAGNETIC INTERFERENCE
- Duty: Prevent excessive electromagnetic disturbance to apparatus outside the site.

450 LASER EQUIPMENT
- Construction laser equipment: Install, use and store in accordance with BS EN 60825-1 and the manufacturer's instructions.
- Class 1 or Class 2 laser equipment: Ensure laser beam is not set at eye level and is terminated at the end of its useful path.
- Class 3A and Class 3B laser equipment: Do not use without approval and subject to submission of a method statement on its safe use.

460 POWER ACTUATED FIXING SYSTEMS
- Use: Not permitted.

470 INVASIVE SPECIES
- General: Prevent the spread of species (e.g. plants or animals) that may adversely affect the site or Works economically, environmentally or ecologically. -
- Duty: Report immediately any suspected invasive species discovered during execution of the Works.
  - Do not disturb.
  - Agree methods for safe eradication or removal.

480A RADIOS: The use of portable radios by workpeople including those of sub-contractors is forbidden and the Contractor is to take such other steps as may be appropriate to ensure that noise is kept to a minimum.

PROTECT THE FOLLOWING

505A WORK IN ALL SECTIONS: Adequately protect all types of work and all parts of the Works, including work carried out by others, throughout the Contract. Wherever works is of an especially vulnerable nature or is exposed to abnormal risks provide special protection to ensure that damage does not occur.

510 EXISTING SERVICES
- Confirmation: Notify all service authorities, statutory undertakers and/ or adjacent owners of proposed works not less than one week before commencing site operations.
- Identification: Before starting work, check and mark positions of utilities/ services. Where positions are not shown on drawings obtain relevant details from service authorities, statutory undertakers or other owners.
- Work adjacent to services:
  - Comply with service authority's/ statutory undertaker's recommendations.
  - Adequately protect and prevent damage to services: Do not interfere with their operation without consent of service authorities/ statutory undertakers or other owners.
- Identifying services:
  - Below ground: Use signboards, giving type and depth;
  - Overhead: Use headroom markers.
- Damage to services: If any results from execution of the Works:
  - Immediately give notice and notify appropriate service authority/ statutory undertaker.
  - Make arrangements for the work to be made good without delay to the satisfaction of service authority/ statutory undertaker or other owner as appropriate.
  - Any measures taken to deal with an emergency will not affect the extent of the Contractor's liability.
- Marker tapes or protective covers: Replace, if disturbed during site operations, to service authority's/ statutory undertaker's recommendations.

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520 ROADS AND FOOTPATHS
- Duty: Maintain roads and footpaths within and adjacent to the site and keep clear of mud and debris.
- Damage caused by site traffic or otherwise consequent upon the Works: Make good to the satisfaction of the Employer, Local Authority or other owner.

530 EXISTING TOPSOIL/ SUBSOIL
- Duty: Prevent over compaction of existing topsoil and subsoil in those areas which may be damaged by construction traffic, parking of vehicles, temporary site accommodation or storage of materials and which will require reinstatement prior to completion of the Works.
- Protection: Before starting work submit proposals for protective measures.

545A WASTE MATERIALS: The Contractor shall remove his own refuse and waste materials from the site and shall control litter or rubbish and ensure that the site is generally tidy and workmanlike at all times. No debris or rubbish shall be allowed to accumulate, or to be burned. All skips are to be netted on site and during removal.

555 WILDLIFE SPECIES AND HABITATS
- General: Safeguard the following: Bat and nesting birds, trees and hedgerows.
- Protected habitats and species: Upon discovery immediately advise. Do not proceed until instruction is received.
- Education: Ensure employees and visitors to the site receive suitable instruction and awareness training.

560A EXISTING FEATURES
- Protection: Prevent damage to existing buildings, fences, gates, walls, roads, paved areas and other site features, which are to remain in position during execution of the Works.

570 EXISTING WORK
- Protection: Prevent damage to existing work, structures or other property during the course of the work.
- Removal: Minimum amount necessary.
- Replacement work: To match existing.

580 BUILDING INTERIORS
- Protection: Prevent damage from exposure to the environment, including weather, flora, fauna, and other causes of material degradation during the course of the work.

600 EXISTING FURNITURE, FITTINGS AND EQUIPMENT
- Protection: Prevent damage or move as necessary to enable the Works to be executed. Reinstate in original positions.

625 ADJOINING PROPERTY RESTRICTIONS
- Precautions:
  - Prevent trespass of workpeople and take precautions to prevent damage to adjoining property.
  - Pay all charges.
  - Remove and make good on completion or when directed.
- Damage: Bear cost of repairing damage arising from execution of the Works.

630 EXISTING STRUCTURES
- Duty: Check proposed methods of work for effects on adjacent structures inside and outside the site boundary.
- Supports: During execution of the Works:

Total to Collection: £ £

- Provide and maintain all incidental shoring, strutting, needling and other supports as may be necessary to preserve stability of existing structures on the site or adjoining, that may be endangered or affected by the Works.
- Do not remove until new work is strong enough to support existing structure.
- Prevent overstressing of completed work when removing supports.

- Adjacent structures: Monitor and immediately report excessive movement.
- Standard: Comply with BS 5975 and BS EN 12812.

640 MATERIALS FOR RECYCLING/ REUSE

- Duty: Sort and prevent damage to stated products or materials, clean off bedding and jointing materials and other contaminants.
- Storage: Stack neatly and protect until required by the Employer or for use in the Works as instructed.

645A AIR SPACE OVER ADJOINING PROPERTY / AREAS: Where the use of a tower crane or equipment is contemplated, the Contractor shall obtain the right to use the air space from adjoining owners and other interested parties in the vicinity of the proposed Works and shall hold the Employer indemnified against any claims or proceedings arising from the use of such equipment for any reason whatsoever, including the cost of consequential loss or delay.

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A35 SPECIFIC LIMITATIONS ON METHOD/ SEQUENCE/ TIMING

110 SCOPE
- General: The limitations described in this section are supplementary to limitations described or implicit in information given in other sections or on the drawings.

120 DESIGN CONSTRAINTS
- Details: The Contractor is to comply with all of the requirements included on the drawings and elsewhere in the Employer's Requirements.

130 METHOD/ SEQUENCE OF WORK
- As detailed on the tender drawings and described elsewhere in the Employer's Requirements.
- The works are to be undertaken in a manner which is likely to cause the least possible inconvenience or disturbance to the tenants and building operation.
- The Contractor should be aware that the buildings will be occupied throughout the full duration of the contract.
- It should be noted that the building works are of secondary importance to the continued operation of the building and the Contractor shall allow for carrying out the work with as little annoyance to and interference as is reasonably possible.
- The Contractor shall also allow for any inconvenience which may be caused to the building works by reason of the continued use of the existing buildings, roads and services, etc., thereto including any interruptions to the regular progress of the works, occasioned by the need to minimise interruptions, noise, dust or interference to the ongoing activities of the facility.
- The Contractor should schedule his programme for the works as required in Section A32. However, the final sequencing of the Works will be discussed and agreed to ensure that least possible disruption is caused.
- The Contractor will be allowed subject to adequately protecting the cab to use the lift for access and transportation of materials and will only be permitted to use this for testing and commissioning.
- The Contractor is to protect, maintain and clean all access/egress routes used by workmen or used in the delivery or removal of materials both internally and externally. All fire escape routes are to be fully maintained and unimpeded at all times throughout the duration of the Contract.
- The Contractor shall also allow for temporarily screening off the particular section which is being undertaken as preliminaries clause A36/321A and 325A.
- Furthermore, the Contractor is to liaise with the Employer during times when he is to carry out any noisy operations, or operations likely to produce dust or vibrations which may be detrimental to the tenanted areas.
- The Contractor shall allow in his tender for any additional costs that this clause may entail, and he shall also allow for any precautionary or preventative measures which may be required as a consequence of this clause.

140 SCAFFOLDING
- Scaffolding: Make available to subcontractors and others at all times.

141 ACCESS TO THE SITE: See section A12.

142 USE OF THE SITE: See section A12.

143A SLEEPING ON SITE
- The sleeping of workmen on the site during the night is prohibited.

152 ADVERTISING
- Do not display or permit advertisements to be displayed on site without the consent of the EA.

Total to Collection:
£

£

160A USE OR DISPOSAL OF MATERIALS
- Specific limitations: dispose off site unless otherwise stated.
- Dispose of surplus materials safely and in accordance with recognised environmental procedures. Allow for compliance with all latest legislation

165A START OF WORK
- Before starting work, advise the EA of the names, contact numbers and out-of-hours contact numbers for all persons' responsible for running the site, safety and site security. The Contractor shall display on site in a prominent position a temporary sign containing the out of hours emergency contact telephone numbers available 24 hours a day of responsible staff and such numbers shall be guaranteed to be answered at all times.

170A WORKING HOURS
- Monday to Friday – 8.00 am to 6.00 pm
- Saturday – 9.00 am to 1.00 pm
- Sunday – No work permitted (unless by prior agreement)
- Bank holidays – No work permitted (unless by prior agreement)
- No Noisy work will be permitted before 8.30 am Monday to Friday.
- No Noisy work will be permitted before 9.30 am on Saturdays.
- Or such other working hours permissible by Stoke on Trent City Council.
- The Contractor shall confirm the requirement for and obtain approval from the Employer and the EA prior to undertaking any weekend working.
- The Contractor shall allow within his programme for discontinuing noisy operations and re-deploying trades people where possible as necessary.
- The Contractor shall make all endeavours to reduce, sequence or re- programme noisy operations so as to minimise disruption to tenants.
- Any work allowed for outside these permissible hours will be completely at the Contractors own risk and cost as the EA cannot guarantee the availability of the site.

185A FLOOR LOADINGS
- The Contractor shall ensure that the method of Construction of Works does not impact on the floor loadings to the building. The Contractor shall ascertain safe working loads from his Structural Engineer and undertake design works to adequately displace loadings of new works to main structural elements without compromising structural integrity of the building.

195A PUBLICITY / COMMUNICATIONS / CONFIDENTIALITY
- The Contractor shall also take appropriate measures to ensure that any members of the local or national press do not gain access to the site.
- The Contractor, its staff, designers, operatives, sub-contractors and suppliers shall not take or authorise the taking of any photographs of the Works, it's key representatives, the Employer or the Employer's Agent for use in any publicity or advertising without the prior written approval of the Employer's Agent.
- The Contractor, its staff, designers, operatives, sub-contractors and suppliers shall not publish alone or in conjunction with any other party any articles, photographs, drawings or other illustrations relating to the Works, it's key representatives, the Employer or the Employer's Agent or any part of any of them without the prior written approval of the Employer's Agent.
- The Contractor, its staff, designers, operatives, sub-contractors and suppliers shall not impart to any publication journal or newspaper or any radio or television programme or internet / mobile telephone based service any information relating to the Works, it's key representatives, the Employer or the Employer's Agent or any part of any of them without the prior written approval of the Employer's Agent.

Total to Collection:
£ £

- The Contractor, its staff, designers, operatives, sub-contractors and suppliers shall not provide to any third party other than to the Contractor's legal and insurance advisers that are subject to equivalent confidentiality constraints any information relating to the Works, it's key representatives, the Employer or the Employer's Agent or any part of any of them without the prior written approval of the Employer's Agent.

Total to Collection:
£

£

A36 FACILITIES/ TEMPORARY WORK/ SERVICES

GENERALLY

110 SPOIL HEAPS, TEMPORARY WORKS AND SERVICES
- Location: Give notice and details of intended siting.
- Maintenance: Alter, adapt and move as necessary. Remove when no longer required and make good.

120A MAINTAIN, alter, adapt and move temporary works and services as necessary. Remove when no longer required and make good.

ACCOMMODATION

210 ROOM FOR MEETINGS
- Facilities: Contractor to provide suitable accommodation for site meetings, adequately heated and lit. The room will be part of the Contractor's own site offices.
- Furniture and Equipment: Contractor to provide table and chairs for 10 people.

221A SERVICES FOR THE EA: The following services and actions are required for the EA:
- Shared use of a meeting room
- Attendance with the Contractor's sub-contractors, at site progress meetings.
- Provision of any details, drawings (in both paper and electronic format), specification and programme relating to the construction of the development.
- Confirmation in writing that the design and construction drawings satisfy the fire officers' requirements.
- Submission of a monthly progress report including:
  - summary of progress
  - cash flow graph and reports – actual versus planned
  - schedule of interim payments made and predicted
  - forecast of final cost
  - programme position and marked-up programme updated and re-issued as necessary to reflect current progress
  - estimated completion date
  - confirmation that all materials and sub-contract orders have been placed and progressed to achieve the construction programme
  - a contract set of photographs
- Supply of material certificates, testing and commissioning results, manufacturer's test certificates, balancing certificate.
- Preparation of a schedule of outstanding works before Practical Completion of the Works.

260 SANITARY ACCOMMODATION
- Requirement: Contractor to provide sanitary accommodation for the Contractor, EA, and other members of the consultant team, either separate or shared with the Contractor's supervisory staff. Maintain in clean condition and provide all consumables.

295A ACCESS FOR EMPLOYER, EA, LOCAL AUTHORITY OR ANY ONE AUTHORISED BY EMPLOYER
- Provide at all reasonable times access to the Works and to other places of the Contractor or Sub-Contractors where work is being prepared for the contract.

300A GUIDED SITE INSPECTIONS FOR ANY ONE AUTHORISED BY EMPLOYER
- When requested to do so by the Employer / EA provide access and guided site inspections to the Works for representatives of the Employer and any other interested parties as authorised by the EA. Provide all necessary PPE and training.

Total to Collection:
£ £

TEMPORARY WORKS

320A TEMPORARY WORKS
- Employer's Specific Requirements: Provide all appropriate temporary measure required as a consequence of the Works being carried out in an occupied property.

321A TEMPORARY FENCING, SCREENS, HOARDINGS ETC
- Provide temporary tunnels, fencing, hoardings, screens, fans, planked footways, guard rails, gantries and the like as may be necessary for protecting the public and others and for maintaining access to other buildings, for the proper execution of the Works and for meeting the requirements of any Local or other Authority, complete with artificial illumination and fire-fighting appliances as required.

325A EXTERNAL HOARDINGS
- The Contractor shall include in its tender for providing all temporary hoardings and fencing necessary, including decoration, graphics, logos, temporary signage, and temporary lighting where required. Allow for making good and reinstating on completion to match current standards and to meet the satisfaction of the EA.

340 NAME BOARDS/ ADVERTISEMENTS
- General: Obtain approval, including statutory consents, and provide a temporary name board in a location(s) to be agreed with the EA displaying:
  - Title of project.
  - Name of Employer.
  - Names of Employer's Agent
  - Names of Contractor, Subcontractors and Design Consultants.

SERVICES AND FACILITIES

420 LIGHTING AND POWER
- Supply: The Contractor shall be responsible for providing all necessary lighting and power at its own cost. Once installed the Employers mains may not be used for the Works.
- Continuity: The Employer will not be responsible for the consequences of failure or restriction in supply and the Contractor's usage thereof must not affect the hotel otherwise the Contractor will be required to provide its own generator.
- Meterage: The supply shall be metered, and all costs shall be recharged to the Contractor.

430 WATER
- Supply: The Contractor shall, at its own cost, provide all necessary water for the proper and timely execution of the works, (excluding site accommodation) for all commissioning and testing purposes and for use by the persons acting on behalf of the Employer.
- Continuity: The Employer will not be responsible for the consequences of failure or restriction in supply.
- Meterage: The supply shall be metered, and all costs shall be recharged to the Contractor.

440 MOBILE TELEPHONES
- Direct communication: As soon as practicable after the start on site:
  - provide the Contractor's person in charge with a mobile telephone.
  - pay all charges reasonably incurred.

Total to Collection:
£ £

470A E-MAIL AND INTERNET FACILITY
- General: As soon as practicable after the start on site provide a suitable internet and e-mail facility on site, with a separate dedicated telephone line, for the use of the Contractor, Subcontractors and separately those acting on behalf of the Employer
- Use on behalf of Employer: Allow for the cost of transmissions made by those acting on behalf of the Employer.

480 PHOTOCOPIER / SCANNER / PRINTER
- General: Provide reasonably unrestricted access to and reasonably limited free use of an on-site photocopier / scanner, which may be located in the Contractor's site offices.

530 BENEFICIAL USE OF INSTALLED SYSTEMS
- Permanent systems: Unless specific permission is given by the Employer and installer, do not use for any purpose other than running in, testing and commissioning.
- Other uses: If permission is given for any other use of a system before the Works are accepted as complete, it must be subject to a separate written agreement between the parties and in accordance with the recommended procedures given in NJCC Guidance Note 10.

540 METER READINGS
- Charges for service supplies: Where to be apportioned ensure that:
  - Meter readings are taken by relevant authority at possession and/ or completion as appropriate.
  - Copies of readings are supplied to interested parties.

550 THERMOMETERS
- General: Provide on-site and maintain in accurate condition a maximum and minimum thermometer for measuring atmospheric shade temperature, in an approved location.

560 SURVEYING EQUIPMENT
- General: Provide on-site and maintain in accurate condition.

570 PERSONAL PROTECTIVE EQUIPMENT
- General: Provide for the sole use of those acting on behalf of the Employer, in sizes to be specified:
  - Safety helmets to BS EN 397, neither damaged nor time expired. Number required: 10.
  - High visibility waistcoats to BS EN 471 Class 2. Number required: 10.
  - Safety boots with steel insole and toecap to BS EN ISO 20345. Pairs required: 5.
  - Disposable respirators to BS EN 149.FFP1S.
  - Eye protection to BS EN 166.
  - Ear protection - muffs to BS EN 352-1, plugs to BS EN 352-2.
  - Hand protection - to BS EN 388, 407, 420 or 511 as appropriate.

Total to Collection:
£

£

A37 OPERATION/ MAINTENANCE OF THE FINISHED WORKS

GENERALLY

110 THE BUILDING MANUAL

- Purpose: The Manual is to be a comprehensive information source and guide for owners and users of the completed Works. It should provide an overview of the main design principles and describe key components and systems to enable proper understanding, efficient and safe operation and maintenance.
- Scope:
  - Part 1: General: [Content as clause 120].
  - Part 2: Fabric: [Content as clause 130].
  - Part 3: Services: [Content as clause 140].
  - Part 4: The Health and Safety File: [prepared and supplied by the Principal Contractor]. [Content as clause 150].
- Responsibility: The Building Manual is to be produced by the Principal Contractor and must be complete no later than the date of practical completion.
- Information provided by others: Details: Incorporate such information into the Building Manual.
- Compilation:
  - Prepare all information for Contractor designed or performance specified work including as-built drawings.
  - Obtain or prepare all other information to be included in the Manual.
- Reviewing the Manual: Submit a complete draft. Amend in the light of any comments and resubmit. Do not proceed with production of the final copies until authorized. Submit draft 3 weeks before the date of submission of final copies.
- Final copies of the Manual:
  - Number of copies: 2 copies.
  - Format: Paper and electronic copies.
  - Latest date for submission: No later than the date of Practical Completion.
- As-built drawings and schedules:
  - Number of copies: 2 copies
  - Format: Paper and electronic copies.

115A THE HEALTH AND SAFETY FILE

- Responsibility: Principal Contractor
- Content: Obtain and Provide information about the structure or materials used, which might affect the health or safety of anyone if construction works, (including cleaning, maintenance, alterations, refurbishment and demolition) is carried out.
- Contractor designed and performance specified work: Obtain or prepare the following and submit to the EA:
  - Details of construction methods and materials, including COSHH dated data sheets, which may present residual hazards.
  - General maintenance instructions including access provision and information about equipment provided for cleaning and maintaining the building fabric.
  - As-built drawings.
- Other information: Obtain or prepare the following and submit to the EA
  - The nature, location and markings of utilities and services
  - Instructions for operation, maintenance, dismantling and removal of equipment and systems.
  - Details of hazards associated with the materials used in the construction.
  - Access requirements/ restrictions.
- Copies of the File: Submit 2 copies
- Format: Paper and electronic copies.
- Delivery to: EA By (date): No later than the date of Practical Completion.

Total to Collection:
£

£

120 CONTENT OF THE BUILDING MANUAL PART 1: GENERAL

- Content: Obtain and provide the following, including all relevant details not included in other parts of the manual:
- Index: list the constituent parts of the manual, together with their location in the document.
- The Works:
  - Description of the buildings and facilities.
  - Ownership and tenancy, where relevant.
  - Health and Safety information – other than that specifically required by the Construction (Design and Management) Regulations.
- The Contract:
  - Names and addresses and contact details of all significant consultants, contractors, subcontractors, suppliers and manufacturers.
  - Overall design criteria.
  - Relevant authorities, consents and approvals.
  - Third party certification, such as those made by 'competent' persons in accordance with Statutory Regulations.
- Operational requirements and constraints of a general nature:
  - Maintenance contracts and contractors.
  - Emergency procedures and contact details in case of emergency.
- Description and location of other key documents.
- Timescale for completion: no later than the date of Practical Completion.

130 CONTENT OF THE BUILDING MANUAL PART 2: BUILDING FABRIC

- Content: Obtain and provide the following, including all relevant details not included in other parts of the manual:
- Detailed design criteria, including:
  - Durability of individual components and elements.
  - Fire ratings.
  - Other relevant performance requirements.
  - A detailed description of methods and materials used.
  - As-built drawings recording the construction, together with an index.
- Periodic building maintenance guide chart.
- Inspection reports.
- Manufacturer's instructions index, including relevant COSHH data sheets and recommendations for cleaning, repair and maintenance of components.
- Fixtures, fittings and components schedule and index.
- Guarantees, warranties and maintenance agreements – obtain from manufacturers, suppliers and subcontractors.
- Test certificates and reports required in the specification or in accordance with legislation, including:
  - Sprinkler system compliance
  - Resistance to passage of sound (under stairs store to Southern Court only).
  - Continuity of Fire Compartmentation.
  - Electricity safety.
- Timescale for completion: no later than the date of Practical Completion.

140 CONTENT OF THE BUILDING MANUAL PART 3: BUILDING SERVICES

- Content: Obtain and provide the following, including all relevant details not included in other parts of the manual:
- Detailed design criteria and description of the systems, including:
  - Services capacity, loadings and restrictions.
  - Services instructions.
  - Services log sheets.
  - Manufacturers' instruction manuals and leaflets index.
  - Fixtures, fittings and component schedule index.

Total to Collection:
£ £

- Detailed description of methods and materials used.
- As-built drawings for each system recording the construction, together with an index, including:
  - Diagrammatic drawings indicating principal items of plant, equipment and fittings.
  - Record drawings showing overall installation.
  - Schedules of plant, equipment, valves, etc. describing location, design performance and unique identification cross referenced to the record drawings.
  - Identification of services – a legend for colour coded services.
- Product details, including for each item of plant and equipment:
  - Name, address and contact details of the manufacturer.
  - Catalogue number or reference.
  - Manufacturer's technical literature, including detailed operating and maintenance instructions.
  - Information and guidance concerning dismantling, repair, renovation or decommissioning.
- Operation: A description of the operation of each system, including:
  - Starting up, operation and shutting down.
  - Control sequences.
  - Procedures for seasonal changeover.
  - Procedures for diagnostics, troubleshooting and fault finding.
- Guarantees, warranties and maintenance agreements – obtain from manufacturers, suppliers and subcontractors.
- Commissioning records and test certificates list for each item of plant, equipment, valves, etc. used in the installations – including:
  - Electrical circuit tests.
  - Start and commissioning tests.
- Equipment settings: Schedules of fixed and variable equipment settings established during commissioning.
- Preventative maintenance: Recommendations for frequency and procedures to be adopted to ensure efficient operation of the systems.
- Lubrication: Schedules of all lubricated items.
- Consumables: A list of all consumable items and their source.
- Spares: A list of recommended spares to be kept in stock, being those items subject to wear and tear or deterioration and which may involve an extended delivery time when replacements are required.
- Emergency procedures for all systems, significant items of plant and equipment.
- Annual maintenance summary chart.
- Timescale for completion: no later than the date of Practical Completion.

150 CONTENT OF THE BUILDING MANUAL PART 4: THE HEALTH AND SAFETY FILE

- Content: obtain and provide the following, including all relevant details not included in other parts of the manual, including:
  - residual hazards and how they have been dealt with.
  - hazardous materials used.
  - information regarding the removal or dismantling of installed plant and equipment.
  - health and safety information about equipment provided for cleaning or maintaining the structure.
  - the nature, location and markings of significant services.
  - information and as-built drawings of the structure, its plant and equipment.
  - Information prepared by others: Details: Include in the file.
- Timescale for completion: no later than the date of Practical Completion.
- Submit to: 2 copies.

Total to Collection:
£

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151 CONTENT OF THE BUILDING MANUAL PART 5: THE BUILDING USER GUIDE

- Content: Obtain and provide the following:
  - Building services information.
  - Emergency information.
  - Water use.
  - Materials & waste policy.
  - Re-fit/ re-arrangement considerations.
  - Reporting provision.
  - Training.
  - Links & references.
- Timescale for completion: no later than the date of Practical Completion.

160A PRESENTATION OF BUILDING MANUAL

- Format: A4 size, plastics covered, loose leaf, four ring binders with hard covers, each indexed, divided and appropriately cover titled.
- Selected drawings needed to illustrate or locate items mentioned in the Manual: Where larger than A4, to be folded and accommodated in the binders so that they may be unfolded without being detached from the rings.
- As-built drawings: The main sets may form annexes to the Manual.
- Additionally, to be submitted in electronic format with electronic copies of drawings to be provided both in pdf and dwg format in a fully useable format.
- The Contractor should note that the submission of the Building Manuals is a condition precedent for Practical Completion.
- The Contractor shall provide 2 copies each of the separate Building Manual and the Health and Safety File.

165A QUICK GUIDE BUILDING USER INFORMATION

- The Principal Contractor shall provide a quick guide for the relevant plant / equipment and building elements, highlighting the essential non-specialist operations in a clear uncomplicated format for easy use by the building users.
- The objectives and principles of the Quick Guide are to enable the building users to use and operate the building efficiently and safely, therefore it should provide the essential non-specialist operations.
- The recommended information required for each system or component should include:

1. What the system / equipment / plant / component is
2. Where the system or component is located in the building (including a drawing highlighting the location and cut off points etc)
3. A photograph of the system / component or item
4. How the system or component is operated, i.e. basic operations such as on / off / re-set (if there is a fault) etc
5. Basic maintenance and cleaning details (key points only for the building user not specialist contractors)
6. Regular checks or inspections required by building users (including instructions of how to undertake the test)
7. The frequency and intervals for statutory maintenance, checks or inspections (including those by specialist contractors)
8. Contact details if the system or component fails

- The Principal Contractor will be required to compile the Quick Guide information during the project in preparation for issuing at completion. As each building element or plant / equipment is specified, the Principal Contractor shall produce a draft issue for review to ensure it meets the requirements and ensure that it is being developed in a timely manner. The Quick Guide shall be compiled by a technically qualified person who is able to 'pre-assess' the information needed to ensure the information is correct and appropriate.
- The Principal Contractor shall be required to ensure that the suitably developed Quick Guide information is issued on or before Practical Completion, together with all

relevant Operation and Maintenance Manuals, and such information required to enable the compilation of the Health and Safety File.

210 INFORMATION FOR COMMISSIONING OF SERVICES
- General: Submit relevant drawings and preliminary performance data to enable the building user's staff to familiarise themselves with the installation.
- Time of submission: At commencement of commissioning.

220 TRAINING
- Objective: Before Completion, explain and demonstrate to designated maintenance staff the purpose, function and operation of the installations including items and procedures listed in the Building Manual.
- Time allowance: Include a minimum of 1x 3hr meeting.

225A TRAINING
- Objective: Before Completion, explain and demonstrate to designed maintenance staff the purpose, function and operation of the installations including items and procedures listed in the Building Manual.
- Operating time: Include a minimum of three days training prior to or around the date of Practical Completion to ensure that the training is delivered in a thorough and unhurried way. Training sessions may be visually recorded by the client staff for future reference.
- Demonstrate to the designated maintenance staff the location and operation of the key services and plant:
- The aim of the training is to educate the designated maintenance staff in the correct operation of the systems:

230 SPARE PARTS
- General: Before Completion submit a priced schedule of spare parts that the Contractor recommends should be obtained and kept in stock for maintenance of the services installations.
- Content: Include in the priced schedule for:
  - Manufacturers' current prices, including packaging and delivery to site.
  - Checking receipts, marking and numbering in accordance with the schedule of spare parts.
  - Referencing to the plant and equipment list in Part 3 of the Building Manual.
  - Painting, greasing, etc. and packing to prevent deterioration during storage.
- Latest date for submission: 2 weeks prior to the date of Practical Completion.

240A COMMISSIONING AND TESTING
- Commissioning and testing: The Contractor shall notify the EA in writing when, in his opinion the mechanical, electrical, works or parts thereof are ready for testing and commissioning. The Installer shall then in conjunction with the EA / Employer's Monitoring Consultant carry out the tests. The Installer shall prove to their satisfaction that all test results are in accordance with the Mechanical Services Specification. The Installer shall then operate the installation or selected parts thereof in the presence of the EA / Employer's Monitoring Consultant and shall make all specified tests to the satisfaction of the EA / Employer's Monitoring Consultant for the Services Installations.

260A ENGINEERING ATTENDANCE AT TIME OF BUILDING HAND-OVERS
- Allow for and provide mechanical, electrical and specialist engineering services attendance at the time of handing over the Works and during any opening ceremonies, for the purposes of rectifying emergency defects and ensuring the proper functioning of the installations.

Total to Collection:
£

£

270A 12 MONTHS MAINTENANCE PERIOD: A minimum of 6 weeks prior to Practical Completion of the Works the Contractor shall provide a detailed and comprehensive maintenance proposal for all operating systems forming part of the Works.

275A SERVICING AND MAINTENANCE DURING THE DEFECTS LIABILITY PERIOD: The Contractor shall be deemed to have allowed for including in his tender for all costs associated with carrying out all periodic inspections, tests and maintenance to all items of building fabric, plant and equipment included in the project. The maintenance is to include, but not be limited to, the following specific items:

i. Mechanical systems including all systems that require periodic inspections, tests or maintenance.

All maintenance contracts are to run for 12 months from the date of Practical Completion of the final section of the project rather than the date of installation of the equipment. No maintenance contracts are to finish before 12 months from the date of Practical Completion has expired.

The Contractor shall include for, and detail, any requirements for any first annual inspections where any maintenance contracts / agreements or extended guarantees are to be provided.

The contractor will be required to submit a schedule of these items with his tender return and provide evidence of service contracts being entered into prior to Practical Completion. All service contracts should be placed in the name of the Employer to ensure that correspondence is directed to the Employer when such contracts fall for renewal 12 months following Practical Completion.

Total to Collection:
£

£

A40 CONTRACTOR'S GENERAL COST ITEMS: MANAGEMENT AND STAFF

110 MANAGEMENT AND STAFF

A41 CONTRACTOR'S GENERAL COST ITEMS: SITE ACCOMMODATION

110 SITE ACCOMMODATION
- Details: Site accommodation required or made/ not made available by the Employer: See section A36.

A42 CONTRACTOR'S GENERAL COST ITEMS: SERVICES AND FACILITIES

110 POWER

120 LIGHTING

130 FUELS

140 WATER

150 TELEPHONE AND ADMINISTRATION

160 SAFETY, HEALTH AND WELFARE
- See clause A34/210.

170 STORAGE OF MATERIALS

180 RUBBISH DISPOSAL
- See clause A34/430.

190 CLEANING
- See clause A33/710.

200 DRYING OUT
- See clause A34/410.

210 PROTECTION OF WORK IN SECTIONS

220 SECURITY
- See clause A34/150.

230 MAINTAIN PUBLIC AND PRIVATE ROADS
- See clause A34/520.

240 SMALL PLANT AND TOOLS

250 OTHERS
- Contractor to provide details:

310 ADDITIONAL SERVICES AND FACILITIES ITEMS
- Contractor to provide details:

Total to Collection: £ £

A43 CONTRACTOR'S GENERAL COST ITEMS: MECHANICAL PLANT

130 PERSONNEL TRANSPORT

140 TRANSPORT

150 EARTHMOVING PLANT
- Contractor to provide details:

180 PAVING AND SURFACING PLANT
- Contractor to provide details:

200 ADDITIONAL MECHANICAL PLANT
- Contractor to provide details:

A44 CONTRACTOR'S GENERAL COST ITEMS: TEMPORARY WORKS

110 TEMPORARY WORKS
- Details: Temporary works required or made/ not made available by the Employer: See section A36.

120 TEMPORARY WALKWAYS

130 ACCESS SCAFFOLDING

140 SUPPORT SCAFFOLDING AND PROPPING

150 HOARDINGS, FANS, FENCING, ETC.

160 HARDSTANDING

170 TRAFFIC REGULATIONS

200 ADDITIONAL TEMPORARY WORKS
- Contractor to provide details:

Total to Collection:
£

£

A50 WORK/ PRODUCTS BY/ ON BEHALF OF THE EMPLOYER

100A BENEFICIAL OCCUPATION: The Contractor shall allow to the Employer beneficial occupation of those parts of the Works required by his Artists and Tradesmen to complete other programmed works or emergency repair or maintenance. Compliance with this Condition shall not be construed as practical completion or partial possession as defined in the Conditions of Contract.

121A ACCOMMODATION: The Contractor shall also afford the use of the site accommodation and sanitary facilities to people employed direct by the Employer.

150A GENERAL CLEANING: Each Artist and Tradesman employed directly by the Employer, should be responsible for the cleaning away of debris and rubbish consequential to their works, and shall be responsible for protecting adjacent and surrounding finishes against damage except as described elsewhere. The Contractor shall however, make a reasonable allowance for the removal of debris and rubbish not so removed by the Artists and Tradesmen.

151A PROTECTION AND CLEANING OF FLOOR FINISHES: The Contractor shall allow for thoroughly protecting all existing carpets and floor coverings during the works and prior to Practical Completion to the satisfaction of the EA and shall thoroughly clean and vacuum all carpets and floor coverings immediately prior to the re-introduction of Furniture, Fittings and Equipment and again prior to Practical Completion.

152A PROTECTION: The Contractor shall allow for thoroughly protecting all new items of Fittings, Fixtures, Furnishings and Equipment following their installation and for maintaining such protection and for its removal prior to Practical Completion to the satisfaction of the EA.

160A TOUCH UP DECORATION: The Contractor shall allow to touch up any decoration to walls, ceilings and woodwork which may have been marked, knocked, scratched or damaged during the installation of the works.

310A ACCESS AND OTHER FACILITIES: The Contractor is to afford access, toilet and storage facilities, use of water and electricity and the like to those employed direct by the Employer as noted in Section A50:110A hereof.

320A PRINCIPAL CONTRACTOR: The Principal Contractor as defined in the Pre-construction Information Pack will be responsible for all the works to be carried out by his own employees and those employed direct by the Employer during the period for installation of any Furniture, Fittings and Equipment as listed in clause A50:110A. It should be noted that this list of direct Contractors is not exhaustive.

350A SECURITY OF THE FURNITURE, FITTINGS AND EQUIPMENT INSTALLATIONS: The Contractor is to provide appropriate security measures to the satisfaction of the EA, once furniture, fittings, furnishings and equipment deliveries commence and until Practical Completion has been provided on behalf of the Employer.

515A GENERALLY: The Contractor will be held responsible for ensuring that the a foregoing works are not damaged in any way whatsoever by his own or his sub-contractors' workmen and will be held liable to make good/or replace any work or items damaged at his own expense to the satisfaction of the EA and Employer.

Total to Collection:
£ £

A51 NAMED SUBCONTRACTORS

Not required

A52 NOMINATED SUPPLIERS

Not required

A53 WORK BY STATUTORY AUTHORITIES/ UNDERTAKERS

Refer Employer's Requirements

A54 PROVISIONAL WORK/ ITEMS

310 WORK WHERE COMPLIANCE WITH SMM7 IS NOT REQUIRED
- Item: Internal alterations required due to unknown existing building features
- Description of work: Design, and upgrade of existing services.
- Provisional Sum: Include £,20,000.00
- Allow for general attendance.

311 WORK WHERE COMPLIANCE WITH SMM7 IS NOT REQUIRED
- Item: Structural works
- Description of work: Structural alterations
- Provisional Sum: Include £30,000.00
- Allow for general attendance.

312 WORK WHERE COMPLIANCE WITH SMM7 IS NOT REQUIRED
- Item: Testing and opening up
- Description of work: Open up and test covered over work suspected of being defective but subsequently found to be in accordance with ER's
- Provisional Sum: Include £20,000.00
- Allow for general attendance.

313 WORK WHERE COMPLIANCE WITH SMM7 IS NOT REQUIRED
- Item: Provide acoustic insulation
- Description of work: Provide acoustic insulation to underside of Southern Court stairwell store room
- Provisional Sum: Include £5,000.00
- Allow for general attendance.

The Contractor will be deemed to have included for design, coordinating, phasing, sequencing and undertaking the above work covered by provisional sums and contingency into its programme for the works.

Refer also to Clause A30:355A regarding the expenditure of provisional sums and contingencies.

A55 DAYWORKS

Refer Contractors Proposals

A56 ADVANCED PROCUREMENT

Not required

Total to Collection:
£ £

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COLLECTION

Brought forward

Total to Collection:
£ £

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Total to Collection:
£ £

3. Section 3 - Employers Requirements – Buro Happold

The Contractors offer must include for all works shown and described within the Employers Requirements and tender documents as being necessary for the complete and proper execution of the Works.

A.1. Section 3 Appendix A – Performance Specification

A.2. Section 3 Appendix B – Tender Drawings

Section 3 Appendix A – Performance Specification

BUROHAPPOLD ENGINEERING

Stoke High Rise Buildings

Phase 3: Dibden, Penkhull and Southern Courts & Honeywall House Sprinkler Performance Specification

0040820

28 January 2020

Revision 00

Revision	Description	Issued by	Date	Checked
00	Draft	TB	28/01/20	GF

O:\0040820 Stoke High Rise\F19 Fire Engineering\03 Reports\191203 Performance Specification - Phase 3\200128TB 0040820 Phase 3 Sprinkler Performance Specification 00.docx

author	**Tom Bentley**
date	**28/01/20**
approved	**Glen Forrest**
signature	**By e-mail**
date	**28/01/20**

Contents

Appendix E Instruction to Clients Staff

1 Introduction

This document refers to the provision of automatic fire sprinkler systems within four separate high rise blocks of flats, Dibden Court, Penkhull Court, Southern Court and Honeywall House, in Stoke-on-Trent, UK.

This document shall form the basis of a performance specification for residential sprinkler systems at the above premises. The document, in conjunction with the indicative layout drawings and the guidance of BS 9251 shall be used for tendering to prospective Specialist Contractors.

The appointed Contractor shall be responsible to the Employer for the complete design, supply, carriage, offload, installation, testing and commissioning for the automatic fire sprinkler system to protect the building. This shall include, but not be limited to, the detailed design activities detailed in this specification, including, and in addition to, those activities normally undertaken through the custom and practice of the industry all of which shall be generally subject to the review by the Employer (or their representative).

1.1 Definitions

The following definitions shall apply:

Client - shall mean Unitas;

Consulting Engineer - shall mean BuroHappold Ltd.

Employer - as described in the Subcontract for the execution of the contract are Faithful +Gould Limited

Contractor - as described in the Contract for the execution of the Contract. The Contractor shall be the Tenderer appointed after pricing of the Specification.

Contractor works - as described in the Contract for the execution of the Contract. Shall mean the design, supply and installation, commissioning and testing, final completion and handing over of the installations.

Specification - shall mean this document together with any other relevant specifications issued during the progress of the works.

Drawings - the following definition shall apply in respect of drawings:

Outline Drawings: drawings prepared by the Consulting Engineer to demonstrate the scope of works outlined within the Performance Specification and any limitations relating to site-specific circumstances, prepared for the purposes of the tendering/Contractor appointment process. These are indicative only, show areas to be protected and proposed connections/ plant spaces, and the Contractor should satisfy themselves of any site limitations during the tendering process.

Design Drawings: drawings prepared by the Contractor to demonstrate the design of the systems outlined within the Performance Specification.

Installation Drawings: drawings prepared by the Contractor to indicate detailed proposals for the installation of the Contract Works.

Layout Drawings (As Built Drawings/ Record Drawings): drawings prepared by the Contractor to indicate as-fitted details of the installation of the Contract Works. This shall include any plant room layouts and details of water supplies to the installation.

It is envisaged that the latter three types of drawings noted above will be developments by the Contractor, and may be derived from the Outline Drawings issued with the Specification.

Builderswork Drawings: drawings prepared by the Contractor to indicate all work to be carried out by the Building Contractor to facilitate the installation of the Contract Works.

1.2 Limitations

This Sprinkler Performance Specification has been based on information available at the time of writing.

This document does not take into consideration any insurers sprinkler design requirements, as this information was not available at the time of preparation. This document may be revised in due course to include for insurer requirements, specific to the design and installation of the proposed sprinkler system installations.

No other specific requirements for specialist fire engineered solutions (e.g. glass drenching) are included in this specification.

This document provides outline guidance only. The responsibility for detail design of the installation shall be by the Specialist Contractor.

2 Design Codes and Standards

The services installations specified herein shall be designed, manufactured, fabricated, installed, tested and commissioned fully in accordance with the standards as listed in Appendix A to this specification and any particular requirements as described herein. The Contractor shall be required to comply with all current Statutory Requirements, Local and National Regulations. These shall include, but not be limited to, requirements of the Water Supply Authority, the Electricity Authority, the Health and Safety at Work Act and Asbestosis Act. The Contractor shall give all such notices required by the Statutory Authorities and shall also pay all fees.

Specifically, the automatic fire suppression system for this building shall be designed and installed in accordance with the recommendations of **BS9251:2014 –'Sprinkler systems for residential and domestic occupancies- Code of practice'** and any particular requirements of this specification shall be applied.

Note that although **BS EN 16925 – "Fixed firefighting systems - Automatic residential sprinkler systems - Design, installation and maintenance"** was published in 2018, this standard does not apply to these buildings as they are in excess of four storeys (in accordance with the National Foreword and with National Annex NA.1)

3 Equipment, Material and Workmanship

3.1 General

All materials supplied and work carried out under this Contract shall be the best of their respective kinds and shall also be subject to the comment of the Consulting Engineer. The Consulting Engineer may recommend the removal of any equipment, materials or workmanship that are deemed to be unsatisfactory in terms of the requirements of this Specification.

3.2 Duties and Ratings

The duties and rating of all equipment listed in the Specification or scheduled on the drawings are "minima" and it shall be the responsibility of the Contractor to verify that all equipment and materials supplied meet the specified duties, ratings etc.

3.3 Electrical Equipment

All electrical equipment and work shall comply with the BS 7671 Regulations for the electrical Equipment of Buildings of the Institution of Electrical Engineers (current version at time of contract award), and any applying amendments.

3.4 Ordering

The Contractor shall place all orders for plant, equipment and materials as required to maintain the necessary progress of the Contract Works. The Employer (or their representative) shall be entitled to inspect such orders on request. The Contractor shall, before placing orders, be deemed to have satisfied themselves that all orders placed fulfil the requirements of the specification and these shall include, but not be limited to, performance criteria, compatibility between items of plant used in combination and dimensional co-ordination between items of plant and equipment and the building fabric. No claims whatsoever shall be accepted as a result of the Contractor's failure to properly satisfy themselves as to the required performance criteria and dimensional co-ordination. Should the Contractor note any discrepancies he should bring this to the attention of the Employer (or their representative) in sufficient time, so as not to jeopardize the programme of the Works, and to allow consultations to be held and instructions issued.

The design shall also take into consideration material compatibility.

4 Design, Builderswork, Fabrication and Installation Drawings

Following their appointment, the Contractor shall prepare design, builderswork, co-ordination, fabrication, and installation drawings. The drawings to be produced by the Contractor shall be produced on AutoCAD Version 2016 format (or equal and approved) and PDF format and shall be at scale 1:50. The Contractor shall note the requirement for the drawings to be appropriately dimensioned, set out and fully co-ordinated with the existing site elements and services. This may require detailed site survey to ascertain the exact conditions on site. The drawings shall be prepared on the basis of the site conditions and actual plant and equipment to be installed.

The drawings shall be prepared in accordance with Appendix B to this specification. The Contractor shall be fully responsible for detailing both the permanent and temporary access openings in all areas required for the new contract works.

The Contractor shall, before the relevant work proceeds and allowing 10 working days for examination of the drawings by the Consulting Engineer, issue the required number of copies of the drawings to the Employer (or their representatives). The Contractor shall also allow within their programme for any modifications to the drawings that the Employer (or their representatives) may require as a result of the drawing examination process.

The drawings will be reviewed and returned with the following review status:

Review Code A	Accepted as Construction Document (without comments)
Review Code B	Accepted as Construction Document (subject to minor amendments as indicated)
Review Code C	Document not accepted (contractor to resubmit)

Failure of the Contractor to submit their drawings in a timely fashion related to the contract programme and the information above shall not relieve them of their contractual responsibilities.

5 Design and Co-ordination of the Works

The Contractor shall be required to design, co-ordinate and integrate the installations covered by this Specification with the existing site conditions and all other works forming the overall Project. In order to do this the Contractor shall carry out any design and drawing work (additional to that incorporated in the tender documents), which are necessary to ensure suitability, compatibility and correct location and integration within the system of components selected by them to meet the requirements of this specification and with those being provided and installed by others.

All setting out dimensions shall be the responsibility of the Contractor. Notwithstanding the review of the Contractor's proposals by the Consulting Engineer the Contractor shall remain responsible for the co-ordination of the works.

It is recommended that the Tenderer visit site prior to submitting their price, as ignorance of existing site conditions will not be considered a reason for mis-pricing, or misunderstanding the requirements of the project.

During the course of the Contract Works, the Contractor shall maintain on site a fully detailed record of all changes from the initial contract drawings to facilitate easy and accurate preparation of the Record (Layout) Drawings and to ensure that these drawings are in all respects, a true record of the installation.

5.1 Inspection

It shall be the Contractors responsibility to ensure that all materials, equipment etc, meet the requirements of this specification and as such carry out any and all inspections at works etc as he shall deem necessary.

6 Protection of Equipment and Work

6.1 General

The Contractor shall ensure that all plant, materials etc. that are delivered to site shall be adequately protected against weather and other damage. In so far as is practicable, all plant, materials etc. shall be kept under protective covers, or be kept in their respective packaging cases until required for use.

The Contractor shall arrange and ensure that procedures and, where necessary, physical protection measures are put in place to ensure that, as far as is possible, damage does not occur to installed equipment prior to commissioning and handover.

It shall be the Contractor's responsibility to ensure that at all times the installed works are protected from damage arising from any cause. The foregoing shall apply particularly, if selected, to CPVC pipework and fittings which are known to be susceptible from both environmental conditions and mechanical damage.

6.2 Fires During Construction

In the execution of the works, the Contractor shall follow best practice to ensure their works are not contributory to any outbreak of fire on site. Industry good practice guides such as 'Fire Prevention on Construction Sites' -9th Edition – 2015 (or subsequent latest version) published jointly by the Construction Confederation and the Fire Protection Association (ISBN: 9781902790909) shall be followed to minimise such risks.

7 Qualifications and Experience

7.1 Company

Contractor company and personnel used shall be experienced in the design and installation of systems to the recommendations of BS 9251.

Contractor shall be able to demonstrate successful completion of minimum three similar sized projects to the recommendations of BS 9251.

Full details, references and contact details of referees for all projects offered as proof of experience and capability must be provided for verification purposes

Tenderer would be expected to be at least Level 3 of a third party approvals scheme such as FIRAS – Requirements for contractors Installing Residential and Domestic Sprinkler Systems, or the LPS 1301 (or 1048) Schemes from the LPC. This should not however preclude smaller firms with a record of good work.
As such, all Tenderers should provide details of any certification/ approval schemes, and any other professional and trade memberships, including categorization of membership, should be provided. Details of how the membership/grade was obtained i.e. Assessed/ Associate/ Sponsored etc. should also be supplied.
Details of any quality and/or environmental systems operated should be provided.

7.2 Personnel

The Contractor must, at all times, provide a fully experienced Foreman on site together with the necessary operatives for the carrying out of the works in addition to adequate office staff. The Contractor shall submit, with the Tender Documents, details of the proposed project engineers and senior staff, for the design and installation phases, including Curriculum Vitae detailing qualifications and experience.

Upon appointment to the contract, any significant change in personnel during the course of the works shall be advised to the Consulting Engineer for approval.

Other particular requirements for company/ staff experience/ qualifications/ accreditation shall be as noted elsewhere in this specification.

8 Setting to Work, Commissioning and Testing

Prior to handover the Contractor shall set to work, commission and test the installations to the full satisfaction and acceptance of the Employer (or their representatives). The specific requirements shall be as specified elsewhere in this Specification.

Test certificates shall be included as part of handover documentation.

Training Requirements are noted in Appendix E.

9 Defects Liability

In accordance with the Contract any defects due to materials, or workmanship, or other faults which occur during the Defects Liability Period, shall be rectified by the Contractor at his own expense. The Contractor shall rectify all defects as notified to them by the Employer (or their representatives), and Engineer with the minimum of delay.

The following response times to notification of defects shall be achieved:

Emergency	Immediately
Urgent	24 hours
Substantial	7 days

The Contractor shall not be liable for defects arising from failures arising out of improper operation (by the Employer), or fair wear and tear.

See also Section 18 – Post Contract Monitoring

10 Operation and Maintenance Manuals

Contractor shall comply with requirements for provision of O&M information as required by the Client and additionally shall meet the following requirements.

Prior to handover the Contractor shall submit two copies of suitably bound 'operating and maintenance' information, prepared generally in accordance with Appendix C to this section of the specification. Best practice for the preparation of O&M manuals, such as that published by BSRIA, shall be applied. The documents shall be submitted in durable PVC coated A4 four ring binders.

The contents of this documentation package shall include all that noted at 6.3.1, 6.3.2, 6.3.3 & 7.3 of BS9251:2014.

Additionally, per 6.3.3 e) of BS9251:2014, the Contractor shall include equipment details, including manufacturers drawings and installation & operation instructions, as supplied with the components.

The contents of the manual in 'Draft' form shall be verified by the Engineer not less than 2 weeks before the final copies are submitted.

The full text of the 'operation and maintenance' manuals, including images and diagrams, shall be prepared using a word-processor based software system and be presented in a format acceptable to the Client. For the purposes of tendering, it shall be assumed that this will be in MS Word

The documents shall be issued also by electronic hard copy - discs (2 copies).

11 Record Drawings

Prior to handover the Contractor shall submit to the Engineer two hardcopies (Two prints) of the record drawings of the Contract works in accordance with Appendix D to this specification. All record drawings shall be prepared specifically for Record purposes.

The Contractor shall additionally submit two printed hardcopies of any manufacturers drawings (switchgear, pumps, motors etc.), which shall be marked to indicate equipment supplied, project reference and equipment reference number.

The Contractor shall also submit record drawings in a format which will be acceptable to the Client. This acceptable format is currently unknown, so the tender price should be based on the following format:

- AutoCAD 2016 format and associated conventions for CAD in the Construction Industry (including PDF format).

These documents will be issued on CD ROM (2 copies)

The record drawings shall be fully cross-referenced to the operating and maintenance documentation.

12 Technical Queries

If clarification on technical issues is required, then the Contractor shall complete and submit a 'Technical Query' request to the Engineer and/or Employers Representative. The Contractor shall ensure that the 'Technical Query' sheets are raised at least 7 working days prior to the planned activity and prior to the requirement for a response.

13 Scope of Work

13.1 General

The Contractor shall be responsible for the full design, co-ordination, supply, installation, testing and commissioning of the automatic sprinkler systems per the guidance and requirements of BS9251:2014 (or as appropriate at time of contract execution), and the particular requirements of this performance specification.

13.2 Functional Requirements

The client requires:-

- The provision of fully functional automatic fire sprinkler suppression systems to protect and minimise damage due to fire in the buildings;
- System design and installation should be sufficiently robust that the likelihood of activation due to malicious, or accidental events is minimised, and that consideration is taken to prevent possible malicious interference with any or all parts of the system; however
- System response should be optimised such that fire damage is minimised.

13.3 Drawings Supplied

This specification shall be read in conjunction with the drawings noted below and shall form the basis of the design to be developed under the Fire Sprinkler System Contract.

Relevant contract drawings related to this Contract are:

13.3.1 Southern Court

Drawing Number	Drawing Title
SHR-BHE-L00-XX-DR-YD-1301	Ground Floor Plan
SHR-BHE-LYY-XX-DR-YD-1302	Typical Upper Floor Plan

13.3.2 Penkhull Court & Dibden Court

Drawing Number	Drawing Title
SHR-BHE-L00-XX-DR-YD-1305	Lower Ground Floor Plan
SHR-BHE-L00-XX-DR-YD-1304	Ground Floor Plan
SHR-BHE-LYY-XX-DR-YD-1303	Typical Upper Floor Plan

13.3.3 Honeywall House

Drawing Number	Drawing Title
SHR-BHE-L00-XX-DR-YD-1306	Ground Floor Plan
SHR-BHE-LYY-XX-DR-YD-1307	Typical Upper Floor Plan

13.4 System Extent and Plant Locations

The systems will be complete systems throughout each of the buildings.

Figure 1, below shows the locations of each of the buildings in the Honeywall area of Stoke on Trent.

Figure 1 – Site Plan of all buildings

13.5 Main Sprinkler Plant

Each building will have an independent dedicated sprinkler system. It is proposed that the water for the sprinkler systems shall be supplied via connections to the incoming water mains with flow and pressure supplemented by duty/ standby electric booster pumps, located within the lowest levels of each building. Dibden and Penkhull Courts each have 2 incoming water supplies to each building, (one for each half building) and associated booster pumps shall be supplied for each half of these buildings. Southern Court appears to be served by a single water main, therefore a single connection and duty/ standby booster pump set shall be required to serve the whole building. Honeywall House is supplied by a single water main, therefore a single connection and duty/ standby booster pump set shall be required to serve the whole building.

The proposed plant areas for sprinkler booster pumps will be located as follows:

a) Dibden & Penkhull Courts (2 x no. pumps for each building) – Locations shown on BuroHappold drawing numbers SHR-BHE-L00-XX-DR-YD-1304 and SHR-BHE-L00-XX-DR-YD-1305 in Store rooms on Lower Ground Floors and Ground Floors.

b) Southern Court (1 x no. pump) – Locations shown on BuroHappold drawing number SHR-BHE-L00-XX-DR-YD-1301 in the cleaners cupboard/store under the stairs on the Ground Floor (connection to the water main shall be external to the building in the vicinity of the manhole cover, with an underground pipe supplying water to the pump in the cleaner's cupboard/store.

c) Honeywall House (1 x no. pump) – Location shown on BuroHappold drawing numbers SHR-BHE-L00-XX-DR-YD-1306 in a store room on the Ground Floor.

The design intent for this performance specification is based on the "SD120 Residential Fire Sprinkler Pump" manufactured by Triple P Projects Ltd.

The pumps shall be served by an electrical supply, from a changeover panel (by Sprinkler Contractor) with two incoming feeds. Contractor shall advise maximum electrical demand of the pumpsets, taking into account stalled rotor current.

Sufficient equipment shall be installed in the plant room to allow periodic pump and alarm valve testing.

Tenderer should advise live floor load requirement (XYkN/m^2) with tender return to allow confirmation of floor loading due to pump loadings etc.

Drainage pipes shall be required from all areas where system, or zone, drainage may be required. This is the responsibility of the Contractor, other than in the areas as noted in the **'Interfaces'** section. Zone drainage is envisaged to be provided within the service risers noted. All elements of the system should be able to be drained via suitably arranged falls, and valving. Design, supply and installation of the components required to achieve this within the bounds of the 'interfaces' noted in this document shall be the responsibility of the Contractor.

Equipment shall be designed and selected to deliver the required coverage as noted in this document within the spatial and location bounds noted in the specification, and illustrated in the various drawings and diagrams. As noted elsewhere, an alternative system arrangement to the exemplar which provides coverage, and may be located in the same plant and major route spaces will also be considered.

At this time no particular Insurers Requirements over and above, or contrary to, that noted are known.

13.6 Distribution Route

The Contractor shall be responsible for the sizing, routing and installation of sprinkler pipework to serve the sprinkler network. Co-ordination with existing services shall be necessary due to the nature of the building.

For the H – blocks (Dibden, Southern and Penkhull Courts) the proposed routing from the pumps is at high level to the nearest flat lobby then rising to above, with a further connection crossing the stair lobby to the opposite flat lobby then rising to above. This routing and the use of two risers per half building (four in total per building) is proposed due to the lack of dedicated water service risers in common spaces and the lack of available space to run other services.

For Honeywall House, from the pump in the store room the pipe shall run to high level and out to the main corridor space, then rising to above and distributing off at each floor.

For all buildings, at each protected storey, a connection will branch off each of the risers to serve each flat, equipped with a zone valve assembly (comprising isolation valve, flow switch, pressure gauge and test/drain point). It should also be noted that the stairwell landings are to be protected following discussions with the Staffordshire Fire and Rescue Service.

The routing of the pipework within the corridors and flats is proposed to be at high level along the walls within a proprietary boxing installation to protect the pipework and optimise the aesthetics of the installation. The Contractor shall be responsible for routing this pipework such that the visual impact and disruption to the flats and corridors is minimised. Boxing will not be required in plantrooms, risers, storerooms and bathrooms but is proposed in all other areas.

An indicative routing for Tender purposes is shown on drawing SHR-BHE-LYY-XX-DR-YD-1302 for Southern Court, SHR-BHE-LYY-XX-DR-YD-1303 for Dibden & Penkhull Courts and SHR-BHE-LYY-XX-DR-YD-1307 for Honeywall House – the final routing design is the responsibility of the appointed Tenderer.

The pipework will supply residential concealed horizontal sidewall mounted sprinklers which shall also be housed within the boxing installation, therefore the boxing shall be of sufficient depth to ensure that the sprinkler cover plates can be mounted flush. This is essential to minimise the likelihood of malicious damage through badly fitting sprinkler cover plates.

13.7 Sprinkler Positions and Types

In the common areas and flats the sprinklers shall be of quick response residential concealed horizontal sidewall type and (where shown) quick response concealed pendant type mounted on the underside of the boxing crossing a corridor.

In plant and back of house areas the sprinkler shall be quick response upright or pendant type.

The location and spacing of the sprinklers shall be in accordance with BS 9251:2014 and the manufacturer's guidelines.

Sprinklers shall be listed in accordance with the requirements of BS 9251:2014 and BS 9252:2011.

Due to their use on previous Stoke City Council projects the proposed sidewall sprinkler type for the project is the Reliable RFS42 (or equal and approved). BH drawings show indicative coverage and placing based on the 4.3m x 4.3m coverage for this sprinkler model, with the sprinkler positioned between 150mm and 300mm down from the ceiling.

13.8 Interfaces

The Contractor shall be responsible for supply and installation of all sprinkler system related equipment up to the interface points noted below.

Connections to water mains shall be by the Contractor. Contractor to co-ordinate with Client on suitable timeframe and procedure for temporary isolation of water supply to carry out connections. Duration of isolation of water supply and associated inconvenience to residents shall be kept to a minimum.

For all buildings, any connections to drain shall be by the Contractor. An assumption may be made that suitable drainage into which connection may be made shall be available within 5m of agreed drainage point(s) on the system.

Electrical supplies shall be by others to a local isolation switch (by others) located adjacent (within 1m) to any control panel or equipment requiring electrical power supply. Wiring from the switch to the sprinkler system equipment shall be by the Contractor. Any other power wiring required within the sprinkler system work package shall be by Contractor.

Signal wiring to any Sprinkler Monitoring equipment shall be by the Contractor. Actual location of the any I/O switches etc relative to the building fabric shall be consistent with that generally employed for the particular system involved. Any other control/signal/monitoring wiring required within the sprinkler system shall be by Contractor.

Builderswork shall be by the Contractor.

13.9 System Monitoring

Alarms per the recommendations of BS9251 shall be installed. As required by the design standard, the automatic sprinkler system security and status will be monitorable within the buildings, both audibly and visually at a point to be agreed with the Employer. For the purposes of tendering, it should be assumed that this location will be in the Ground Floor entrance foyer. (See also Section 14).

13.10 Testing and Commissioning

The Contractor shall be fully responsible for the full testing and commissioning of the non- electrical installation within the project.

The commissioning engineer shall provide full method statements for the each element of the testing and commissioning of the project. This shall include the method of safely collecting and disposing of water discharged during the testing process. The method statements shall be submitted to the Engineer at least two weeks prior to the commencement of the site commissioning activities.

A report shall be prepared subsequent to the completion of the testing and commissioning of the installation on site. The report shall include the following as a minimum:

- Design criteria;
- Pressure test certificates; and
- Hydraulic Calculations.

See also Appendix C.

14 System Design Criteria

The systems shall be a fire sprinkler system installed for life safety in residential property as per BS 9251:2014 (See also 13. above).

The systems shall be sized as per the criteria for a Category 3 System with Special Circumstances in BS9251: 2014.

The Contractor shall be responsible for the connection of a suitable water supply for the system. This will include testing of existing supplies per the guidance and, if necessary, determination of security of supply with utility supply authorities. This shall include the supply of sprinkler booster pumps sized per the design requirements and installation at the locations as noted previously.

The systems shall be permanently charged with water. The Contractor must take all the necessary precautions to ensure that the systems are protected at all times against freezing. This protection, where required, shall be in the form of an automatic trace heating system for the pipework. Trace heating systems shall be installed complete with a test and monitoring facility, which shall be connected to the sprinkler monitoring system for monitoring of function.

The sprinkler system shall be designed and installed in accordance with BS 9251:2014.

The system shall be designed to give sprinkler protection to all areas as required to meet the requirements of BS 9251:2014, and any particular requirements of this performance specification. In terms of BS 9251:2014, the buildings accommodation must be consistent with the additional requirements relating to Multi-storey blocks of flats noted therein.

Layout of sprinkler pipework shall be designed in conjunction with other services details to provide a neat, unobtrusive layout.

The Contractor shall carry out hydraulic calculations in accordance with BS 9251:2014 to determine the pipe sizes for the system to achieve the necessary performance. These calculations along with all supporting documentation shall be made available to the Employer (or their representative) at least 10 days prior to any installation works taking place on site.

Security and status of the system in terms of system flow alarm, water supply status and fault is paramount. Depending on the configuration of the system in terms of equipment location(s) the means of achieving this may vary but the security of each should be addressed. If present, the following equipment/parameters shall be monitored via an independent stand alone monitoring system panel by the Contractor:-

- Pumps – electrical supply healthy– monitor as a 'Fault'.
- Trace Heating/ Frost Protection System(s) - monitor as a 'Fault'.

- It is preferable that any system or zone isolation valves be located in secure areas or enclosed with suitable boxing material, but if this cannot be achieved, malicious or accidental closure of isolation valves in insecure areas will be monitored using proprietary approved valve tamper switches connected into the monitoring system via I/O devices. Closure of such valves should be indicated as a 'Fault' on the monitoring system.
- System 'Flow'- Shall activate the AFD&A system as an Alarm – Contractor to ensure that alarm signal is compatible with existing AFD&A system and to agree appropriate strategy with Employer as to cause and effect for system 'flow'.

15 Particular Requirements

As noted previously, the system shall be designed and installed in accordance with BS 9251:2014. The following particular requirements relate specifically to this project.

Clause numbers (**in bold**) relate to BS 9251:2014.

1 The system shall be a fire sprinkler system installed for protection of life in case of fire, with additional benefits for property protection in residential occupancy.

4.3 Category 3 shall apply – in accordance with **Table 1**, blocks are over 18m height and (as per **note D**) communal rooms and corridors will also be sprinkler protected. In addition, stair landings will also be sprinkler protected in accordance with Staffordshire Fire Service requirement.

4.5 Special circumstances apply for two reasons– as buildings house vulnerable people (reference **Annex B)** and building is an older building with hidden voids and/or where compartmentation might not meet current standards. As a result the following measures are proposed for the installations: more robust water supply (duty and standby pumps) and standby power supply to serve the pumps.

5.1 Contractor company and personnel used shall be experienced in the design and installation of systems to BS 9251.

Contractor shall demonstrate successful completion of minimum three similar sized projects per the recommendations of BS9251.

See also Section 7 for Contractor approvals, qualifications, and experience.

System to be designed so that most maintenance functions can be carried out from the common parts of the buildings.

5.4 Sprinkler coverage is required throughout the buildings with the exception of the areas listed in **5.4**

5.5 Sidewall sprinklers are proposed throughout this project with the exception of back of house areas such as plantrooms where pendant or upright sprinklers can be considered.

Contractor shall note requirement to install per supplier instructions, but not in contravention of BS9521:2014. In the event of any conflict in the two sets of guidance, the view of the Consulting Engineer should be sought.

Contractor should take into account the other services around the walls at high level in flats and corridors (and ceilings in back of house areas) when considering their design per the recommendations of BS9251:2014, and this should be reflected in the tender price returned. In the event of any

unavoidable clash between the other services and the sprinkler layout, the view of the Consulting Engineer / Employer (or their representatives) should be sought. To avoid abortive work it is suggested that early consultation is sought with the Consulting Engineer / Employer (or their representatives) to agree design parameters.

Proposed type and finish of sprinklers for use in the project should be discussed and agreed in terms of aesthetics with the Consulting Engineer / Employer (or their representatives). Any cost implications of head type and finish should be raised during the Tender process.

5.6.3 Sprinkler temperature ratings should be 57C (if available) in normal areas. Under any glazed roofs it is likely that 79C will be suitable, but the expected worst case maximum temperatures in these areas should be checked with the Consulting Engineer.

5.7 Hydraulic calculations to be provided by the Contractor to the Consulting Engineer for review prior to the commencement of each individual installation.

5.8.2 Water supply shall be mains water supply boosted by a pump

5.8.3 The Contractor shall seek permission from the water undertaker or licensed water supplier for the connection of pumps to the main to boost pressure as well as the sizes of connections from the water main to serve the buildings. Appropriate testing of water supply flow and pressure shall be carried out by the Contractor at the earliest opportunity.

5.9.1 Duty and standby electric pumps to meet with additional measures. It is proposed that the pumps be located in the store rooms at ground / lower ground levels as per relevant BH drawings.

5.9.3 Pumps to be dedicated sprinkler pumps and designed to include automatic test cycle where the pump is activated at least monthly

5.11 A test facility on the hydraulically most remote range pipe on the system shall be fitted. For tender purposes, it shall be assumed that the test pipe shall be suitably plumbed to drain (within 10m) by the Contractor.

The combined test and drain facility at the lowest point on the sprinkler pipework system shall be fitted. For tender purposes, it shall be assumed that the test pipe shall be suitably plumbed to drain (within 10m) by the Contractor.

5.12 Any electrical trace heating used shall be monitored and complete with a test facility, and alarm connection to sprinkler monitoring system). This shall be integrated into the existing fire alarm panel

for the building located in the entrance foyer. Operation and testing of this system shall be included in the O&M documentation for the system.

5.13.2 The alarm will be sounded by devices both internally and externally. The monitoring panel shall receive its signal from a suitably located (per BS9251) electrically operated flow switch on the fire sprinkler system. The external alarm shall be in a prominent position (to be agreed), clearly labelled 'FIRE ALARM'. It is envisaged that this facility will be located on an external wall of ground floor store in a (agreed) location at which it may be seen and heard. This alarm shall also be integrated with the existing fire alarm panel.

5.13.3 Sprinkler flow alarm devices shall be installed on each connection off each riser at each floor (i.e. one for each flat and for each common space). Note – this is a client requirement in excess of the BS 9251 requirements.

5.13.4 Transmission of alarm signal to alarm receiving centre shall be required. Contractor to verify if this is currently in place on existing fire alarm panel (to be allowed for as separate line item in tender).

5.13.5 All electrically powered devices in the system shall be fitted with secondary power supplies or fail safes, as appropriate, as described in BS5839 Parts 1 & 6.

See also Section 16 of this Specification.

6.1.1 Pipework installations shall be installed as per the guidance of this performance specification, BS9251, Water Research Council Guides and any local Water Bylaws or guidance.

6.1.2.3 Pipework passing through any structural elements shall be arranged in such a way as not to compromise structural integrity and to take into account the requirements and guidance of the Building Regulations**.**

6.2.2 Leakage testing of the installation shall take place using water as described in **6.2.2.** Air pressure testing of the installation shall not be permitted. All tests of the installation shall be intimated to the Employer/ Engineer at least 20 working days in advance to allow the option of witnessing the test.

6.2.3 Hydraulic Test. All tests of the installation shall be intimated to the at least 20 working days in advance to allow the option of witnessing the test. A full set of drawings and hydraulic calculations for the system shall be supplied to the Employers Representative at least 20 working days prior to the test to allow consideration prior to test witnessing.

6.2.4 Alarm audibility shall be as per the BS5839 Part 6 requirements for the AFD&A system. An interface shall also be provided with the building AFD&A system (via sprinkler monitoring system) shall be such that activation of the sprinkler system shall activate the alarm in areas and sequences as advised by the Client in accordance with their operation fire strategy.

16 Electrical Installation

The Contractor shall be responsible for all (from interface points noted previously) electrical and control wiring to allow the sprinkler system to be set to work.

The electrical supply to the fire pumps shall be installed per the requirements of BS9251:2014 Clause 5.9.1.

All other electrically operated equipment associated with the sprinkler system shall be capable of carrying out its function in the event of a complete failure of the mains electrical power supply in accordance with BS 5839- Part 1 & 6 (latest revisions) as appropriate.

The pumps shall be backed up, as proposed, by a secondary emergency electrical supply via a changeover panel (by Contractor).

16.1 Cable Specifications

All cable systems to be suitably fire rated and will comply, as appropriate, with BS8519.

16.2 Containment Specifications

Cable Systems to be provided within suitably fire rated conduit, or on galvanised steel cable tray. Contractor shall note requirements for fire rating of all aspects of cable support including ties and support structure. Supply of such containment and/or cable support, as required for the sprinkler work package, shall be by the Contractor.

16.3 Earthing System

A suitable electrical earthing system shall be provided to all components of the automatic fire sprinkler system.

16.4 Fire Compartmentation

The Contractor shall utilise a separate Fire Sealing/Stopping Specialist to undertake fire stopping of all service penetrations through fire rated elements. This will include penetrations required in the course of this Contract for non electrical installations. The fire stopping shall be carried out using a certified fire compound and location plans c/w certification shall be provided for each individual fire seal. The Contractor shall note that the use of exposed Rockwool shall not be acceptable.

As part of the operating and maintenance documentation package, a marked up record drawing showing exact locations of penetrations and type of fire stopping used shall be provided. This shall require to be cross referenced to the certification if different products or materials are used.

The Contractor shall consult with the Client for full details and specification of any building fire compartment zones.

Prior to handover of the works, the Contractor shall inspect all penetrations associated with the sprinkler installation, along with the associated documentation package and advise the relevant parties if the works are satisfactory or otherwise. Only when the Contractor is satisfied with the complete package of works shall the installation be offered to the Client for acceptance.

16.5 Builderswork

The Contractor (or their nominated subcontractor) shall be responsible for the setting out and installation of all builderswork in connection with the services installation.

The Contractor shall be fully responsible for obtaining approval from the Structural Engineer (via the Employer or their representatives) for all new openings relating to this Contract within the project.

Where the new and existing builderswork openings are external, the Contractor shall be fully responsible for the weathersealing of the openings accordingly, to an acceptable detail, as approved by the Employer (or their representative).

16.6 Testing and Commissioning

The Contractor shall be fully responsible for the full testing and commissioning of the services within the project.

The Contractor shall provide full method statements for the each element of the testing and commissioning of the project. The method statements shall be submitted to the Employers Representative at least two weeks prior to the commencement of the site commissioning activities.

A report shall be prepared subsequent to the completion of the testing and commissioning of the installation on site. The report shall be prepared fully in accordance with Appendix C of this Specification and shall include the following as a minimum:

- Design criteria;
- IEE Cable test certificates; and
- Fire detection and monitoring system test results.

17 Spare Parts

The Contractor shall be fully responsible for the provision of spare parts, fully in accordance with the specification. Contractor to warrant that spares are available – this building contains people's homes, so the system cannot be taken offline for a number of weeks waiting for spares.

Spare sprinkler heads and guards of the same type used in each system shall be supplied by the Contractor. The number of sprinkler heads to be supplied shall be 4 of each type used in the system with appropriate tool(s) for fitting them.

If they are not available as an 'off the shelf item', the Contractor shall also provide a full set of any pump manufacturers recommended spare parts as part of the spare parts provision.

The Contractor shall submit a full spare parts list, at least four weeks prior to Practical Completion, for comment by the Employers Representative/ Engineer. Documentation detailing pump spares provision and availability shall be provided as part of the handover documentation.

18 Post Contract Monitoring

The Contractor shall be responsible for returning to site at six monthly intervals, during the defects liability period of the project, to review the operation and performance of the new systems within the project (two visits in total). Within seven days of the visit, the Contractor shall submit a technical report, fully identifying the performance of the systems to date and identify any concerns of the systems.

Tenderer should assume a minimum 12 months duration for defects liability period.

19 Prevention of Malicious and Accidental Damage

In areas where the sprinklers are located where they may be subject to mechanical impact, they will be provided with proprietary head guards to prevent accidental or malicious damage from mechanical impact at the heads.

Within areas where the sprinkler heads have more visual impact, such as corridors and flats, they may be provided with concealed sprinkler heads as agreed with the Employer (or their representatives). For tendering purposes it shall be assumed that concealed heads shall be used.

Selection of heads in terms of accidental or malicious damage shall be appropriate to the areas in which they are to be fitted. This selection shall be part of the design responsibility of the Contractor.

See also requirement in Section 14 for 'tamper' monitoring of valve position in vulnerable areas.

Selection of pipework materials is also of paramount importance. Whilst the use of CPVC is considered appropriate and acceptable in certain areas, consideration should be given to the use of materials suitable for the areas in which they are installed. Vulnerability of pipework and fittings to accidental or malicious mechanical damage must be considered with respect to the nature of each space in which coverage is installed.

Contractor (or their appointed subcontractor) shall be responsible for boxing of pipework where required to a standard agreed and acceptable to the Employer. Boxing will not be required in plantrooms, risers, storerooms and bathrooms but is proposed in all other areas.

20 Phasing

The Contractor shall be aware of any phasing requirements of the project. Such information as may be required to plan this shall be requested from the Employer (or their representative).

The installation of a sprinkler system to a "pilot flat" shall be completed in each building prior to further works on other flats in the respective building. This will be used to demonstrate installation details for sprinklers, boxing and fire stopping of penetrations and shall be used as a benchmark for other flats once approved by the Employer (or their representatives). Contractor to liaise with Employer to programme these works and ascertain the "pilot flat" (preferably a void flat if possible)

The Contractor shall ensure all elements are included to achieve any phasing requirements of the project. The Contractor shall give careful consideration to prevent abortive work, and where abortive work is inevitable the contractor must price accordingly.

The Contractor shall allow for all temporary connections, including valving, blanking etc., during any individual phases of the project.

The Contractor shall pressure test as required each phase to allow each phase to be signed off prior to completion and handover of each individual phase.

Such pressure testing should also take into account any restrictions in pressure system size in terms of bar-litres as dictated by the Pressure System Regulations, and any particular material characteristics with respect to pressure testing.

Appendix A Quality Standards

1. CIBSE Guide A Design Data
2. CIBSE Guide B Installation and Equipment Data
3. CIBSE Guide C Reference Data
4. CIBSE Guide E Fire Engineering
5. The IEE Regulations for Electrical Installations, BS 7671 (Latest Edition)
6. BS9251:2014 –'Sprinkler systems for residential and domestic occupancies- Code of practice'
7. BS5839-Part 6:2013: Fire detection and fire alarm systems for buildings — Part 6: Code of practice for the design, installation, commissioning and maintenance of fire detection and fire alarm systems in domestic premises.
8. The Water Supply (Water Fittings) Regulations 1999
9. The Local Authority Environmental Health Officer's requirements
10. The Local Fire Officers requirements
11. The Health and Safety at Work Act
12. Electricity at Work Regulations
13. The Clean Air Act
14. The Control of Pollution Act
15. BSRIA Handover, O&M Manuals and Project Feedback
16. Construction, Design and Management Regulations 2015.
17. The CIBSE and BSRIA Commissioning Codes of Practice
18. BSRIA Pre-commission Cleaning of Water Systems;1999
19. Institute of Gas Engineers Legislation, Utilisation Procedures and Safety Recommendations

Appendix B Installation and Builderswork Drawings

Drawings by Contractor

The Contractor shall provide the following drawings for each building:

i. Design and Installation Drawings (including installation details);

ii. Coordination drawings;

iii. Builderswork drawings;

iv. Plant and equipment drawings; and

v. Record (Layout/As-built) drawings.

Please note:

i. All symbols shall be strictly in accordance with BS1553;

ii. All drawings shall bear the name of the contract and the Contract reference;

iii. Drawings shall be cross referenced for ease of interpretation; and

iv. All dimensions shall be in S.I. format.

Drawing Schedule and Format

The Contractor shall prepare a drawing schedule of all their proposed drawings to the satisfaction of the Engineer. The schedule shall indicate the following:

- Drawing number;
- Drawing title and service;
- Scale and size of drawing;
- Date of commencement of drawing production;
- Date for first submission for comments; and
- Latest date for approval.

The Contractor shall revise and update their drawing schedule as necessary on a monthly basis taking into account any revision which may take place.

Installation drawings shall be to the BS International 'A' series. Wherever possible, drawings shall be on A1 size sheets. Generally, scales shall be: General Arrangements 1:50, Plantrooms 1:20, and all large scale details 1:10. Large scale details not shown on general layouts may be shown on A3 size detail sheets.

Installation Drawings

The Contractor shall provide the appropriate Installation Drawings for the engineering services installations as described herein and in accordance with the agreed programme.

The Installation Drawings shall be based upon the latest drawings and any other drawings, or information on Contract, issued by the Employer (or their representative) during construction. Installation Drawings shall accurately show the specified, or selected plant and equipment in their true proposed location.

Copies of manufacturer's certified drawings shall be provided for major items of plant, indicating physical dimensions, schematic arrangements for components and full detailed electrical wiring diagrams.

All equipment and accessories shall be individually referenced. These references shall appear on all drawings, schematics, schedules and submittals. Following installation these references shall be applied to each device on site.

The Contractor shall ensure that all equipment can be installed in the allocated spaces. All details must be shown on the Installation Drawings based on information obtained from manufacturer's certified construction drawings. Equipment layouts shall be detailed, showing the exact method of installation and clearly illustrating components to be used in making all connections. Installation space around equipment shall be made available as required by standards and good practice guides.

The Contractor shall submit to the Engineer, Installation Drawings of all containment systems for comment before they are fabricated and installed. Drawings shall show clearance between services provided by other Contract works, walls, ceilings floors and structural elements. All connections to equipment and methods of support hangers and any other large scale details necessary for the satisfactory installation of the systems must be supplied. Each type of sprinkler head, valve etc., is to be referenced in a schedule and the type and size clearly indicated at each location. Diagrammatic charts showing schematically the various systems etc. shall be fully referenced to equipment.

The Installation Drawings shall show all plant, equipment and cable/conduit/pipe/duct runs etc. The Installation Drawings shall include full details of all plant together with cable/conduit /pipe/duct sizes, wiring drawings, schematic and inter-connection diagrams/drawings.

Unless otherwise agreed in writing, no work may start on site until the relevant Installation Drawings have been commented upon and issued.

Composite circuit and layout diagrams for the electrical wiring of plant etc., shall detail all circuitry within control panels, racks, and fire alarm panels together with all interconnecting wiring from the main point of supply onwards and all terminal markings. The required sizes and types of all cables shall be indicated on the layout diagrams together with ratings of such items as fuses, switches and controls. The composite diagrams shall subsequently form part of the set of "As Installed"/ As-built/ Record Drawings.

Where revisions take place to the works, either under the authority of the Employer's Instruction, or by written agreement with the Employer, the Contractor shall modify the Installation Drawings accordingly and shall re-issue for construction purposes any such modified drawings. The issue of revised Installation Drawings shall be in accordance with, and with regard to, the agreed programme for construction.

Specific Installation Drawings may, by the prior specific and express written permission of the Employer, omit minor details such as conduit provided that a method statement rigorously covers the installation intent. This permission will not be unreasonably withheld, but will not be given where either Employer operation, or visual appearance is affected nor where details are needed for co-ordinating trades.

The Installation Drawings shall include details of all local co-ordination with equipment, control panels, access points and architectural finished surfaces. The intent is that all elements of the installation can be considered by the Employer for spatial relationship, appearance and operation prior to installation.

The work described on the Installation Drawings shall have been carefully checked for all clearance, maintenance of architectural and structural elements and proper co-ordination with all trades.

At points where many services are in close proximity to each other, or where there is limited space to install these, or where the integration and connection of many services together requires clarification, large scale details shall be prepared showing all services and clearances. These areas shall include false ceilings, shafts, plantroom areas, etc.

Care shall be taken to obtain uniform and tidy arrangements of wall, floor and ceiling mounted equipment.

Single items of equipment which are visually remote from other electrical, or mechanical equipment shall be erected taking full account of any architectural requirements such as wall, floor or ceiling tiles.

Two, or more items of equipment, whether electrical, or mechanical, or both, which are to be erected on the same wall, or ceiling, or which will otherwise be visually close to each other, shall be arranged in a neat and symmetrical group. Symmetry of arrangements shall be obtained by horizontal and vertical alignment through the centre lines and not the edges of the equipment. For this purpose the mounting instructions stated in the Specification, or on the Design Drawings may be varied slightly with approval by the Employer (or their representative).

Comments on Design and Installation Drawings

The Contractor shall be responsible for any omission, errors, or any discrepancies in the Installation Drawings and other particulars supplied by them, or their suppliers, whether such drawings, or particulars have been commented upon by the Employer, or not.

Comments on any Installation Drawing by the Employer (or their representative) shall not alleviate the Contractor of their responsibility for the correctness of the drawing, or its suitability for purpose.

Revisions and Variations

Where Design Drawings are subject to revision, or instruction then the Installation Drawings, and finally the As-built Drawings, shall show the full effect of such revision. Where the scheme revision involves change to the architectural, or structural details, immediate notice shall be given to the Employer (or their representative). Where Installation Drawings are revised and updated during construction these shall be issued to the Employer (or their representative) for comments on the revision only.

After final comment on the Installation Drawings by the Employer (or their representative), the Contractor shall provide the Employer (or their representative) with three copies.

Builderswork Drawings

The Contractor shall prepare all other necessary Builderswork Drawings required for the execution of the Contract, making due reference to the structural and architectural final dimensioned detail drawings as applicable. All Builderswork with Drawings shall be fully dimensioned.

The Contractor shall prepare schedules and Installation Drawings showing precise details of holes in concrete blockwork etc., bases, cable trenches and drainage of trenches, frames, or supports required and the like. The schedule shall show in detail the builderswork required to be performed. The Installation Drawings and schedules in an approved form, must be submitted to and approved by the Employer (or their representative) before any structural work requiring holes, or other modification is executed.

The Contractor shall be required to mark on site actual locations of all builderswork holes through walls, partitions, floors etc., and also chases in walls, floors etc., for conduits pipes and the like to bring to the attention of the Employer (or their representative) prior to carrying out any work. The Contractor shall establish a method of Installation with the Employer (or their representative) to ensure the works may proceed without hindrance.

All Builderswork Drawings provided by the Contractor shall be provided in sufficient time to comply with the agreed schedule, all costs arising from failure to do so will be met by the Contractor.

Setting Out

The Contractor shall ensure that all plant and equipment to be supplied by them can be installed in the available space and that there is adequate access to admit all plant to its position.

All work shall be so installed as to be accessible for operation, maintenance and repair. Deviations from the drawings may be made to accomplish this, but no change will be made without the written approval of the Employer (or their representative). Access door locations shall be approved by the Employer (or their representative) before installation work commences.

The Contractor shall accurately set out the works and keep them correct in accordance with the approved Installation and Builderswork Drawings.

The Contractor shall be responsible for and shall, at their own cost, amend any errors arising from their inaccurate setting out or lack of site coordination.

Record (Layout/As-built) Drawings

See Appendix D.

Appendix C Operation and Maintenance Manual

Operating and maintenance documentation shall be provided by the Contractor. The manuals shall be prepared generally in accordance with the BSRIA Guide 1/2007 "Handover, O&M Manuals and Project Feedback" and the requirements set out in BS 9251:2014.

Details of required information are noted in Section 10 of this Specification.

Contractors' attention is particularly drawn to requirement for:-

- Provision of instructions on emergency actions in event of fire or accidental system activation;
- Testing and commissioning information;
- Ongoing Client/Specialist Inspections, Testing and Maintenance
- Spares schedule
- Record Drawings.

Appendix D Record Drawings

Record drawings shall be prepared on AutoCAD 2016 format, and PDF format and will be submitted for each building as follows:

1.	Schematic/diagrammatic/block plans	NTS (arrangements, wiring diagrams etc.)
2.	Equipment schedules	NTS
3.	Plant rooms etc.	1: 50
4.	General arrangements, plans and sections	1: 100
5.	Manufacturer drawings	1: 10

General Notes

The Contractor shall maintain on-site a set of Installation Drawings for each building for the purpose of progressive marking up of alterations and variations. The Installation Drawings, which shall form the basis for the As-built Drawings, shall be available for inspection by the Employer (or their representative) at any time.

The Record Drawings shall indicate the completed Works as installed and shall show all plant, equipment and pipe/cable/conduit routes, together with full details of plant/cable/pipe/duct sizes and schematic diagrams as appropriate. The Record Drawings shall show reference numbers or letters, for the controls plant items of any parts thereof, corresponding to the lettering, numbering, or any identification fixed to plant or equipment.

Record Drawings, inclusive of all specialists work, shall indicate:

- The positions of all plant and apparatus;
- The sizes, types and routes of all pipework, cables and containment systems;
- The exact routes and invert levels and the sizes, types and dates of installation of all underground services;
- The locations of any other services or obstructions in the routes of underground pipework and cables; and
- The positions and reference numbers of all sprinkler heads, valves, etc.

Appendix E Instruction to Clients Staff

Instruction Required	Time
General instruction on the operation of all equipment as part of this contract	1 x 3 hours

The Contractor shall allow, at a time to be agreed with the Employer and to suit Client availability, to attend and supply such instruction as may be required to allow users to protect, and ensure ongoing maintenance and test of the system in line with guidance.

Tom Bentley

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BA2 3DQ
UK

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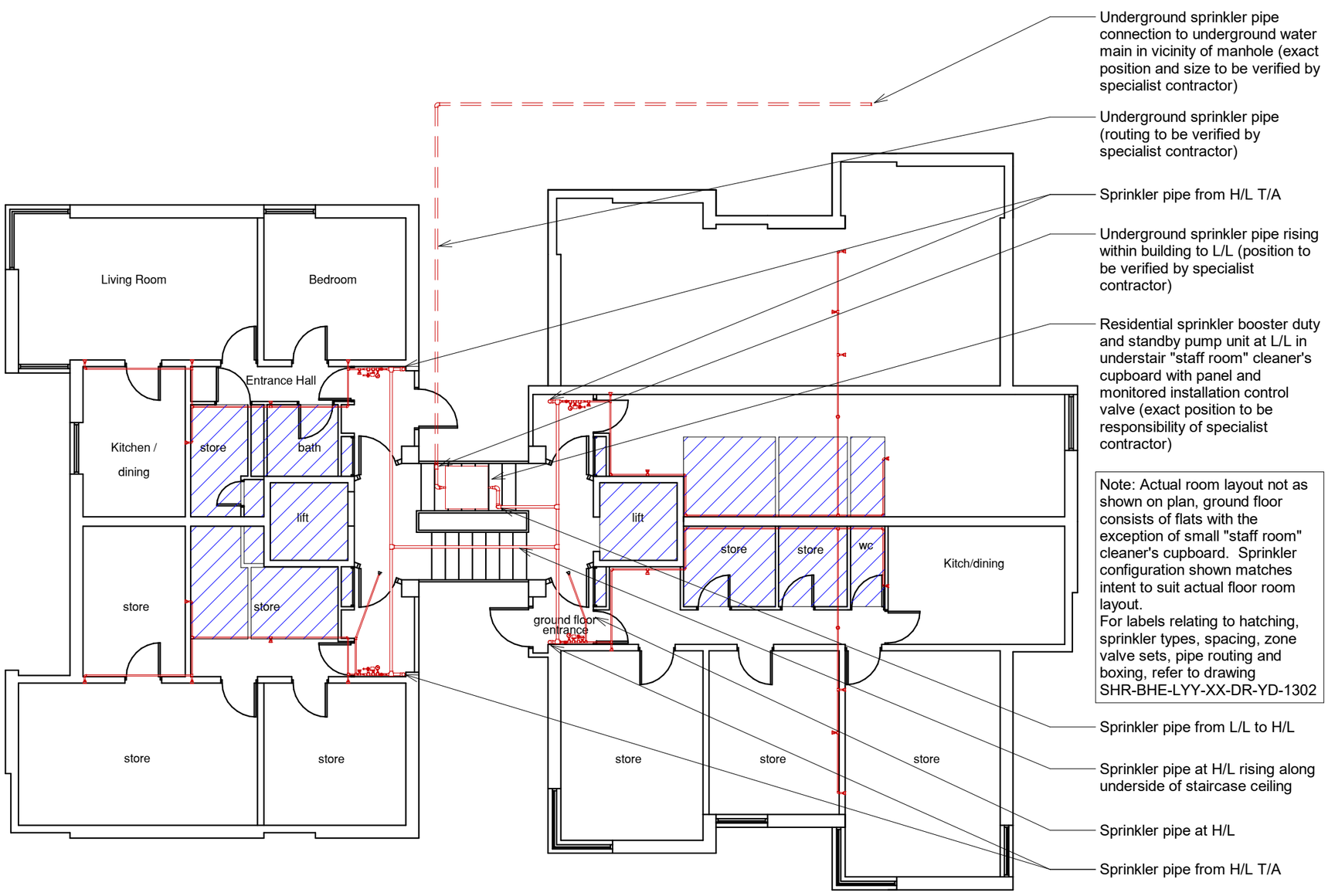
Section 3 Appendix B – Tender Drawings



Note: Actual room layout not as shown on plan, ground floor consists of flats with the exception of small "staff room" cleaner's cupboard. Sprinkler configuration shown matches intent to suit actual floor room layout.
For labels relating to hatching, sprinkler types, spacing, zone valve sets, pipe routing and boxing, refer to drawing SHR-BHE-LYY-XX-DR-YD-1302

Ground Floor
1 : 100

DO NOT SCALE THIS DRAWING.

HEALTH AND SAFETY INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION.

MAINTENANCE/CLEANING/OPERATION.

DECOMISSIONING/DEMOLITION.

Notes

Rev Description/Date Drn/Chk

Tender

Status of drawing

BUROHAPPOLD ENGINEERING

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Architect

Project **Southern Court**

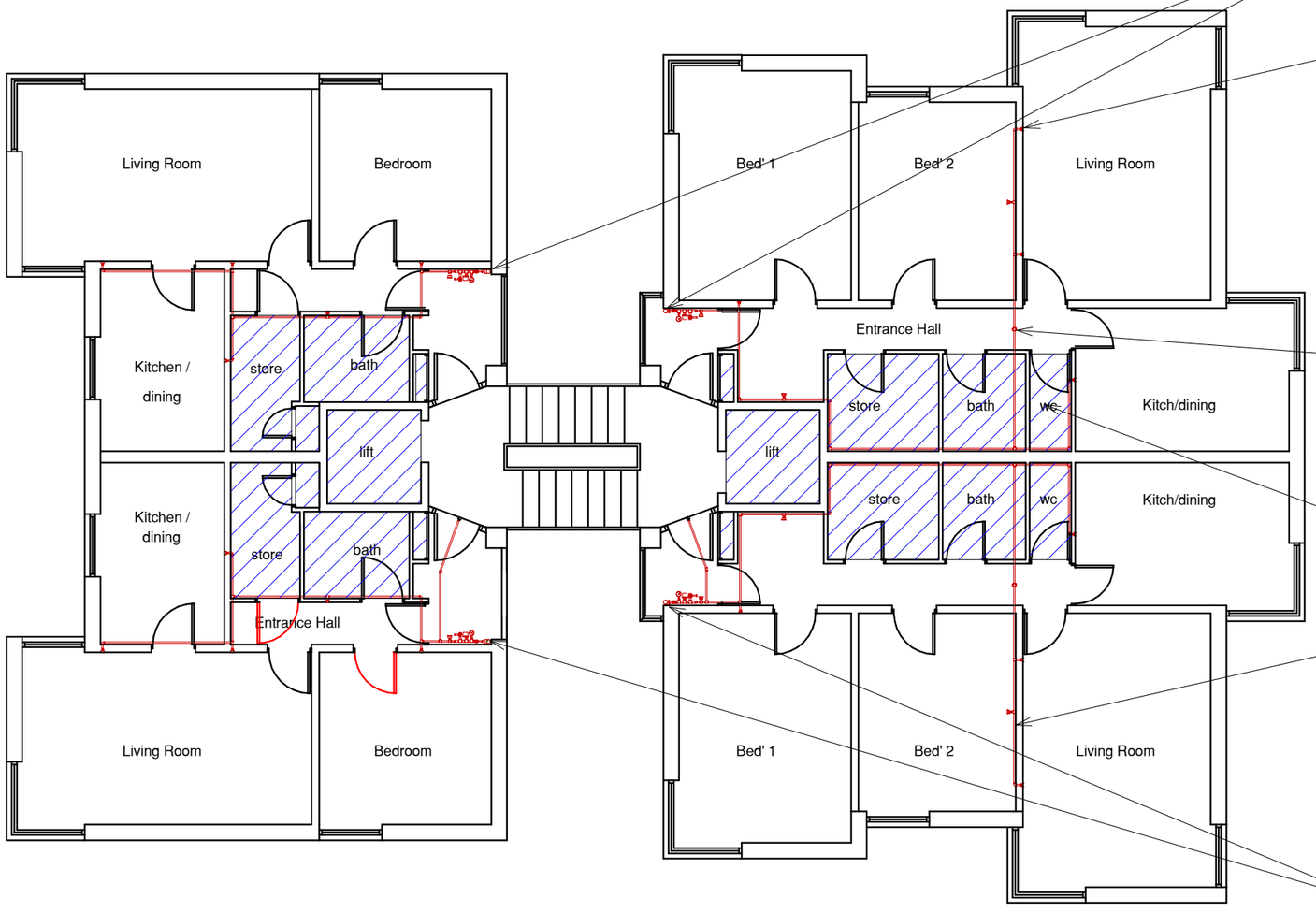
Drg Title

Scales@A3 1 : 100
Drawn By TB
Checked By GF
Date 27/01/20

Job No. 0040820

Drg No. SHR-BHE-L00-XX-DR-YD-1301

Rev



Sprinkler pipe F/B T/A with connection to serve flat via monitored zone assembly.

Typical quick response concealed residential pattern horizontal sidewalll sprinkler. Centre line to be between 100mm and 300mm down from the ceiling.
Number of and coverage based on Reliable Sprinkler RFS42 with 4.3m x 4.3m spray.
Contractor responsible for final number of sprinklers and their positions.

Typical concealed pendant sprinkler mounted on the underside of boxing crossing the corridor. Contractor responsible for final number of sprinklers and their positions.

Hatching indicates sprinkler coverage not required under BS 9251:2014

Indicative sprinkler pipe routing at high level around walls within boxing. Contractor to route pipework to co-ordinate with existing services and minimise impact on residents.

Sprinkler pipe F/B T/A with connection to serve flat via monitored zone assembly.

Typical Upper Floor

1 : 100

DO NOT SCALE THIS DRAWING.

HEALTH AND SAFETY INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION.

MAINTENANCE/CLEANING/OPERATION.

DECOMISSIONING/DEMOLITION.

Notes

Rev Description/Date Drn/Chk

Tender

Status of drawing

BUROHAPPOLD ENGINEERING

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Architect

Project **Southern Court**

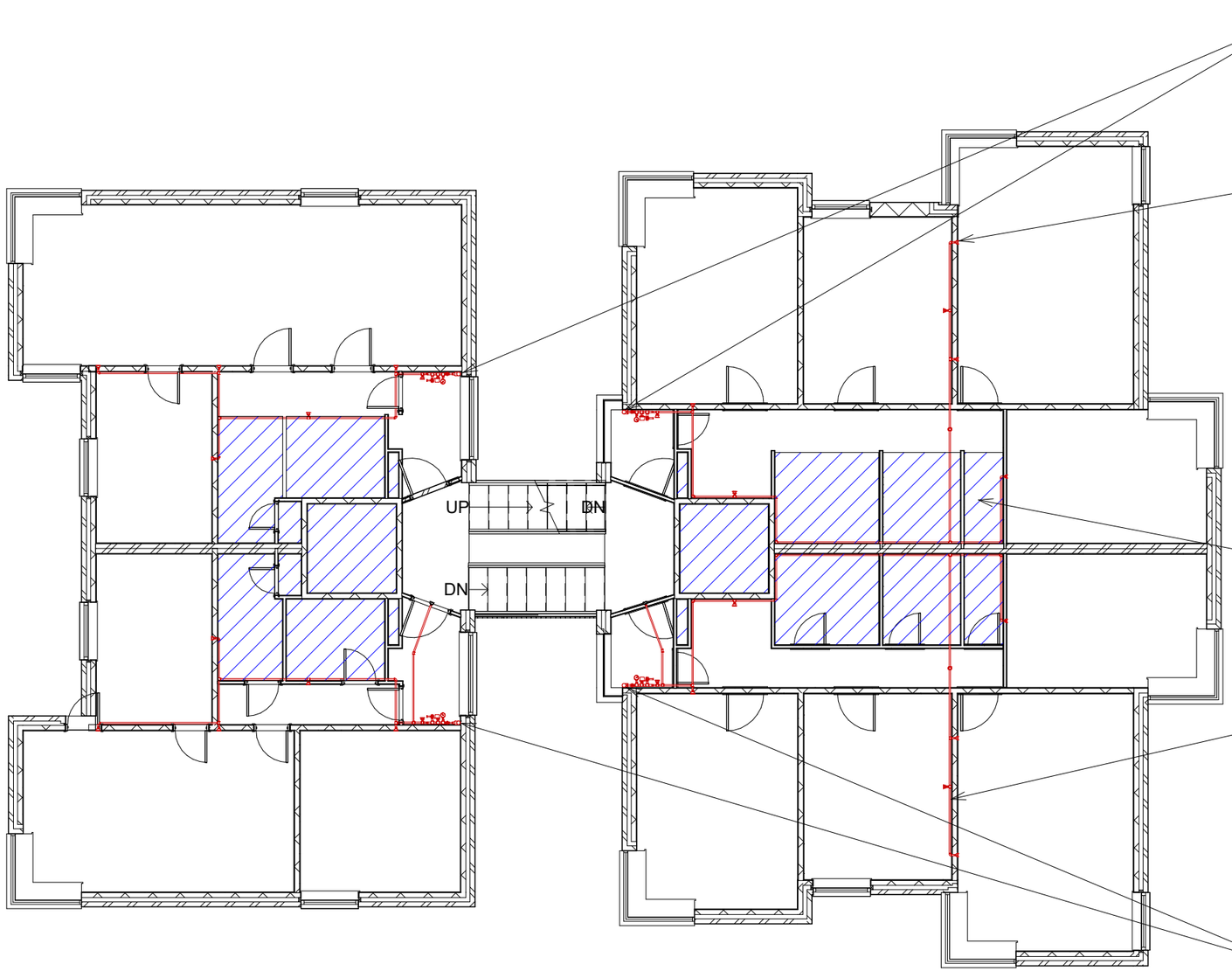
Drg Title

Scales@A3 1 : 100
Drawn By TB
Checked By GF
Date 27/01/20

Job No. 0040820

Drg No. SHR-BHE-LYY-XX-DR-YD-1302

Rev



Sprinkler pipe F/B T/A with connection to serve flat via monitored zone assembly.

Typical quick response concealed residential pattern horizontal sidewalll sprinkler. Centre line to be between 100mm and 300mm down from the ceiling.
Number of and coverage based on Reliable Sprinkler RFS42 with 4.3m x 4.3m spray.
Contractor responsible for final number of sprinklers and their positions.

Hatching indicates sprinkler coverage not required under BS 9251:2014

Indicative sprinkler pipe routing at high level around walls within boxing. Contractor to route pipework to co-ordinate with existing services and minimise impact on residents.

Sprinkler pipe F/B T/A with connection to serve flat via monitored zone assembly.

Typical Upper Floor

1 : 100

DO NOT SCALE THIS DRAWING.

HEALTH AND SAFETY INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION.

MAINTENANCE/CLEANING/OPERATION.

DECOMISSIONING/DEMOLITION.

Notes

Rev Description/Date Drn/Chk

Tender

Status of drawing

BUROHAPPOLD ENGINEERING

Camden Mill
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Bath BA2 3DQ
UK

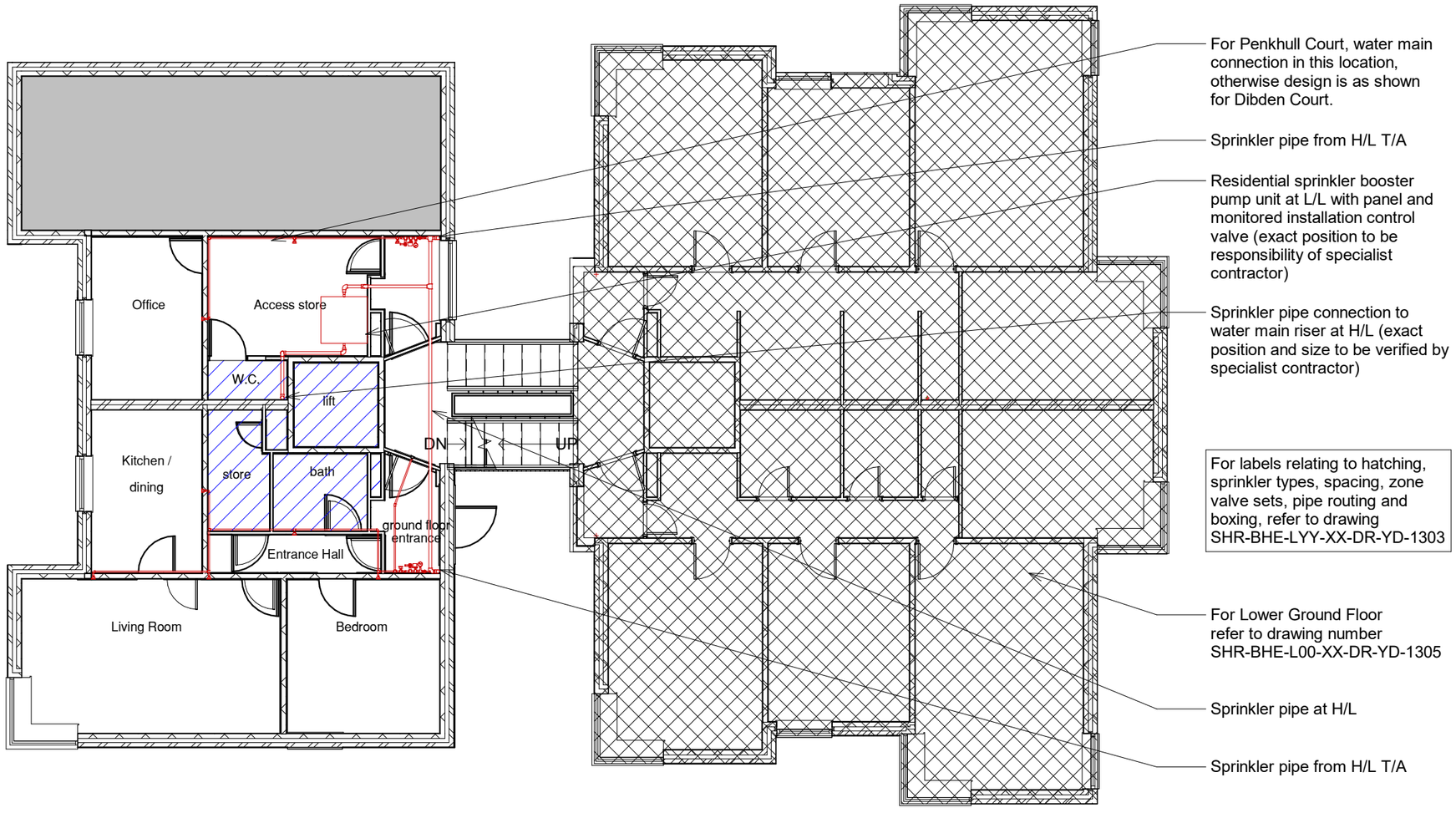
Tel: +44 (0) 1225 320600
Fax: +44 (0) 870 787 4148
Email: 0040820@burohappold.com
Web: www.burohappold.com

Architect

Project **Penkhull Court & Dibden Court**

Drg Title

Scales@A3	1 : 100
Drawn By	TB
Checked By	GF
Date	27/01/20
Job No.	0040820
Drg No.	SHR-BHE-LYY-XX-DR-YD-1303
Rev	



Ground Floor (Dibden Court)

1 : 100

DO NOT SCALE THIS DRAWING.

HEALTH AND SAFETY INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

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DECOMISSIONING/DEMOLITION.

Notes

Rev Description/Date Drn/Chk

Tender

Status of drawing

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Web: www.burohappold.com

Architect

Project **Penkhull Court & Dibden Court**

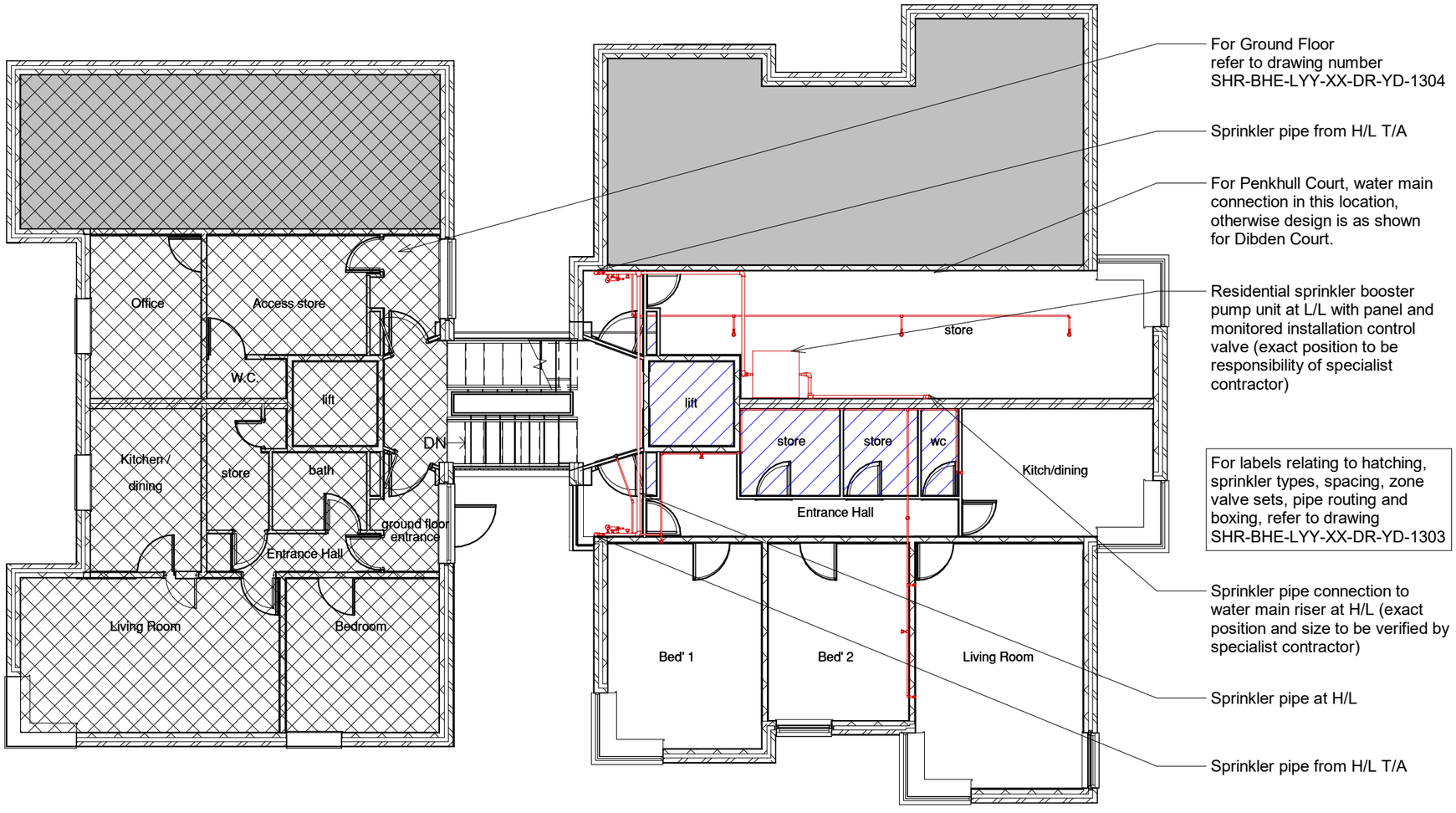
Drg Title

Scales@A3 1 : 100
Drawn By TB
Checked By GF
Date 27/01/20

Job No. 0040820

Drg No. SHR-BHE-L00-XX-DR-YD-1304

Rev



Lower Ground Floor (Dibden Court)

1 : 100

DO NOT SCALE THIS DRAWING.

HEALTH AND SAFETY INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION.

MAINTENANCE/CLEANING/OPERATION.

DECOMISSIONING/DEMOLITION.

Notes

Rev	Description/Date	Drn/Chk

Tender

Status of drawing

BUROHAPPOLD ENGINEERING

Camden Mill
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UK

Tel: +44 (0) 1225 320600
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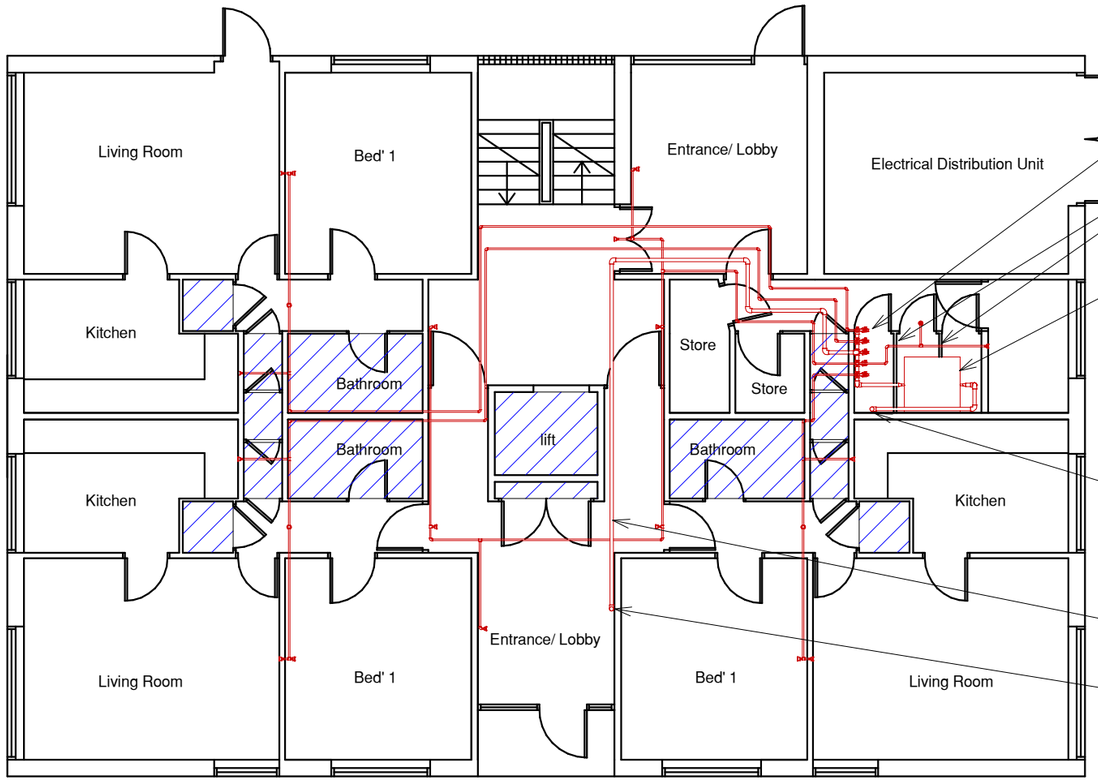
Web: www.burohappold.com

Architect

Project **Penkhull Court & Dibden Court**

Drg Title

Scales@A3	1 : 100
Drawn By	TB
Checked By	GF
Date	27/01/20
Job No.	0040820
Drg No.	SHR-BHE-L00-XX-DR-YD-1305
Rev	



Zone alarm valve sets in the vertical

Partitions to be removed to allow space for sprinkler pump installation

Residential sprinkler booster duty & standby pump unit at L/L with panel and monitored installation control valve (exact position to be responsibility of specialist contractor)

For labels relating to hatching, sprinkler types, spacing, zone valve sets, pipe routing and boxing, refer to drawing SHR-BHE-LYY-XX-DR-YD-1307

Sprinkler pipe connection to water main riser at H/L (exact position and size to be verified by specialist contractor)

Sprinkler pipe at H/L

Sprinkler pipe from H/L T/A

Ground Floor

1 : 100

DO NOT SCALE THIS DRAWING.

HEALTH AND SAFETY INFORMATION

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CONSTRUCTION.

MAINTENANCE/CLEANING/OPERATION.

DECOMISSIONING/DEMOLITION.

Notes

Rev Description/Date Drn/Chk

Tender

Status of drawing

BUROHAPPOLD ENGINEERING

Camden Mill
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Bath BA2 3DQ
UK

Tel: +44 (0) 1225 320600
Fax: +44 (0) 870 787 4148
Email: 0040820@burohappold.com
Web: www.burohappold.com

Architect

Project **Honeywall House**

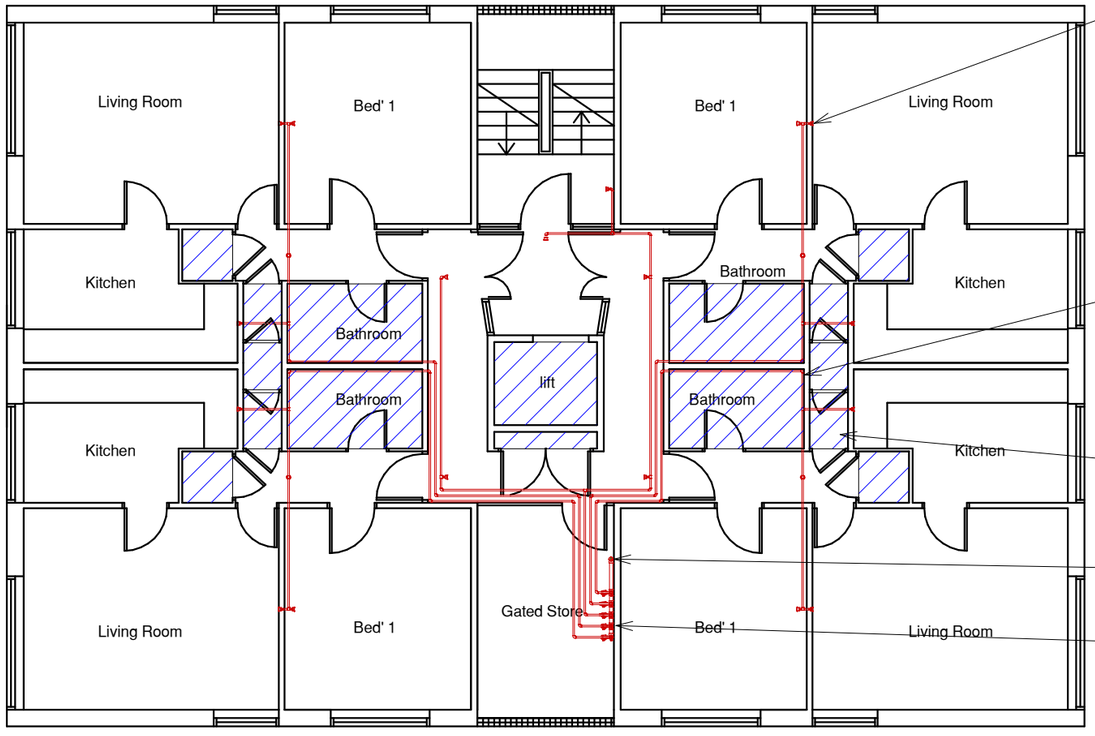
Drg Title

Scales@A3 1 : 100
Drawn By TB
Checked By GF
Date 27/01/20

Job No. 0040820

Drg No. SHR-BHE-L00-XX-DR-YD-1306

Rev



Typical quick response concealed residential pattern horizontal sidewalll sprinkler. Centre line to be between 100mm and 300mm down from the ceiling.
Number of and coverage based on Reliable Sprinkler RFS42 with 4.3m x 4.3m spray.
Contractor responsible for final number of sprinklers and their positions.

Indicative sprinkler pipe routing at high level around walls within boxing. Contractor to route pipework to co-ordinate with existing services and minimise impact on residents.

Hatching indicates sprinkler coverage not required under BS 9251:2014

Sprinkler pipe F/B T/A

Zone alarm valve sets in the vertical

Typical Upper Floor

1 : 100

DO NOT SCALE THIS DRAWING.

HEALTH AND SAFETY INFORMATION

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Notes

Rev	Description/Date	Drn/Chk

Tender

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Email: 0040820@burohappold.com
Web: www.burohappold.com

Architect

Project **Honeywall**

Drg Title **House**

Scales@A3 1 : 100
Drawn By TB
Checked By GF
Date 27/01/20

Job No. 0040820

Drg No. SHR-BHE-LYY-XX-DR-YD-1307

Rev

4. SECTION 4 – Existing Site Information

The Contractors offer must include for all works shown and described within the Employers Requirements and tender documents as being necessary for the complete and proper execution of the Works.

The contractor is to note that **NO** existing as built information relating to the existing building is available. Noted below are the existing details determined from visual surveys only together with general arrangement drawings: -

Dibden Court, Penkhull Court, Southern Court

The buildings are 9 storeys high, built in the mid 1970's. The buildings comprise two main structures, joined by a central stairwell. They are of a complex shape, constructed principally of reinforced concrete floor slabs with load bearing cavity masonry walls. The stairwell and access lobbies are enclosed in twin skin polycarbonate and half brick walls respectively.

The accommodation provides internal floor space over nine stories totalling circa 34,197 sq. ft. (3,177 sq. m). In total there are 36 apartments. One side of the building incorporates 1-bedroom apartments whereas the other incorporates 2-bedroom apartments. The 1-bedroom apartment totals circa 602 sq. ft. (56 sq. m) and the 2-bedroom apartment circa 743 sq. ft. (69 sq. m).

The internal layouts of each of the blocks are similar, the floor layouts are split level and incorporate a central stair core with two number 1-bedroom apartments and two number 2-bedroom apartments located either side of the central stair. The apartment accommodation generally consists of living room, kitchen / diner, bedroom (x2), bathroom, separate WC, store and circulation spaces. The accommodation is accessed via a main entrance door located in a small vestibule area off the main stair well landing.

The lower ground floor plans / basement areas are generally void areas, laid out in as similar manner as the upper level accommodation but are unfinished spaces that are used for storage or contractor's welfare and meeting spaces. The exception to this is Southern Court where the split-level lower floors have been omitted, due to the existing external levels. To this block an under stairs storage cupboard has been provided in lieu.

Honey Wall House

The building is 8 storeys high, built in the late 1960's. The building comprises a single structure with a central stairwell. They are of a rectangular shape, constructed principally of reinforced concrete floor slabs with load bearing cavity masonry walls.

The accommodation provides internal floor space over eight stories totalling circa 19,590 sq. ft. (1,820 sq. m). In total there are 31 apartments. The building comprises 4nr number, 1-bedroom apartments per floor which are linked via a communal landing. A further protected lift lobby is provided to each landing at the head of a single staircase.

The ground floor comprises three number, 1-bedroom apartments. The apartment at the front of the property is accessed directly from the outside and there is no internal door off the ground floor corridor.

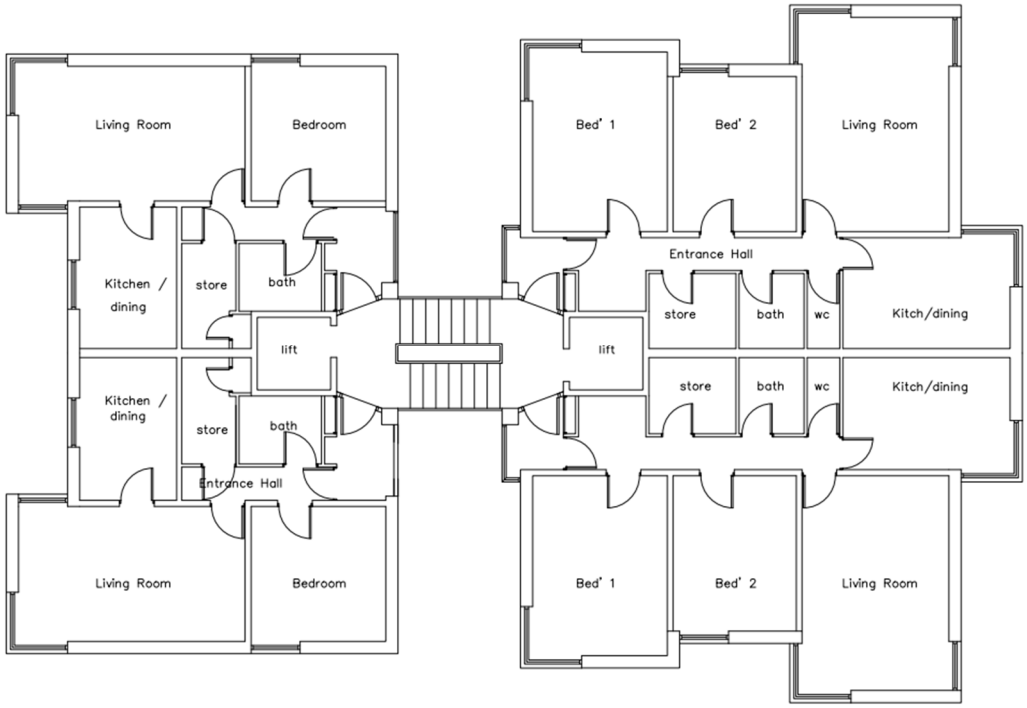
The apartment accommodation generally consists of living room, kitchen / diner, bedroom, bathroom, separate WC, store and circulation spaces. The accommodation is accessed via a main entrance door located in a small vestibule area off the main stair well landing.

The ground floor also includes an electric intake room, 4nr redundant bin stores and a small office/room all linked from a single corridor accessed off the ground floor entrance lobby.

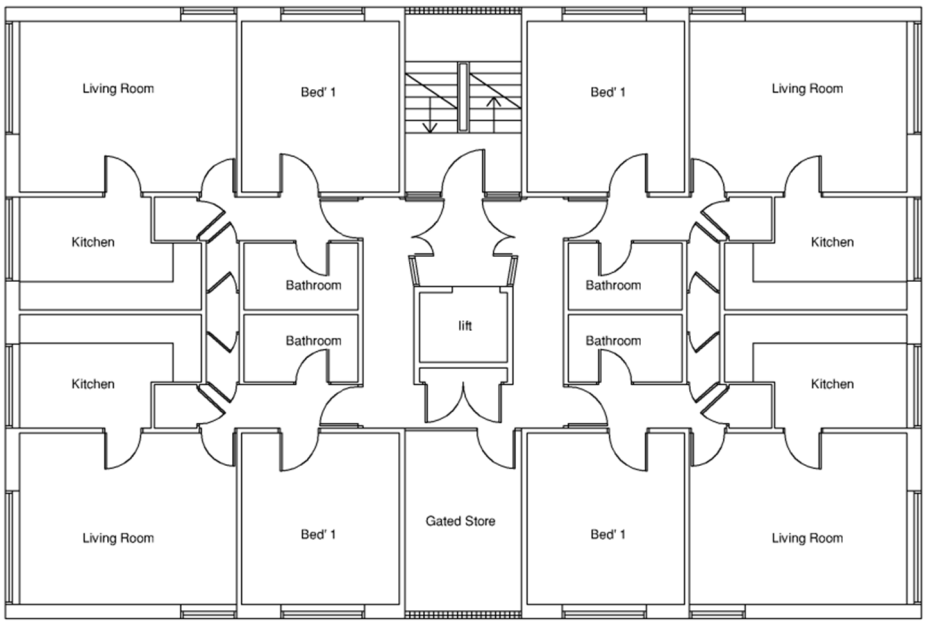
4.1: General view of typical “H” Block (Dibden, Penkhull, Southern Court)

4.2: General view of Honeywall House

4.3 Typical Apartment Layouts (Dibden, Penkhull, Southern Court)



4.4 Typical Apartment Layout Honeywall House



The sub-structure cannot be confirmed without excavation but is considered to comprise reinforced cast in-situ concrete piles. Upper storey floor slabs consist of 315mm thick pre-cast solid concrete floors. Typically, the internal apartment layout segregates areas via a combination of solid brickwork and paramount timber studwork partitioning.

Contractors are deemed to have included for all necessary builders work to form appropriately sized penetrations in all walls, floors, and any other structure to facilitate the installation of the sprinkler system in its entirety.

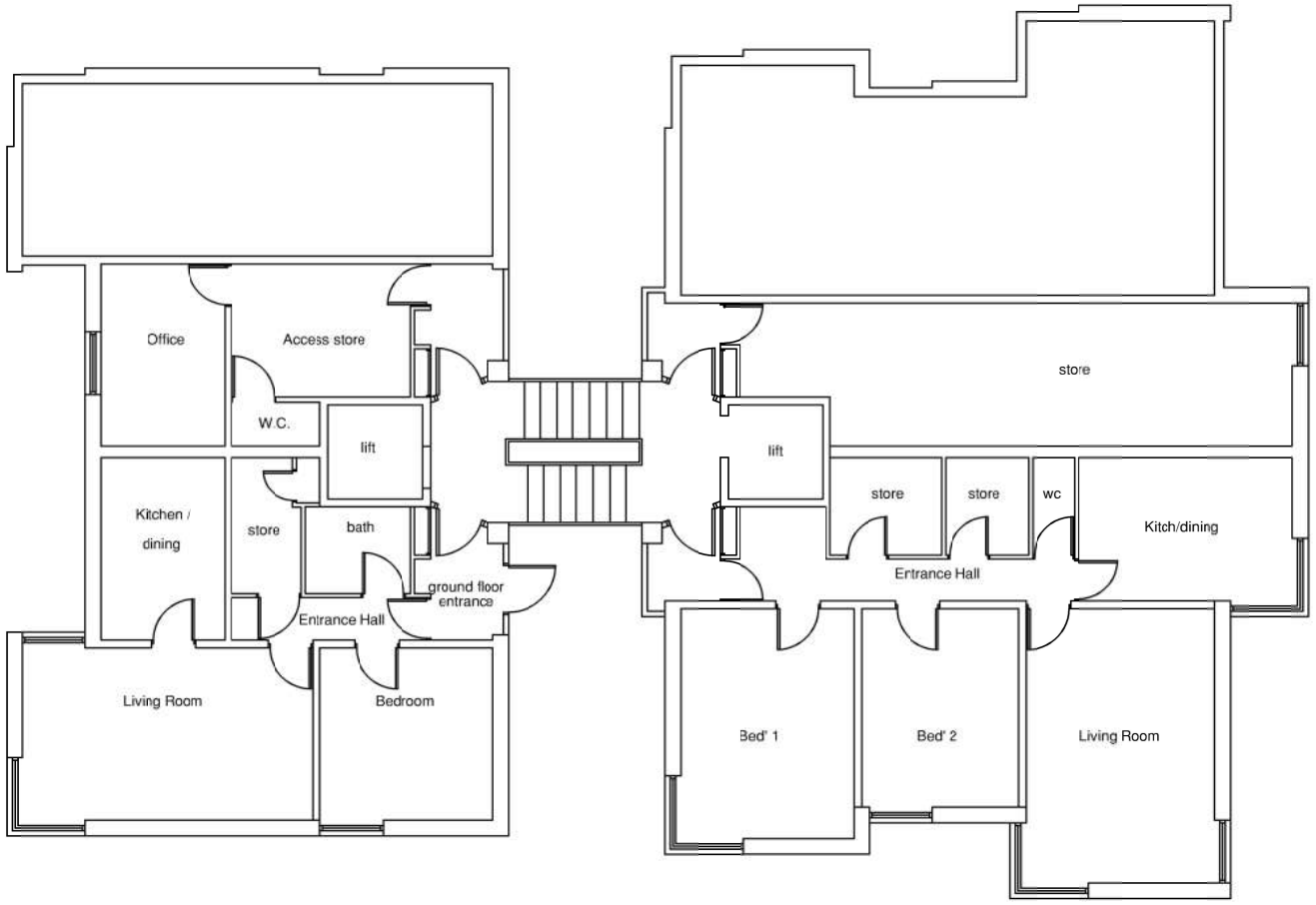
A.3. Section 4 Appendix A – H Block Existing Layouts

A.4. Section 4 Appendix B – Honeywall Existing Layouts

Section 4 Appendix A – H Block Existing Layouts

The contractor is to note the differing lower ground / ground floor layouts to each of the H block properties. These differing layouts will necessitate amended pipework layouts and connection points to the incoming mains. Particular attention should be given to the Southern Court property where the incoming main is located within tenant occupied areas. As such, it will be necessary to excavate and extend the mains water supply (see dwg ref ST 16621-005 for external positioning) into the internal communal areas.

Contractors are deemed to have included for all necessary builders work to excavate, reinstate and connect to and extend the existing mains to facilitate the installation of the sprinkler system in its entirety.



Existing Ground Floor Layout Plan

NOTES

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3. INFORMATION CONTAINEDON THIS DRAWING IS INTENDED TO ILLUSTRATE A GENERIC 'TYPE'. AS SUCH THERE MAY BE A SLIGHT VARIANCE FROM THE ACTUAL.
4. ALL MEASUREMENTS MUST BE VERIFIED ON SITE PRIOR TO MANUFACTURE OF ANY COMPONENTS.
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SAFETY HEALTH AND ENVIRONMENTAL INFORMATION

For details of site-wide and general risks, to be read in conjunction with these notes, see the contract documents and, where works are notifiable, the pre-construction information pack issued by the CDM co-ordinator

In addition to the risks normally associated with the types of work detailed on this drawing, note the following risks and information:

CONSTRUCTION

Ci. .....
Cii.
Ciii.
Civ.

DISMANTLING / DEMOLITION (Future)

Di.
Dii.
Diii.
Div.

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV	DESCRIPTION	BY	DATE	CHK'D	AUTH
1					

FAITHFUL+GOULD
Faithful+Gould
Unit 2 Sandi Arm, Festival Park,
Stoke-on-Trent, Staffordshire, ST1 5UR
Tel: (01782) 222233
Fax: (01782) 222244

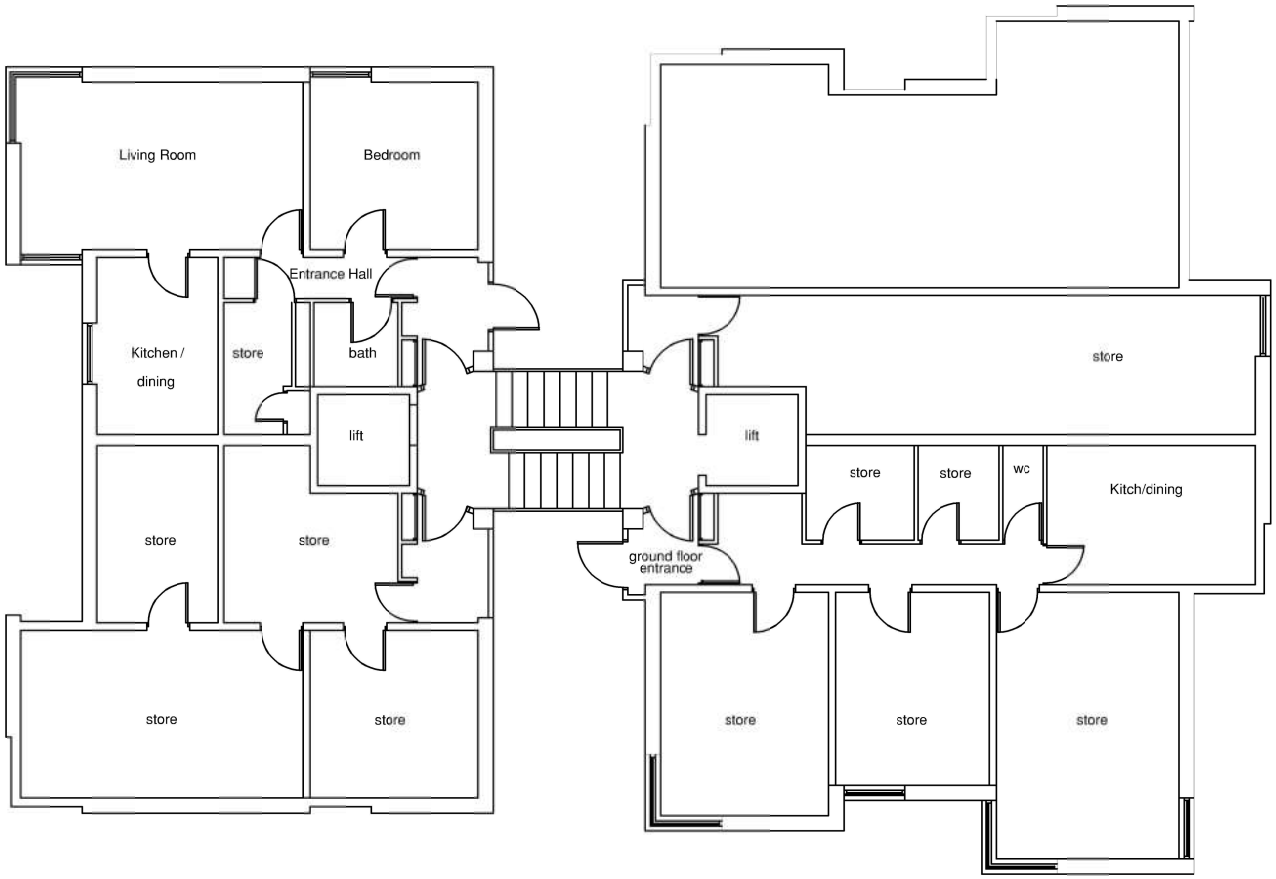
CLIENT:
Stoke-on-Trent City Council

PROJECT:
Fire Risk Assessment

TITLE:
Dibden/Penkhull Court
Existing Ground Floor Layout Plan

SCALE:	PAPER SIZE:	DESIGNED:	DRAWN:	CHECKED:	AUTHORISED:
1:100	A3	F+G	MV	DW	DW
	OFFICE: STOKE	DATE: NOV 2019	DATE: NOV 2019	DATE: NOV 19	DATE: NOV 19

PROJECT NO:	DISCIPLINE:	ORG NO:	REV:
5168286	BS	001	-



Existing Ground Floor Layout Plan

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Cii.
Ciii.
Civ.

DISMANTLING / DEMOLITION (Future)

Di.
Dii.
Diii.
Div.

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REV	DESCRIPTION	BY	DATE	CHK'D	AUTH
1					

FAITHFUL+GOULD
Faithful+Gould
Unit 2 Sandi Arm, Festival Park,
Stoke-on-Trent, Staffordshire, ST1 5UR
Tel: (01782) 222333
Fax: (01782) 222244

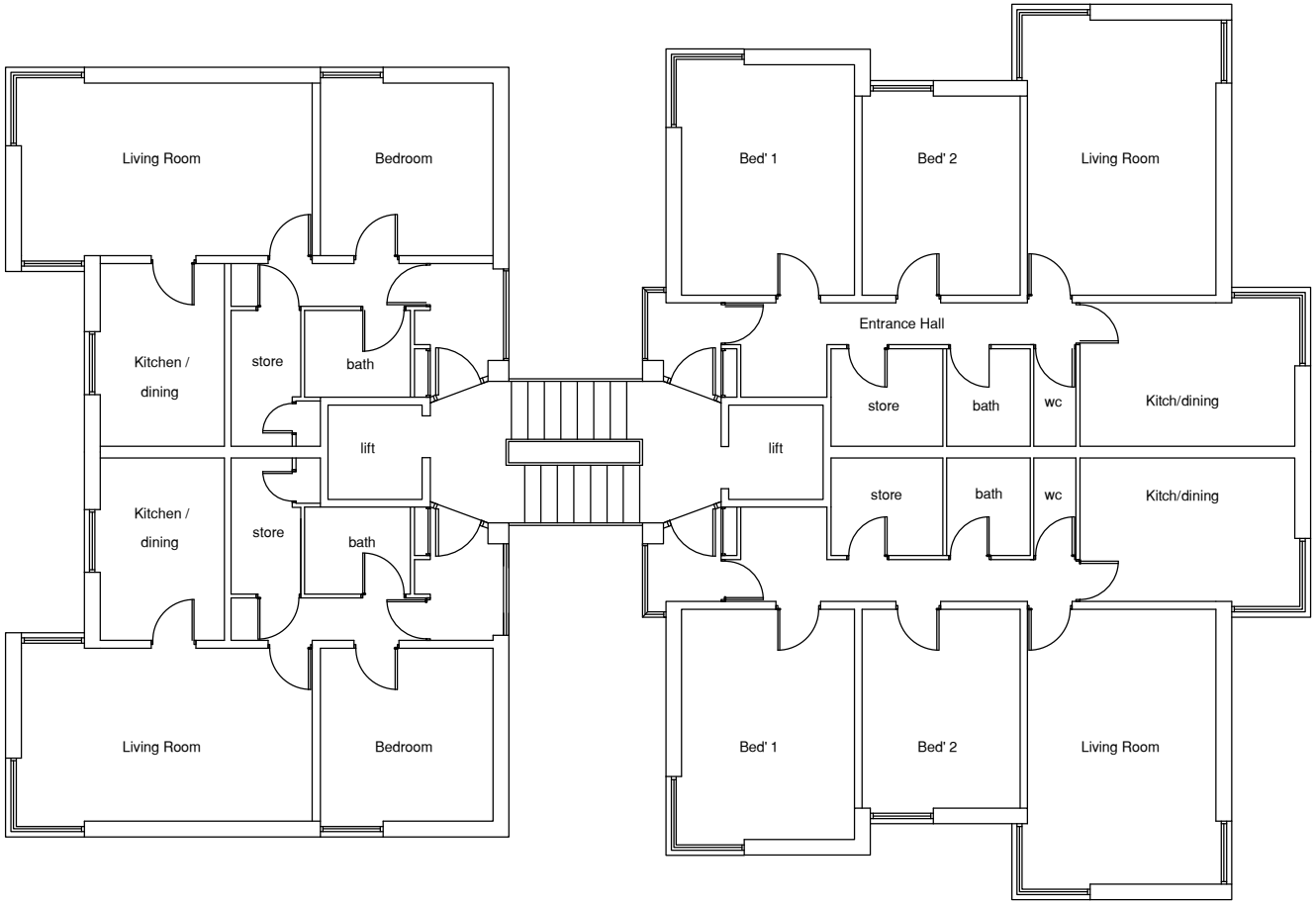
CLIENT:
Stoke-on-Trent City Council

PROJECT:
Fire Risk Assessment

TITLE:
Southern Court
Existing Ground Floor Layout Plan

SCALE:	PAPER SIZE:	DESIGNED:	DRAWN:	CHECKED:	AUTHORISED:
1:100	A3	F+G	MV	DW	DW
	OFFICE: STOKE	DATE: NOV 2019	DATE: NOV 2019	DATE: NOV 13	DATE: NOV 19

PROJECT NO:	DISCIPLINE:	ORG NO:	REV:
5168286	BS	001	-



Typical Upper Floor Layout Plan

NOTES

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CONSTRUCTION
Ci.
Cii.
Ciii.
Civ.

DISMANTLING / DEMOLITION (Future)
Di.
Dii.
Diii.
Div.

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV	DESCRIPTION	BY	DATE	CHKD	AUTH
A	Layout amended	RJ	OCT 2016		

Faithful+Gould
Unit 2 Canal Arm, Festival Park,
Stoke-on-Trent, Staffordshire, ST1 5UR
Tel: (01782) 222233
Fax: (01782) 222244

CLIENT:
Stoke-on-Trent City Council

PROJECT:
Fire Risk Assessment

TITLE:
Penkhull Court
Typical Upper Floor Layout Plan

SCALE:	PAPER SIZE:	DESIGNED:	DRAWN:	CHECKED:	AUTHORISED:
1:100	A3	F+G	RJ	RJ	JG
	OFFICE:	DATE:	DATE:	DATE:	DATE:
	STOKE	DEC 2015	DEC 2015	DEC 25	DEC 15

PROJECT NO:	DISCIPLINE:	DRG NO:	REV:
5141362	BS		-

CUT/FILL SUMMARY

NAME	2d AREA m²	CUT m³	FILL m³	NET m³
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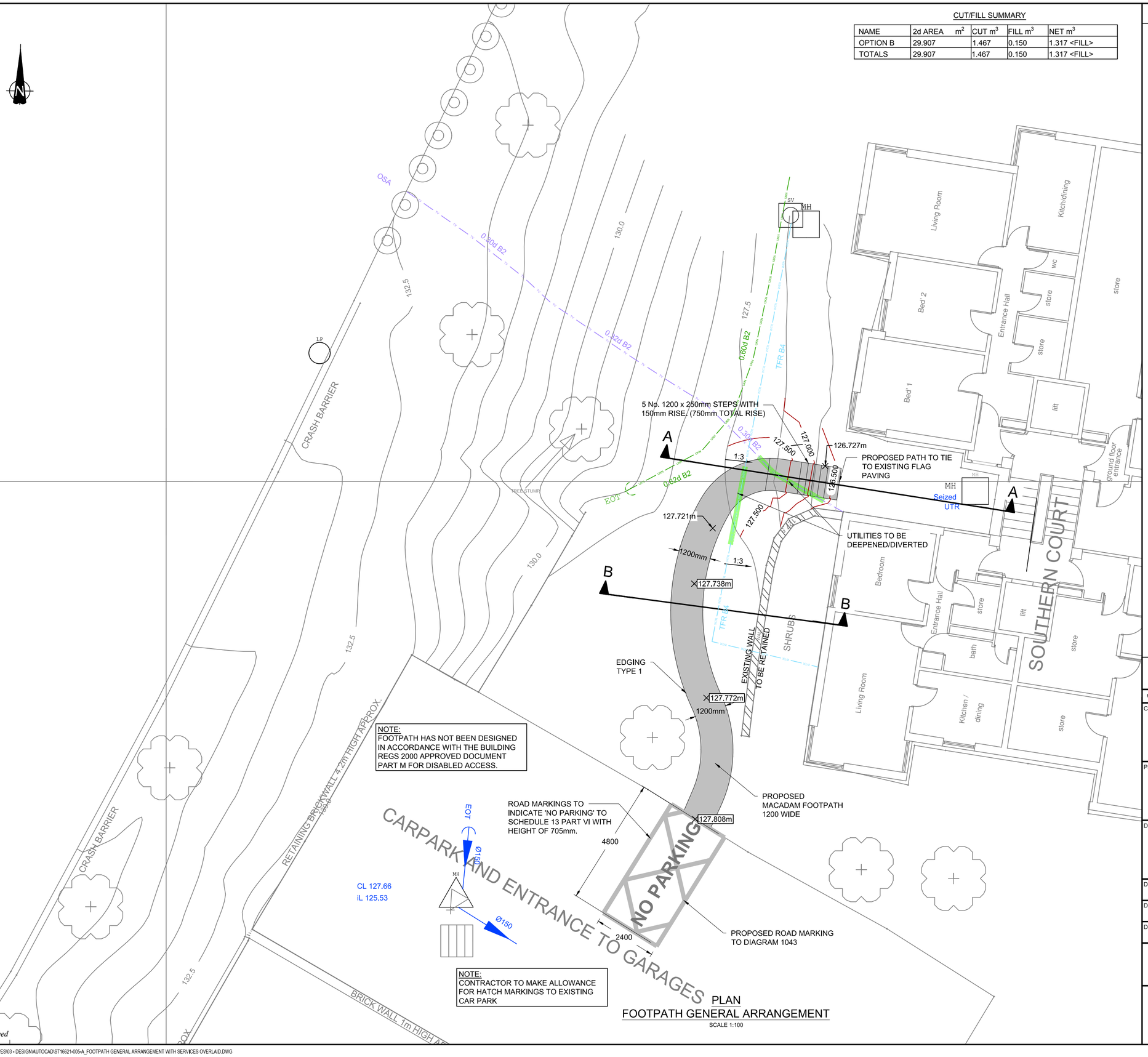
TOTALS	29.907	1.467	0.150	1.317 <FILL>



PLAN

FOOTPATH GENERAL ARRANGEMENT

SCALE 1:100

DO NOT SCALE FROM THIS DRAWING

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS AND DETAILS.
2. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
4. ANY DISCREPANCIES IN THE DETAILS SHOWN ON THIS DRAWING ARE TO BE REPORTED TO THE EMPLOYER'S REPRESENTATIVE/ENGINEER IN WRITING FOR CLARIFICATION.
5. THE GENERAL SPECIFICATION OF MATERIALS AND WORKMANSHIP FOR THE CONSTRUCTION OF AREAS OF HARDSTANDING SHALL BE THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, VOLUME 1, SPECIFICATION OF HIGHWAY WORKS (SHW) PUBLISHED BY THE STATIONARY OFFICE, LATEST REVISION NOVEMBER 2009.
6. ALL MATERIALS UNLESS SPECIFIED OTHERWISE, SHALL COMPLY WITH RELEVANT BRITISH STANDARD. SOURCES OF MATERIALS ARE TO BE AGREED WITH THE EMPLOYERS REPRESENTATIVE/ENGINEER IN ADVANCE OF WORKS.
7. ALL EXISTING SERVICES MUST BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. WHERE NECESSARY, PROTECTION OR DIVERSIONS ARE TO BE UNDERTAKEN TO AVOID CONFLICT WITH THE PROPOSED WORKS.
8. ANY SOFT SPOTS AT FORMATION LEVEL TO BE TREATED BY OVERDIGGING AND REPLACEMENT WITH AN APPROVED COMPACTED GRANULAR MATERIAL.
9. THE FORMATION OF ROADS AND FOOTWAYS SHALL BE PREPARED BY REMOVING ALL UNSUITABLE MATERIAL AND AN APPROVED WEED KILLER SHALL BE SPRAYED ONTO THE FORMATION BEFORE LAYING THE SUB-BASE.
10. CONCRETE TO BE DESIGNATED MIX TO BS8500-1 2008.
11. ROAD MARKINGS SHALL BE TO THE REQUIREMENTS OF 'THE TRAFFIC SIGNS REGULATIONS AND GENERAL DIRECTIONS 2002' FORMED WITH WHITE THERMOPLASTIC MATERIAL COMPLYING WITH BS EN 1871 UNLESS NOTED OTHERWISE.
12. ROAD MARKINGS (U.N.O.) SHALL BE WHITE AND FORMED WITH THERMOPLASTIC MATERIAL COMPLYING WITH BS EN 1871.

UTILITY LINETYPES

CCTV / Cable Television
Drainage - Storm Water
Water
Unknown

UTILITY LINETYPES TO BE DEEPENED / DIVERTED

CCTV / Cable Television
Water

KEY

130.0 EXISTING CONTOURS
130.0 PROPOSED CONTOURS
133.021m PROPOSED SPOT LEVEL
PROPOSED MACADAM FOOTPATH
PROPOSED STEPS

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
A	Construction Issue	16-04-18	AEP	JG	JG

CLIENT

FAITHFUL & GOULD

PROJECT

NEW FIRE ESCAPES
TO HIGH RISE BLOCKS, PENKHULL

DRAWING TITLE

SOUTHERN COURT
FOOTPATH GENERAL ARRANGMENT

DRG No.	REV
ST16621-005	A

DRG SIZE	SCALE	DATE
A2	AS SHOWN	20-03-18

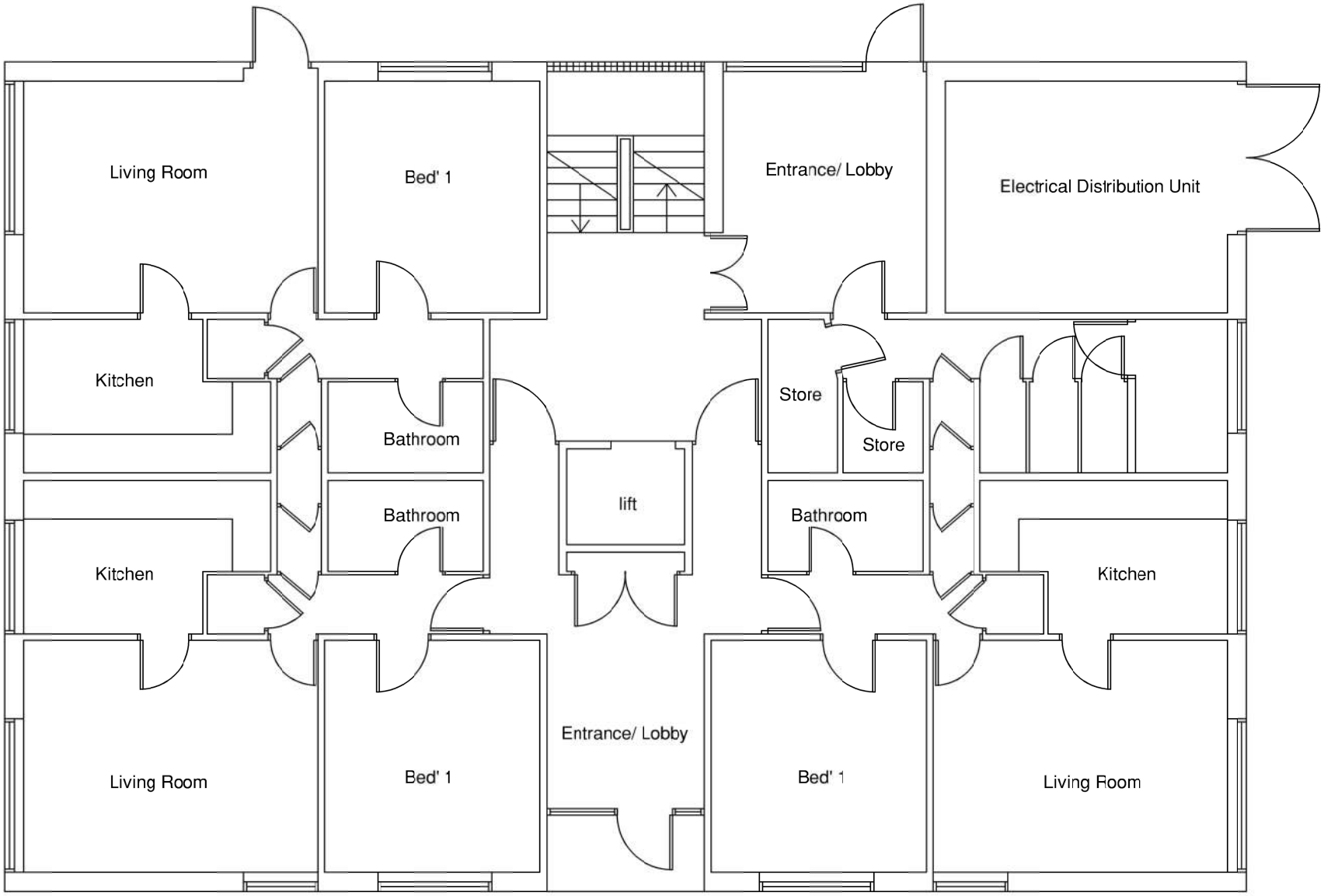
DRAWN BY	CHECKED BY	APPROVED BY
AEP	JG	JG

■ STOKE-ON-TRENT (HEAD OFFICE) TEL 01782 276700 WEB: WWW.WARDELL-ARMSTRONG.COM
☐ BIRMINGHAM ☐ CARDIFF ☐ CARLISLE ☐ CROYDON
☐ EDINBURGH ☐ GLASGOW ☐ LEIGH ☐ LONDON
☐ MANCHESTER ☐ NEWCASTLE UPON TYNE ☐ SHEFFIELD ☐ TAUNTON

wardell armstrong your earth our world

N:\ST\ST16621 - NEW FIRE ESCAPES\03 - DESIGN\AUTOCAD\ST16621-005-A_FOOTPATH GENERAL ARRANGEMENT WITH SERVICES OVERLAID.DWG

Section 4 Appendix B – Honeywall House Existing Layout



Existing Ground Floor Layout Plan

NOTES

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CONSTRUCTION

Ci. -----
Cii.
Ciii.
Civ.

DISMANTLING / DEMOLITION (Future)

Di.
Dii.
Diii.
Div.

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REV	DESCRIPTION	BY	DATE	CHK'D	AUTH
1					

FAITHFUL+GOULD
Faithful+Gould
Unit 2 Sandi Arm, Festival Park,
Stoke-on-Trent, Staffordshire, ST1 5UR
Tel: (01782) 222233
Fax: (01782) 222244

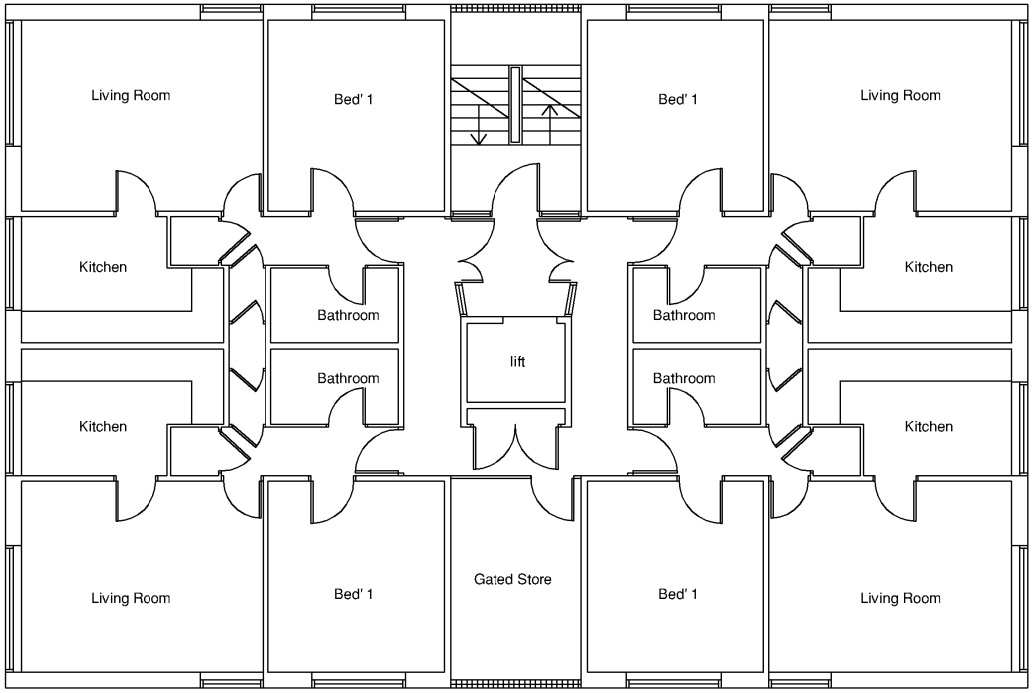
CLIENT:
Stoke-on-Trent City Council

PROJECT:
Fire Risk Assessment

TITLE:
Honey Wall House
Existing Ground Floor Layout Plan

SCALE:	PAPER SIZE:	DESIGNED:	DRAWN:	CHECKED:	AUTHORISED:
1:100	A3	F+G	MV	DW	DW
OFFICE:	STOKE	DATE:	NOV 2019	DATE:	NOV 2019
DATE:	NOV 19	DATE:	NOV 19		

PROJECT NO:	DISCIPLINE:	MRG NO:	REV:
5168286	BS	001	-



Typical Upper Floor Layout Plan

NOTES

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3. INFORMATION CONTAINED ON THIS DRAWING IS INTENDED TO ILLUSTRATE A GENERIC TYPE. AS SUCH THERE MAY BE A SLIGHT VARIANCE FROM THE ACTUAL.
4. ALL MEASUREMENTS MUST BE VERIFIED ON SITE PRIOR TO MANUFACTURE OF ANY COMPONENTS.
5. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL RELEVANT ARCHITECTURAL, ELECTRICAL, MECHANICAL AND STRUCTURAL DRAWINGS.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

For details of site wide and general risks, to be read in conjunction with these notes, see the contract documents and, where works are notifiable, the pre-construction information pack issued by the CDM co-ordinator.

In addition to the risks normally associated with the types of work detailed on this drawing, note the following risks and information:

CONSTRUCTION
CI. - - - -
CII.
CIII.
CIV.

DISMANTLING / DEMOLITION (Future)
DI.
DII.
DIII.
DIV.

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV	DESCRIPTION	BY	DATE	CHKD	AUTH

FAITHFUL+GOULD
Faithful+Gould
Unit 2 Canal Arm, Festival Park,
Stoke-on-Trent, Staffordshire, ST1 5UR
Tel: (01782) 222233
Fax: (01782) 222244

CLIENT:
Stoke-on-Trent City Council

PROJECT:
Fire Risk Assessment

TITLE:
Honey Wall House
Typical Upper Floor Layout Plan

SCALE:	PAPER SIZE:	DESIGNED:	DRAWN:	CHECKED:	AUTHORISED:
1:100	A1	F+G	RJ	RJ	JG
OFFICE: STOKE	DATE: SEPT 2015	DATE: SEPT 2015	DATE: SEPT 25	DATE: SEPT 15	

PROJECT NO:	DISCIPLINE:	ORG NO.	REV:
5141362	BS	011	-

5. SECTION 5 – BWIC / Workmanship Standards

The Contractors offer must include for all works shown and described within the Employers Requirements and tender documents as being necessary for the complete and proper execution of the Works.

The Contractor shall be responsible for the full design, co-ordination, supply, installation, testing and commissioning of the automatic sprinkler systems per the guidance and requirements of BS9251:2014 (or as appropriate at time of contract execution), and the particular requirements of the Employers Requirements.

The Contractor shall be responsible for the sizing, routing and installation of sprinkler pipework to serve the sprinkler network. Co-ordination with existing services shall be necessary due to the nature of the building.

The Contractor (or their nominated subcontractor) shall be responsible for the setting out and installation of all builders work in connection with the services installation. The Contractor shall be fully responsible for obtaining approval from the Structural Engineer (via the Employer or their representatives) for all new openings relating to this Contract within the project. Where the new and existing builders work openings are external, the Contractor shall be fully responsible for the weather sealing of the openings accordingly, to an acceptable detail, as approved by the Employer (or their representative).

Indicative routing for Tender purposes is shown on drawings provided in Section 3 Appendix B.

BWIC Specific Requirements comprise but are not limited to the following.

- Excavation and reinstatement work
- Forming openings in existing walls (internal and external)
- Forming openings in existing floor slabs (ground and intermediate)
- Forming openings in parts of the structure
- Decoration / making good to penetrations
- Perimeter sealing of boxing installations
- Sealing openings (fire stopping as required)
- Installation of proprietary prefinished timber boxing within apartment areas
- Installation of powder coated metal boxing and framework with access doors within vestibule areas to conceal zone valve assembly

The Contractor shall prepare all other necessary Builders work Drawings required for the execution of the Contract. All Builders work with Drawings shall be fully dimensioned. The Contractor shall prepare schedules and Installation Drawings showing precise details of holes in concrete / brickwork etc., bases, cable trenches and drainage of trenches, frames, or supports required and the like. The schedule shall show in detail the builders work required to be performed.

The Installation Drawings and schedules in an approved form, must be submitted to and approved by the Employer (or their representative) before any structural work requiring holes, or other modification is executed. The Contractor shall be required to mark on site actual locations of all builder's work holes through walls, partitions, floors etc., and also chases in walls, floors etc., for conduits pipes and the like to bring to the attention of the Employer (or their representative) prior to carrying out any work.

The Contractor shall establish a method of Installation with the Employer (or their representative) to ensure the works may proceed without hindrance. All Builders work Drawings provided by the Contractor shall be provided in sufficient time to comply with the agreed programme, all costs arising from failure to do so will be met by the Contractor.

Workmanship Standards

C20 DEMOLITION

To be read with Preliminaries/ General conditions.

GENERAL REQUIREMENTS

110 DESK STUDY/ SURVEY

- Scope: Before starting deconstruction/ demolition work, examine available information, and carry out a survey of:
  - the structure or structures to be deconstructed/ demolished,
  - the site on which the structure or structures stand, and
  - the surrounding area.
- Report and method statements: Submit, describing:
  - Form, condition and details of the structure or structures, the site, and the surrounding area.
  - Type, location and condition of features of historical, archaeological, geological or ecological importance.
  - Type, location and condition of adjoining or surrounding premises that might be adversely affected by removal of the structure or structures, or by noise, vibration and/ or dust generated during deconstruction/ demolition.
  - Identity and location of services above and below ground, including those required for the Contractor's use, and arrangements for their disconnection and removal.
  - Form and location of flammable, toxic or hazardous materials, including lead-based paint, and proposed methods for their removal and disposal.
  - Form and location of materials identified for reuse or recycling, and proposed methods for removal and temporary storage.
  - Proposed programme of work, including sequence and methods of deconstruction/ demolition.
  - Arrangements for protection of personnel and the general public, including exclusion of unauthorized persons.
  - Arrangements for control of site transport and traffic.

SERVICES AFFECTED BY DECONSTRUCTION/ DEMOLITION

210 SERVICES REGULATIONS

- Work carried out to or affecting new and/ or existing services: Carry out in accordance with the byelaws and/ or regulations of the relevant Statutory Authority.

220 LOCATION OF SERVICES

- Services affected by deconstruction/ demolition work: Locate and mark positions.
- Mains services marking: Arrange with the appropriate authorities for services to be located and marked.
  - Marking standard: In accordance with National Joint Utilities Group 'Guidelines on the positioning and colour coding of underground utilities' apparatus'.

250 LIVE FOUL AND SURFACE WATER DRAINS

- Drains and associated manholes, inspection chambers, gullies, vent pipes and fittings:
  - Protect; maintain normal flow during deconstruction/ demolition.
  - Make good any damage arising from deconstruction/ demolition work.
  - Leave clean and in working order at completion of deconstruction/ demolition work.

260 SERVICE BYPASS CONNECTIONS

- General: Provide as necessary to maintain continuity of services to occupied areas of the site on which the deconstruction/ demolition is taking place and to adjoining sites/ properties.
- Minimum notice to adjoining owners and all affected occupiers: 72 hours, if shutdown is necessary during changeover.

270 SERVICES TO BE RETAINED

- Damage to services: Give notice and notify relevant service authorities and/ or owner/ occupier regarding damage arising from deconstruction/ demolition.
- Repairs to services: Complete as directed, and to the satisfaction of the service authority or owner.

DECONSTRUCTION/ DEMOLITION WORK

310 WORKMANSHIP

- Standard: Demolish structures in accordance with BS 6187.
- Operatives:
    - Appropriately skilled and experienced for the type of work.
    - Holding, or in training to obtain, relevant CITB Certificates of Competence.
- Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of deconstruction/ demolition to be used.

320 GAS OR VAPOUR RISKS

- Precautions: Prevent fire and/ or explosion caused by gas and/ or vapour from tanks, pipes, etc.

330 DUST CONTROL

- General: Reduce airborne dust by periodically spraying deconstruction/ demolition works with an appropriate wetting agent. Keep public roadways and footpaths clear of mud and debris.
- Lead dust: Submit method statement for control, containment and clean-up regimes.

340 HEALTH HAZARDS

- Precautions: Protect site operatives and general public from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.

350 ADJOINING PROPERTY

- Temporary support and protection: Provide. Maintain and alter, as necessary, as work proceeds. Do not leave unnecessary or unstable projections.
- Defects: Report immediately on discovery.
- Damage: Minimize. Repair promptly to ensure safety, stability, weather protection and security.
- Support to foundations: Do not disturb.

380 DANGEROUS OPENINGS

- General: Provide guarding at all times, including outside of working hours. Illuminate during hours of darkness.
- Access: Prevent access by unauthorized persons.

391 ASBESTOS-CONTAINING MATERIALS - UNKNOWN OCCURRENCES

- Discovery: Give notice immediately of suspected asbestos-containing materials when discovered during deconstruction/ demolition work. Avoid disturbing such materials.
- Removal: Submit statutory risk assessments and details of proposed methods for safe removal.

410 UNFORESEEN HAZARDS

- Discovery: Give notice immediately when hazards such as unrecorded voids, tanks, chemicals, are discovered during deconstruction/ demolition.
- Removal: Submit details of proposed methods for filling, removal, etc.

450 SITE CONDITION AT COMPLETION

- Debris: Clear away and leave the site in a tidy condition.

MATERIALS ARISING

510 CONTRACTOR'S PROPERTY

- Components and materials arising from the deconstruction/ demolition work: Property of the Contractor except where otherwise provided.
- Action: Remove from site as work proceeds where not to be reused or recycled for site use.

520 RECYCLED MATERIALS

- Materials arising from deconstruction/ demolition work: Can be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification and in accordance with any site waste management plan.
- Evidence of compliance: Submit full details and supporting documentation.
    - Verification: Allow adequate time in programme for verification of compliance.

G20 CARPENTRY/ TIMBER FRAMING/ FIRST FIXING

02 TIMBER PROCUREMENT

- Timber (including timber for wood-based products): Obtained from well managed forests/ plantations in accordance with:
    - The laws governing forest management in the producer country or countries.
    - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
- Documentation: Provide either:
    - Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied, or
    - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.

10 UNGRADED SOFTWOOD

- Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.

15 PLYWOOD

- Standard: To an approved national standard.
- Service class to BS EN 1995-1-1:
- Use class to BS EN 335:
- Nominal thickness: 18mm
- Appearance class to BS EN 635:
- Bond quality to BS EN 314-2:
- Finish: sanded

30 SELECTION AND USE OF TIMBER

- Timber members damaged, crushed or split beyond the limits permitted by their grading: Do not use.

32 NOTCHES, HOLES AND JOINTS IN TIMBER

- Notches and holes: Position in relation to knots or other defects such that the strength of members will not be reduced.
- Scarf joints, finger joints and splice plates: Do not use without approval.

35 PROCESSING TREATED TIMBER

- Cutting and machining: Carry out as much as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.
- Surfaces exposed by minor cutting/ drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

40 MOISTURE CONTENT

- Moisture content of wood and wood-based products at time of installation: Not more than:
  - Covered in generally unheated spaces: 24%.
  - Covered in generally heated spaces: 20%.
  - Internal in continuously heated spaces: 20%.

43 BOLTED JOINTS

- Bolt spacings (minimum): To BS EN 1995-1-1, section 8.5.
- Holes for bolts: Located accurately and drilled to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger.
- Washers: Placed under bolt heads and nuts that would otherwise bear directly on timber. Use spring washers in locations which will be hidden or inaccessible.
- Bolt tightening: So that washers just bite the surface of the timber. Ensure that at least one complete thread protrudes from the nut.
  - Checking: At agreed regular intervals. Tighten as necessary.

45 FRAMING ANCHORS

- Manufacturer: BAT Expamet or equal approved
- Material/ finish: Stainless Steel to BS 1449 Part 2
- Fasteners: Galvanized or sherardized square twist nails.
  - Size: Not less than size recommended by anchor manufacturer.
- Fixing: Secure using not less than the number of nails recommended by anchor manufacturer.

50 ADDITIONAL SUPPORTS

- Provision: Position and fix additional studs, noggings and/ or battens to support edges of sheet materials, and wall/ floor/ ceiling mounted appliances, fixtures, etc.
- Material properties: Timber to be of adequate size and have the same treatment as adjacent timber supports.

M60 PAINTING/ CLEAR FINISHING

To be read with Preliminaries/ General conditions

10 EMULSION PAINT TO WALL SURFACES

- Manufacturer: Crown.
  - Product reference: Matt Emulsion.
- Surfaces: All damaged existing surfaces.
- Colour: to match existing TBC
  - Preparation: As per the manufacturer's recommendations.
  - Number of coats: as required to prevent grinning.

30 PREPARATION GENERALLY

- Standard: In accordance with BS 6150.
- Risk assessment and method statement for hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
- Substrates: Sufficiently dry in depth to suit coating.
- Efflorescence salts, dirt, grease and oil: Remove.
- Surface irregularities: Provide smooth finish.
- Organic growths and infected coatings:
  - Remove with assistance of biocidal solution.
  - Apply residual effect biocidal solution to inhibit regrowth.
- Joints, cracks, holes and other depressions: Fill with stoppers/ fillers. Provide smooth finish.
- Dust, particles and residues from preparation: Remove and dispose of safely.
- Doors, opening windows and other moving parts:

- Ease, if necessary, before coating.
- Prime resulting bare areas.

32 PREVIOUSLY COATED SURFACES GENERALLY

- Preparation: In accordance with BS 6150, clause 11.5.
- Contaminated or hazardous surfaces: Give notice of:
  - Coatings suspected of containing lead.
  - Substrates suspected of containing asbestos or other hazardous materials.
  - Significant rot, corrosion or other degradation of substrates.
- Risk assessment and method statement for hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
- Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.
- Alkali affected coatings: Completely remove.
- Retained coatings:
  - Thoroughly clean.
  - Gloss coated surfaces: Provide key.
- Partly removed coatings: Apply additional preparatory coats.
- Completely stripped surfaces: Prepare as for uncoated surfaces.

35 FIXTURES AND FITTINGS

- Risk assessment and method statement for hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- Replacement: Refurbish as necessary, refit when coating is dry.

37 WOOD PREPARATION

- General: Provide smooth, even finish with lightly rounded arrises.
- Degraded or weathered surface wood: Take back surface to provide suitable substrate.
- Degraded substrate wood: Repair with sound material of same species.
- Heads of fasteners: Countersink sufficient to hold stoppers/ fillers.
- Resinous areas and knots: Apply two coats of knotting.
- Defective primer: Take back to bare wood and reprime.

39 STEEL PREPARATION

- Corrosion and loose scale: Take back to bare metal.
- Residual rust: Treat with a proprietary removal solution.
- Bare metal: Apply primer as soon as possible.

41 MASONRY AND RENDERING PREPARATION

- Loose and flaking material: Remove.

43 PLASTER PREPARATION

- Nibs, trowel marks and plaster splashes: Scrape off.
- Over trowelled ‘polished’ areas: Provide suitable key.

61 COATING GENERALLY

- Application: In accordance with BS 6150, clause 9.
- Conditions: Maintain suitable temperature, humidity and air quality.
- Surfaces: Clean and dry at time of application.
- Thinning and intermixing: Not permitted unless recommended by manufacturer.
- Priming coats: Apply as soon as possible on same day as preparation is completed.
- Finish:
  - Even, smooth and of uniform colour.
  - Free from brush marks, sags, runs and other defects.
- Cut in neatly.

P30 TRENCHES, PIPEWAYS AND PITS FOR BURIED ENGINEERING SERVICES

10 ROUTES OF SERVICES BELOW GROUND

- Locations of new service runs: Submit proposals.
- Temporary marking: Indicate service runs with marker posts.

20 TRENCHES

- Width: As small as practicable.
- Trench sides: Vertical.
- Trench bottoms: Remove mud, rock projections, boulders and hard spots. Trim level.
- Give notice: To inspect trench for each section of the work.

30 PIPEDUCTS

- Types, colour and sizes: As recommended by the service undertaker.
- General: Lay pipes straight to line, true to gradient or level on an even, continuous bed.
- Clearance between pipe ducts where they cross (minimum): 50 mm.
- Drawlines: During laying, thread through pipeducts.
  - Material, strength and length: As specified by service undertaker.
- Protection: Protect from ingress of debris. During construction, temporarily seal all exposed ends.
- Inspection: Before backfilling, allow service undertakers to inspect installation.
- Surround material: Lay and compact to 150 mm (minimum) above pipeduct crown.
- Markers: Lay marker, 200 mm above pipeduct.

P31 HOLES, CHASES, COVERS AND SUPPORTS FOR SERVICES

10 HOLES, RECESSES AND CHASES IN MASONRY

- Locations: To maintain integrity of strength, stability and sound resistance of construction.
- Sizes: Minimum needed to accommodate services.
  - Holes (maximum): 300 mm².
- Walls of hollow or cellular blocks: Do not chase.
- Walls of other materials:
  - Vertical chases: No deeper than one third of single leaf thickness, excluding finishes.
  - Horizontal or raking chases: No longer than 1 m. No deeper than one sixth of the single leaf thickness, excluding finishes.
- Chases and recesses: Do not set back to back. Offset by a clear distance at least equal to the wall thickness.
- Cutting: Do not cut until mortar is fully set. Cut carefully and neatly. Avoid spalling, cracking and other damage to surrounding structure.

20 NOTCHES AND HOLES IN STRUCTURAL TIMBER

- General: Avoid if possible.
- Sizes: Minimum needed to accommodate services.
- Position: Do not locate near knots or other defects.
- Notches and holes in same joist: Minimum 100 mm apart horizontally.
- Notches in joists:
  - Position: Locate at top. Form by sawing down to a drilled hole.
  - Depth (maximum): 0.15 x joist depth.
  - Distance from supports: Between 0.7 and 0.2 x span.
- Holes in joists:
  - Position: Locate on neutral axis.
  - Diameter (maximum): 0.25 x joist depth.
  - Centres (minimum): 3 x diameter of largest hole.
  - Distance from supports: Between 0.25 and 0.4 of span.
- Notches in roof rafters, struts and truss members: Not permitted.
- Holes in struts and columns: Locate on neutral axis.
  - Diameter (maximum): 0.25 x minimum width of member.

- Centres (minimum): 3 x diameter of largest hole.
- Distance from ends: Between 0.25 and 0.4 of span.

30 PIPE SLEEVES

- Material: Match pipeline.
- Sleeves: Extend through full thickness of wall or floor. Position accurately.
  - Clearance around service (maximum): 20 mm or diameter of service, whichever is the lesser.
  - Installation: Bed solid.

Z12 PRESERVATIVE/ FIRE RETARDANT TREATMENT

10 TREATMENT APPLICATION

- Timing: After cutting and machining timber, and before assembling components.
- Processor: Licensed by manufacturer of specified treatment solution.
- Certification: For each batch of timber provide a certificate of assurance that treatment has been carried out as specified.

20 COMMODITY SPECIFICATIONS

- Standard: Current edition of the Wood Protection Association (WPA) publication 'Industrial wood preservation specification and practice'.

25 PRESERVATIVE TREATMENT SOLUTION STRENGTHS/ TREATMENT CYCLES

- General: Select to achieve specified service life and to suit treatability of specified wood species.

35 WATER-BASED ORGANIC PRESERVATIVE TREATMENT

- Solution:
  - Manufacturer: Contractor choice / Crown
  - Application: High pressure impregnation.
- Moisture content of wood:
  - At time of treatment: Not more than 28%.
  - After treatment: Timber to be surface dry before use.

70 MAKING GOOD TO PROTECTION TREATMENT ON SITE

- Fire retardant/ preservative solution: Compatible with off-site treatment.
- Application: In accordance with preservative manufacturer’s recommendations.

Z20 FIXINGS AND ADHESIVES

10 FIXINGS AND FASTENERS GENERALLY

- Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
- Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers or sleeves to avoid bimetallic corrosion.
- General usage: To recommendations of fastener manufacturers and/ or manufacturers of components, products or materials fixed and fixed to.
- Fixings: To be in straight lines, at regular centres.

25 FASTENER DURABILITY

- Materials: To have:
  - Bimetallic corrosion resistance appropriate to items being fixed.
  - Atmospheric corrosion resistance appropriate to fixing location.
- Appearance: Submit samples on request.

30 FIXINGS THROUGH FINISHES
- Penetration of fasteners and plugs into substrate: To achieve a secure fixing.

35 PACKINGS
- Materials: No compressible, corrosion proof.
- Area of packings: Sufficient to transfer loads.

40 CRAMP FIXINGS
- Fasteners: Fix cramps to frames with screws of same material as cramps.
- Fixings in masonry work: Fully bed in mortar.

50 PELLETED COUNTERSUNK SCREW FIXINGS
- Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
- Pellets: Cut from matching timber, grain matched, glued in to full depth of hole.
- Finished level of pellets: Flush with surface.

55 PLUGGED COUNTERSUNK SCREW FIXING
- Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
- Plugs: Glue in to full depth of hole.
- Finished level of plugs: Projecting above surface.

60 APPLYING ADHESIVES
- Surfaces: Clean. Regularity and texture to suit bonding and gap filling characteristics of adhesive.
- Support and clamping during setting: Provide as necessary. Do not mark surfaces of or distort components being fixed.
- Finished adhesive joints: Fully bonded. Free of surplus adhesive.

Z21 MORTARS

10 MORTAR MIXES
- Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

20 SAND FOR SITE MADE CEMENT GAUGED MASONRY MORTARS
- Standard: To BS EN 13139.
- Grading: 0/2 (FP or MP).
  - Fines content where the proportion of sand is specified as a range (e.g. 1:1: 5-6):
    Lower proportion of sand: Use category 3 fines.
    Higher proportion of sand: Use category 2 fines.
- Sand for facework mortar: Maintain consistent colour and texture. Obtain from one source.

30 READY-MIXED LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS
- Standard: To BS EN 998-2.
- Lime: Nonhydraulic to BS EN 459-1.
  - Type: CL 90S.
- Pigments for coloured mortars: To BS EN 12878.

40 CEMENTS FOR MORTARS
- Cement: To BS EN 197-1 and CE marked.
  - Types: Portland cement, CEM I.
    Portland limestone cement, CEM II/A-LL.
    Portland slag cement, CEM II/B-S.
    Portland fly ash cement, CEM II/B-V.
  - Strength class: 32.5, 42.5 or 52.5.
- White cement: To BS EN 197-1 and CE marked.
  - Type: Portland cement, CEM I.
  - Strength class: 52.5.

- Sulphate resisting Portland cement:
  - Types: To BS EN 197-1 Sulphate resisting Portland cement, CEM I/SR and CE marked.
    To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
  - Strength class: 32.5, 42.5 or 52.5.
- Masonry cement: To BS EN 413-1 and CE marked.
  - Class: MC 12.5.

50 ADMIXTURES FOR SITE MADE MORTARS

- Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
- Other admixtures: Submit proposals.
- Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

60 MAKING MORTARS GENERALLY

- Batching: By volume. Use clean and accurate gauge boxes or buckets.
- Mix proportions: Based on dry sand. Allow for bulking of damp sand.
- Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
  - Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.
- Contamination: Prevent intermixing with other materials.

Z22 SEALANTS

PRODUCTS

31 JOINTS (general)

- Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.

EXECUTION

61 SUITABILITY OF JOINTS

- Presealing checks:
  - Joint dimensions: Within limits specified for the sealant.
  - Substrate quality: Surfaces regular, undamaged and stable.

62 PREPARING JOINTS

- Surfaces to which sealant must adhere:
  - Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
  - Clean using materials and methods recommended by sealant manufacturer.
- Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
- Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.
- Protection: Keep joints clean and protect from damage until sealant is applied.

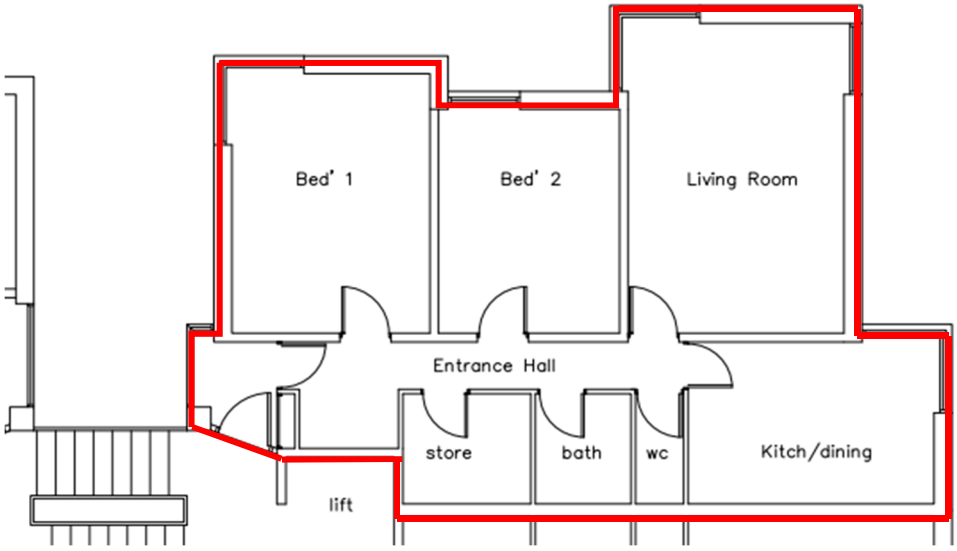
63 APPLYING SEALANTS

- Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
- Environmental conditions: Do not dry or raise temperature of joints by heating.
- Sealant application: Fill joints completely and neatly, ensuring firm adhesion to substrates.
- Sealant profiles:
  - Butt and lap joints: Slightly concave.
  - Fillet joints: Flat or slightly convex.
- Protection: Protect finished joints from contamination or damage until sealant has cured.

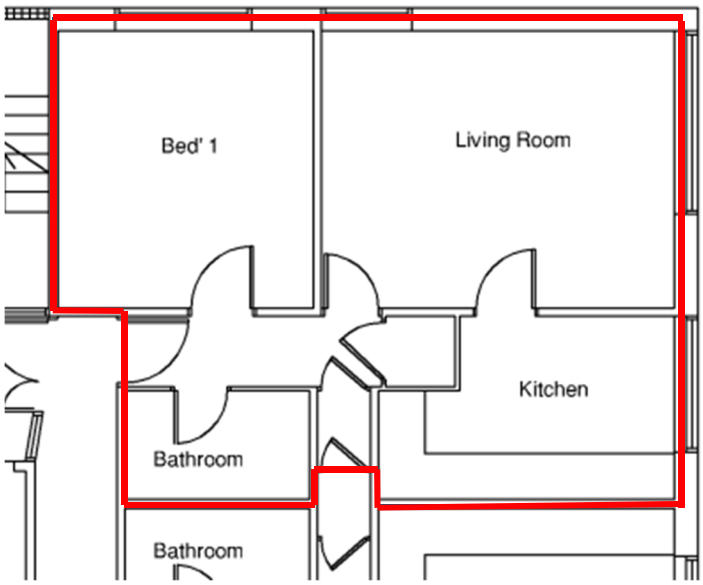
6. SECTION 6 – Fire Safety

The Contractors offer must include for all works shown and described within the Employers Requirements and tender documents as being necessary for the complete and proper execution of the Works.

The contractor is to note that it will be a requirement to provide third party accredited fire stopping certification for all new penetrations for sprinkler pipework installations (or similar) are created, in walls and floors to preserve apartment fire compartmentation.



6.1 H Block Compartmentation Line



6.2 Honeywall House Compartmentation Line

Where penetrations are created in the compartment walls or floors the contractor is to allow for temporary fire stopping as necessary whilst works progress. Following installation of pipework, the contractor is to include for permanent 1hr fire stopping material. Note compatibility of sealant is to be confirmed and approved with CPVC pipework (if used) manufacturer and sealant supplier prior to installation.

Suitable product data sheet is included at Section 6 Appendix A

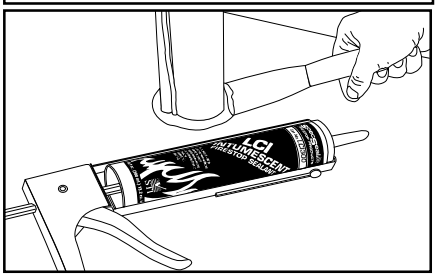
A.5. Section 6 Appendix A – Example Data Sheet

Section 6 Appendix A – Example Data Sheet

SERIES LCI INTUMESCENT SEALANT

APPLICATIONS

SpecSeal® LCI Sealant has a broad application base designed to seal a wide variety of common penetrations and construction joints. Penetrant types include insulated and non-insulated metallic pipes and tubes, non-metallic pipes and tubes, and common electrical service and power distribution, telephone, data, and TV cabling. This product is also used in conjunction with other SpecSeal® Products such as SpecSeal® Firestop Collars and Wrap Strips to protect larger plastic pipes. See Table A for a summary application list.



PHYSICAL PROPERTIES

Properties	Series LCI
Color	Red
Odor	Mild Latex
Density	9.0 lb/gal (1.08 kg/L)
pH	9.0
Solids Content By Weight	80%
Solids Content By Volume	66.9%
In Service Temperature	≤ 185°F (85°C)
Flame Spread	0*
Smoke Developed	0*
STC Rating	62 (Relates to specific construction) (ASTM E 90-04/ASTM C919)
VOC Content (EPA Method 24/ASTM D3960)	26 g/L
Shelf Life	2 yrs
Expansion Begins	350°F (177°C)
Volume Expansion	10X Free Expansion
Storage Temp.	40°F (4°C) - 95°F (35°C)

* Tested to ASTM E84 (UL723) at 14% surface coverage (modified test for sealants and caulks)

PRODUCT DESCRIPTION

SpecSeal® LCI Sealant is a versatile and economical intumescent sealant that has excellent caulking properties as well as high build properties on vertical or overhead surfaces. This single grade may be caulked (standard cartridge or bulk loaded), knifed or troweled. In addition, SpecSeal® LCI Sealant does not contain PCB's or asbestos.

SpecSeal® LCI Sealant is storage stable (when stored according to the manufacturer's recommendations), and will not separate or shrink when dried. SpecSeal® Series LCI Sealant will adhere to all common construction and penetrant materials and contains no solvents that might adversely effect plastic pipes or cable jackets.

FEATURES

- **Economical**: High performance without the high price!
- **Highly Intumescent**: Expands up to 8 times.
- **Excellent Smoke Seal**
- **Water Resistant** : Will not re-emulsify when dry.
- **Water-Based** for easy installation, cleanup, and disposal.
- **Acoustically Tested**: Reduces noise transmission
- **Safe...**Low VOC's, No Solvents, Non-Halogenated
- **Paintable**

PERFORMANCE

SpecSeal® LCI Sealant is the basis for systems that meet the exacting criteria of ASTM E814 (UL1479) and ASTM E1966 (UL2079) as well as to the time-temperature requirements of ASTM E119 (UL263). LCI provides up to a 4-hour fire rating for typical service penetrations through concrete or wood floors, concrete or masonry walls, as well as gypsum board walls. SpecSeal® LCI Sealant meets Class A finish requirements for Flame Spread and Smoke Development when tested in accordance with ASTM E84 (UL723). Meets or exceeds the requirements of ASTM C834, Type C, Grade 0. SpecSeal® LCI Sealant is also acoustically tested, demonstrating excellent sound attenuation properties.

FBC SYSTEM COMPATIBLE

FBC™ System Compatible indicates that this product has been tested, and is monitored on an ongoing basis, to assure its chemical compatibility with FlowGuard Gold®, BlazeMaster® and Corzan® pipe and fittings. FBC, FlowGuard Gold, BlazeMaster and Corzan are licensed trademarks of The Lubrizol Corporation.

UL CERTIFIED SAFETY US-CA R14288

SpecSeal® LCI Intumescent Sealant Fill, Void Or Cavity Material Certified For Use In Joint Systems & Through-Penetration Firestop Systems. See UL Online Certifications Directory.

FM APPROVED

SPEARS

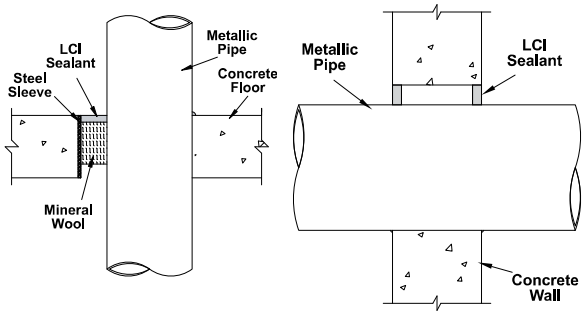
SPECIFICATIONS

The firestopping sealant shall be a water-resistant, intumescent latex sealant. The sealant when exposed to high heat or flame shall exhibit a free expansion of up to 10 times its original volume. The firestopping sealant shall contain no water soluble nor hygroscopic ingredients and shall be acoustically tested. The sealant shall be UL Classified and/or FM approved and tested to the requirements of ASTM E814 (UL1479), CAN/ULC S115 and shall meet Class A finish requirements when tested in accordance with ASTM E84 (UL723).

SPECIFIED DIVISIONS

DIV.	7	07840	Through-Penetration Firestopping
DIV.	13	13900	Special Construction Fire Suppression & Supervisory Systems
DIV.	15	15250	Mechanical Insulation – Fire Protection
DIV.	16	16050	Basic Electrical Materials & Methods

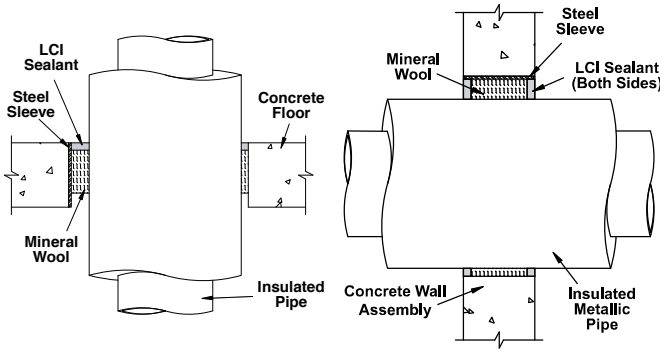
Fig 1: METALLIC PIPES - Concrete/Masonry Floors & Walls



UL System No. C-AJ-1353
F Rating: 3 Hr • T Rating: 0 Hr
Steel or Iron Pipe: <12", Copper Pipe: <4"
Annulus: 0" to 2"
Sealant Depth: 1/4"
Forming Material: Nom 4 pcf mineral wool (2 1/4" Depth)

UL System No. W-J-1098
F Rating: 2 Hr • T Rating: 1/4, 3/4 & 1 Hr
Steel or Iron Pipe: <8", Copper Pipe: <4"
Annulus: 0" to 2"
Sealant Depth: 5/8"

Fig 2: INSULATED METALLIC PIPES - Concrete/Masonry Floors & Walls



UL System No. C-AJ-5138
F Rating: 2 Hr • T Rating: 3/4 or 1 Hr
Steel or Iron Pipe: 6", Copper Pipe: 4"
Pipe Covering: Max. 2" fiber glass or mineral wool pipe insulation.
Annulus: 1/4" to 1-5/8" • Sealant: 1/2"
Forming: Nom. 4 pcf mineral wool (3" depth)

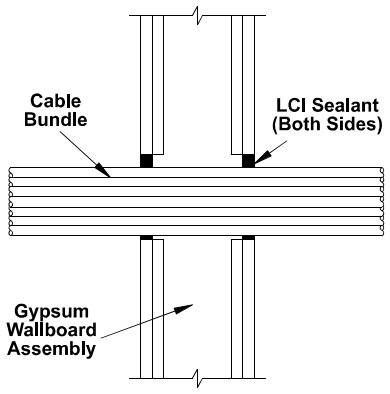
SEALANT REQUIREMENTS IN CUBIC INCHES PER 1/4 INCH OF INSTALLED DEPTH*

		Diameter of Opening - in. (mm)											
PIPE SIZE		1.5 (38)	2.0 (51)	3.0 (76)	4.0 (102)	5.0 (127)	6.0 (152)	7.0 (178)	8.0 (203)	10 (254)	12 (305)	14 (356)	26 (660)
Trade Size in. (mm)	Pipe O.D. in. (mm)												
0.5 (13)	0.840 (21)	0.3 (4.9)	0.6 (9.8)	1.6 (26.2)	3.0 (49.2)	4.8 (78.7)	6.9 (113.0)	9.5 (155.7)	12.4 (203.2)	19.5 (319.5)	28.1 (460.5)	38.3 (627.6)	132.6 (2173)
1.0 (25)	1.315 (33)	0.1 (1.6)	0.4 (6.6)	1.4 (22.9)	2.8 (45.9)	4.6 (75.4)	6.7 (109.8)	9.3 (152.4)	12.2 (200.0)	19.3 (316.3)	27.9 (457.2)	38.1 (624.3)	132.4 (2170)
1.5 (38)	1.900 (48)			1.1 (18.0)	2.4 (39.3)	4.2 (68.8)	6.4 (104.9)	8.9 (145.8)	11.9 (195.0)	18.9 (309.0)	27.6 (452.3)	37.8 (619.4)	132.0 (2163)
2.0 (51)	2.375 (60)			0.7 (11.5)	2.0 (32.8)	3.8 (62.3)	6.0 (98.3)	8.5 (139.2)	11.5 (188.4)	18.5 (309.7)	27.2 (445.7)	37.4 (568.6)	131.6 (2157)
2.5 (64)	2.875 (73)			0.1 (1.6)	1.5 (24.6)	3.3 (54.1)	5.4 (88.4)	8.0 (131.1)	10.9 (178.6)	18.0 (295.0)	26.7 (437.5)	36.9 (604.7)	131.1 (2148)
3.0 (76)	3.500 (79)				0.7 (11.5)	2.5 (41.0)	4.7 (77.0)	7.2 (118.0)	10.2 (167.1)	17.2 (281.9)	25.9 (424.4)	36.1 (591.6)	130.3 (2135)
3.5 (89)	4.000 (102)					1.8 (29.5)	3.9 (63.9)	6.5 (106.5)	9.4 (154.0)	16.5 (270.4)	25.1 (411.3)	35.3 (578.5)	129.6 (2124)
4.0 (102)	4.500 (114)					0.8 (13.1)	3.0 (49.2)	5.6 (91.8)	8.5 (139.3)	15.6 (255.6)	24.2 (396.6)	34.4 (563.7)	128.7 (2109)
6.0 (152)	6.625 (168)							1.1 (18.0)	4.0 (65.5)	11.1 (181.9)	19.7 (322.8)	29.9 (490.0)	124.2 (2035)
8.0 (203)	8.625 (219)									4.9 (80.3)	13.6 (222.9)	23.8 (390.0)	118.0 (1934)
10.0 (254)	10.750 (273)										5.6 (91.8)	15.8 (259.0)	110.0 (1803)
12.0 (305)	12.750 (324)											6.6 (108.1)	100.8 (1652)
24.0 (610)	24.000 (610)												19.6 (321.2)

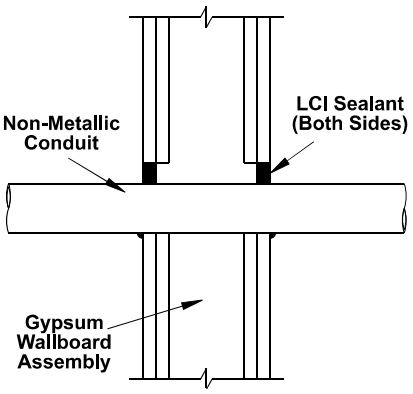
*Different Sealant Depth?

1/2" (12.7)	Multiply by 2
5/8" (15.9)	Multiply by 2.5
1" (25.4)	Multiply by 4
1-1/4" (31.8)	Multiply by 5

Fig. 3: ELECTRICAL, DATA OR COMMUNICATIONS - Gypsum Walls



UL System No. W-L-3169
F Rating: 1, 2 Hr • T Rating: 1/4 and 3/4
Up to 4-1/2˝ cable bundle
Annulus: 0˝ to 1/2˝ • Sealant: 5/8˝



UL System No. W-L-2241
F Rating: 1, 2 Hr • T Rating: 0, 1/4, 1, 1-3/4
<2˝ Rigid PVC or ENMT, CPVC, ABS
Annulus: 0-1˝ • Sealant 5/8˝

TABLE A: APPLICATIONS

TESTED AND CLASSIFIED FOR FIRE RESISTANCE

- **Metallic Pipes** including steel, iron, or copper pipe and tubing.
- **Nonmetallic Pipes, Conduits & Tubing** including PVC, CPVC, ABS, and PEX.
- **Electrical & Electronic Cabling** including service entrance, power distribution, computer, telephone, and television.
- **Metal Ductwork** including HVAC, bath and dryer vents.
- **Insulated Pipes** including heating, cooling, and condensation applications.
- **Complete Wood Floor firestopping package** for electrical, plumbing, HVAC, telephone, and television.

INSTALLATION INSTRUCTIONS

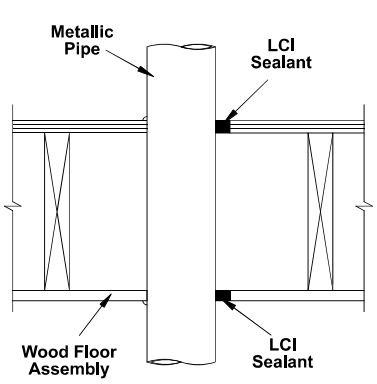
GENERAL: Areas to be protected must be clean and free of oil, loose dirt, rust or scale. Installation temperatures must be between 35°F (2°C) and 100°F (38°C). Allow product to dry a minimum of 24 hours before exposure to moisture.

SYSTEM SELECTION: Selection of an appropriate firestop system design is critical to the fire protection process. Space limitations preclude highly detailed information pertaining to individual application systems. Please consult the Product & Application Guide as well as the UL® Fire Resistance Directory for additional information.

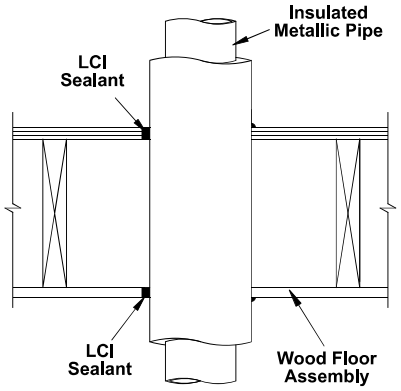
FORMING: Some installations may require forming as either an integral part of the system or as an option to facilitate installation. In systems where forming is required, mineral wool batts with a minimum nominal density of 4 PCF (64 kg/m^3) are generally required. Cut forming material oversize to allow for tight packing. Position forming material to allow for the proper depth of fill material.

FILL MATERIAL: SpecSeal® LCI Sealant may be installed by caulking using a standard caulking gun or from bulk containers using a bulk loading caulk gun, or by manually troweling using a mason's trowel or putty knife. If the sealant tends to pull back from a surface, clean the surface with a damp rag or sponge and reapply. Work sealant into all areas exercising care to eliminate voids or seams. The surface of the sealant can be smoothed using a putty knife dipped in water. Adding water to the sealant itself is not recommended. Sealant (when dry) may be painted using most non-solvent based paints.

Fig. 4: BARE & INSULATED METALLIC PIPES - Wood Floor Assemblies



UL System No. F-C-1074
F Rating: 1 & 2 Hr • T Rating: 1/4, 1/2 and 1 Hr
Steel, Iron or Copper: 4˝ • Chase wall optional.
Annulus: 0˝ to 1˝ • Sealant: 5/8˝ bottom, 3/4˝ top



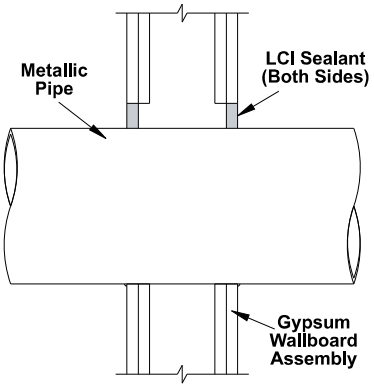
UL System No. F-C-5043
F Rating: 1 & 2 Hr • T Rating: 3/4 and 1 Hr
Steel, Iron or Copper: 4˝
Pipe covering: 1˝ Fiber Glass, Mineral fiber or AB/PVC • Chase wall optional.
Annulus: 0˝ to 1˝ • Sealant: 5/8˝ bottom, 3/4˝ top.

In gypsum wallboard penetrations, apply a minimum cove bead of 1/4" (6 mm) at the interface of the penetrant with both exterior wall surfaces.

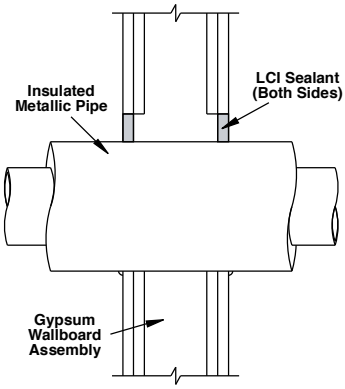
SMOKE SEALING: In some applications including firestop collars, SpecSeal® LCI Sealant is recommended as a smoke seal. It is suggested in these applications that the sealant be applied to both sides of walls. In floor applications, a sealing bead is suggested top and bottom.

LIMITATIONS: SpecSeal® LCI Sealant is water-based and cures through the evaporation of water. Low temperatures as well as high humidity may retard drying. Non-porous or impermeable backing materials, plates, or coatings may retard the drying process. Do not paint or seal in any way that prevents contact with air until sealant has dried through completely. This product has been designed to be safe with plastics and has been used extensively and successfully with a variety of different types of plastic pipes, tubes, and plastic cable insulations. Variations in these materials however, make it impossible to guarantee compatibility. STI strongly recommends that the user consult with the manufacturer of the pipe, tubing, or cable in question regarding any known sensitivities or potential restrictions before applying this product.

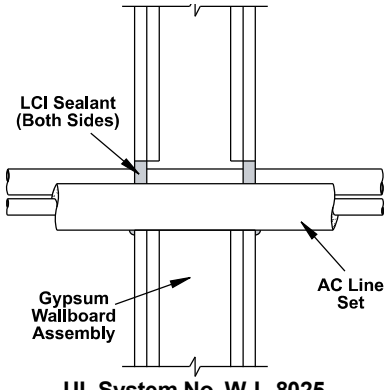
Fig. 5: BARE & INSULATED METALLIC PIPES - Gypsum Walls



UL System No. W-L-1222
F Rating: 1, 2 Hr • T Rating: 1/4, 3/4, 1 Hr
Steel or Iron pipe: 8˝, Copper pipe: 4˝
Annulus: 0˝ to 2˝ • Sealant: 5/8˝



UL System Nos. W-L-5121, W-L-5122
F Rating: 1, 2 Hr • T Rating: 1 Hr & 1/4 Hr
Steel or Iron pipe: 6˝, Copper pipe: 4˝
Pipe covering: Max. 2˝ fiber glass, 3/4˝ AB/PVC or 2˝ mineral fiber
Annulus: 0˝ to 1-1/2˝ • Sealant: 5/8˝



UL System No. W-L-8025
F Rating: 1, 2 Hr • T Rating: 1/4 Hr
AC Line Set: Two copper tubes, one with 3/4˝ AB/PVC and thermostat wire
Annulus: 0˝ to 1˝ • Sealant 5/8˝

MAINTENANCE

No maintenance is normally required, however a periodic inspection of rated barriers is recommended to make sure that any new openings, modifications of previously installed firestops, or areas exhibiting physical damage, have been properly sealed or repaired. Subsequent sealing or repairs should be accomplished using SpecSeal® products per the original approved design.

RETROFIT: When adding or removing penetrants, care should be taken to minimize damage to the seal. Reseal using SpecSeal® products per the approved design. NOTE: New penetrants of a different nature than the original design may require a totally new firestop design or extensive modifications to the existing design. Reseal all openings as per the requirements of the modified design.

TECHNICAL SERVICE

Specified Technologies Inc. provides toll free technical support to assist in product selection and appropriate installation design. UL Systems, Material Safety Data Sheets and other technical information is available through the Technical Library at www.stifirestop.com.

PRECAUTIONARY INFORMATION

Consult Material Safety Data Sheet for additional information on the safe handling and disposal of this material.

AVAILABILITY

SpecSeal® Series LCI Sealant is available from authorized STI distributors. Consult factory or website for the names and locations of the nearest sales representatives or distributors.

ORDERING INFORMATION

CAT. NO.	DESCRIPTION	
LCI300	Sealant 10.1 oz Tube	18.2 Cu In (300 ml)
LCI305	Sealant 5 Gal Pail	1,155 Cu In (19.0 L)
LCI320	Sealant 20 oz Sausage	36 Cu in. (592 ml)
LCI329	Sealant 29 oz Quart Tube	52 Cu in. (858 ml)

Additional SpecSeal Products...

Series SSS Sealant
The industry's most versatile sealant provides the firestopping solutions for a wide range of combustible and noncombustible applications. Water-based intumescent sealant expands up to 8X!

Intumescent Wrap Strips
Three grades of intumescent wrap strips provide an unmatched combination of flexibility, economy, and expansion (up to 30X). Systems for plastic pipes including FR Polypropylene up to 8" trade size!

SSC & LCC Firestop Collars
Easy to install, economical protection for ABS and PVC pipes (both solid and foam core) as well as CPVC, PVDF, and FRPP. LCC Collars are available up to 4" and SSC Collars are available up to 6" trade size.

Firestop Mortar
Lightweight, versatile and economical! The best choice for large or complex installations.

SSP Firestop Putty
Available both in bar form and in pads, putty provides easy retrofit for through-penetrations and economical protection for electrical boxes.

SIL Silicones
Sealants and foam for through-penetrations and construction joints. Unexcelled aging characteristics and flexibility.

Elastomeric Joint Seals
Economical products for sealing construction joints. Choose caulk or spray applied products tested to UL2079.

Specified Technologies Inc.

Specified Technologies Inc. • Somerville, NJ 08876 USA • Phone: 800.992.1180 • Fax: 908.526.9623

7. SECTION 7 – Proprietary Boxing

The Contractors offer must include for all works shown and described within the Employers Requirements and tender documents as being necessary for the complete and proper execution of the Works.

The contractor is to allow and is deemed to have included for a pre-finished proprietary boxing installation to protect the pipework and optimise the aesthetics of the installation to the routing of all exposed pipework within the corridors and apartments.

The Contractor shall be responsible for routing this pipework such that the visual impact and disruption to the apartments is minimised. Boxing will not be required in plantrooms, risers, storerooms and bathrooms but is required in all other areas. Where boxing is not provided all pipework is to be decorated to optimise the aesthetics of the installation.

The pipework will supply residential concealed horizontal sidewall mounted sprinklers which shall also be housed within the boxing installation, therefore the boxing shall be of sufficient depth to ensure that the sprinkler cover plates can be mounted flush. This is essential to minimise the likelihood of malicious damage through badly fitting sprinkler cover plates.

In the common areas and apartments the sprinklers shall be of quick response residential concealed horizontal sidewall type and (where shown) quick response concealed pendant type mounted on the underside of the boxing crossing a corridor.

Any system or zone isolation valves (proposed to be installed within apartment vestibule areas) to be located in secure areas or enclosed within suitable secure boxing material (minimum powder coated metal boxing with lockable access hatch), but if this cannot be achieved, malicious or accidental closure of isolation valves in insecure areas will be monitored using proprietary approved valve tamper switches connected into the monitoring system via I/O devices. Closure of such valves should be indicated as a ‘Fault’ on the monitoring system.

The Contractor (or their appointed subcontractor) shall be responsible for boxing of pipework where required to a standard agreed and acceptable to the Employer. Boxing will not be required in plantrooms, risers, storerooms and bathrooms but is proposed in all other areas. Samples of all boxing proposed to be provided prior to commencement on site. No boxing to be installed unless approved in writing by the Employers representative.

8. SECTION 8 – Connection to Existing Fire Alarm Panels

The Contractors offer must include for all works shown and described within the Employers Requirements and tender documents as being necessary for the complete and proper execution of the Works.

The contractor is to note that it will be a requirement to connect each apartment / communal area Sprinkler zone valve assembly (comprising isolation valve, flow switch, pressure gauge and test/drain point) to new flow alarm devices which are to be installed on each apartment connection off each riser at each floor (i.e. one for each apartment and one for each half landing / corridor, thereby totalling six no. for each typical floor).

The alarm will be sounded by devices both internally and externally. The monitoring panel shall receive its signal from a suitably located (per BS9251) electrically operated flow switch on the fire sprinkler system.

Contractor to allow for connecting back and commissioning of system to the existing 6500 Fire Alarm Panel currently installed at all Blocks. Include for connecting into the existing alarm loops with a 6000/MICCO Interface at each Sprinkler Zone Valve position to pick up the flow and valve open or closed signals. Where multiple Sprinkler Valves are in the same location use a 6000/MIP Interface in an Enclosure to allow a 4-way Sprinkler Interface.

Include for commissioning of all Sprinkler Interfaces and allow for adding to the clients Graphics Maps to show the exact device location and Text at both Steel House and Cromer Road where Fire Alarm PCs are located.

Client installed Algo-tec 6500 open protocol interactive digital addressable fire control system (see trade literature). For more information contact David Myatt of Protec Fire Detection Plc

6000/MICCO - FASTTM Addressable Flush Mounted Loop Powered Monitored Input, Clean Contact Output Interface Unit

With a monitored input circuit suitable for use with simple switch devices and the output is a clean changeover contact 5amp rated at 240V ac. A link can be cut to provide a 7-second delay to the input. A loop short circuit isolator is incorporated.

Example Suitable Zone Valve Assemblies to be installed by contractor (labelled) for fault and isolation monitoring connected to monitored input / output unit connected to client installed monitored alarm panel.

A.6. Section 8 Appendix A – Alarm Data Sheets

Section 8 Appendix A – Alarm Data Sheets

Protec
Fire and Security Group

Fire Detection - Addressable

Protec Algo-Tec™ 6500

Open Protocol Interactive Digital Addressable Fire Control System

ADDRESSING SAFETY SYSTEMS WITH INTELLIGENCE

Fire Detection - Addressable

Protec

6500 Open Protocol Interactive Digital Addressable Fire Control System

The Protec Algo-Tec™ 6500 is a high specification, feature rich, economical, interactive digital addressable fire detection and alarm system ideally suited for small, medium and large sized buildings and sites. The control panel is designed and manufactured by Protec and complies to the latest EN54-2 & EN54-4. The control panel is available for surface or recess mounting with an aesthetically pleasing moulded polycarbonate hinged door finished in storm grey.

Scalable in every aspect, the 6500 system offers tailor made engineered solutions for all applications, from single panel systems to large multi panel networks. Modular design backed by powerful cause and effect programming enables 6500 systems to be configured exactly to the needs of any commercial or industrial site.

Secure Network - The innovative redundant peer to peer network is a high speed data transfer, fail safe, fault tolerant communication channel allowing up to 64 Algo-Tec™ 6500 Fire alarm panels to operate as though they are a single distributed fire system and complies with BS5839-1.

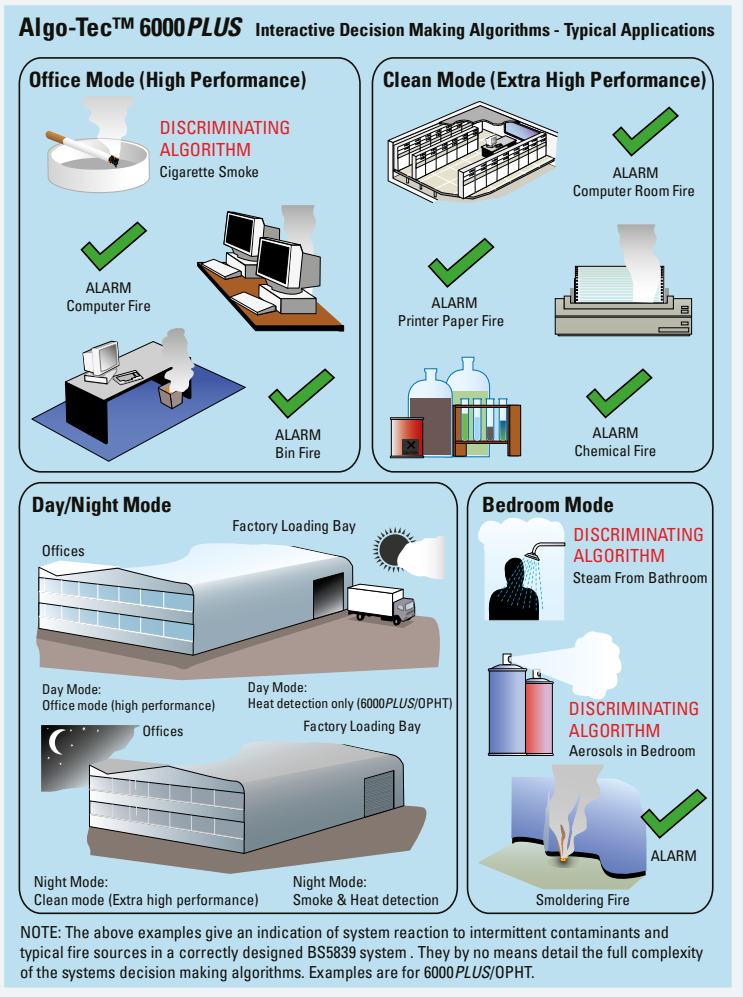
No single network fault can disable the system and in the event of multiple faults, each panel will function independently. The network can be wired using copper or fibre optic connections.

Loops - Each 6500 control panel is equipped with 1, 2 or 4 high capacity Algo-Tec™ 6000*PLUS* digital addressable data loops, with up to 200 addresses per loop, totalling 800 addressable devices per panel, 51,200 addressable devices network wide and compliant with EN54 pt2 clause 13.7.

Interactive - The Algo-Tec™ 6000*PLUS* protocol evaluates the data of each fire sensor and is able to learn from the information received. This may simply be to recognise that a sensor is becoming contaminated or in a dirty environment and to automatically adjust the alarm threshold to compensate for the background levels (Threshold Compensation).

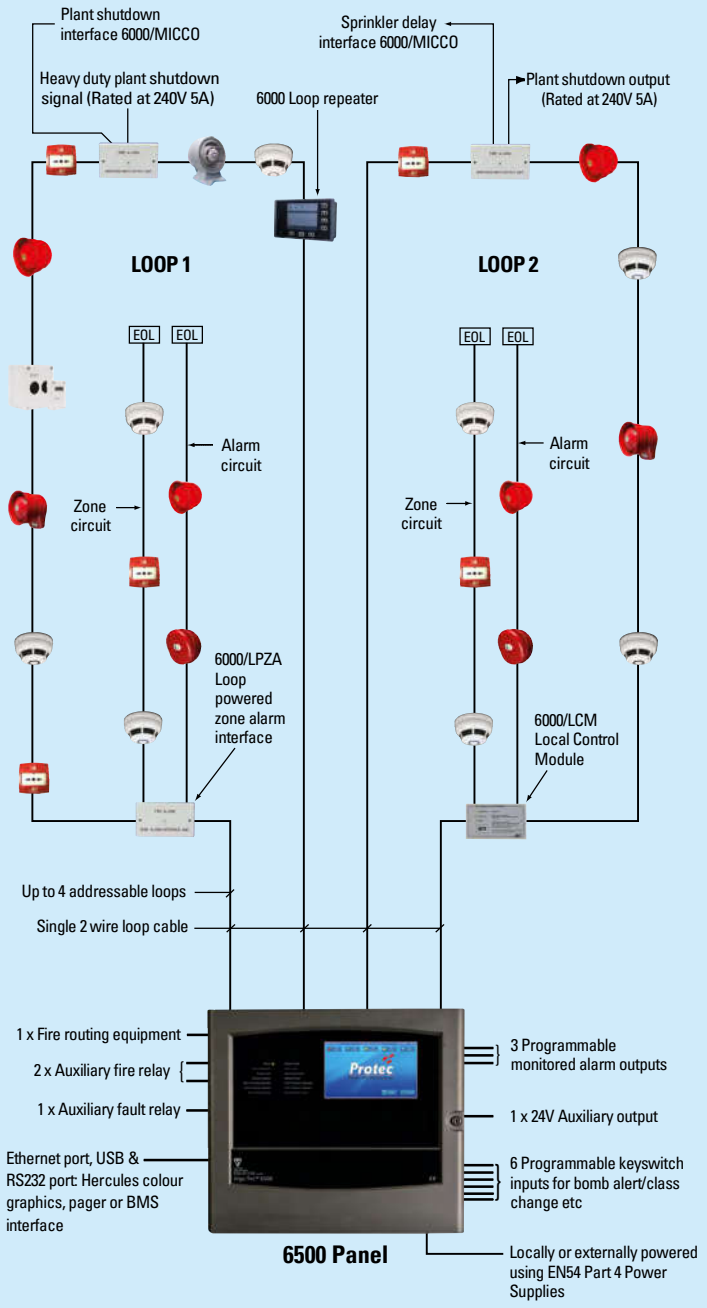
More complex Algo-Tec™ functions include the ability to discriminate between certain fire and non-fire conditions, filtering out certain environmental stimuli, such as steam from a hotel bathroom, and increasing the sensitivity of a sensor when an increase in temperature is detected.

The net effect of the interaction between the sensors and the Algo-Tec™ decision making is enhanced performance, through immunity to false alarms and more responsive fire detection.



NOTE: The above examples give an indication of system reaction to intermittent contaminants and typical fire sources in a correctly designed BS5839 system . They by no means detail the full complexity of the systems decision making algorithms. Examples are for 6000*PLUS*/OPHT.

Typical 6500 System



KEY:

- Heat Sensor
- Optical Smoke and Heat Sensor
- Optical Smoke, Heat and CO Sensor
- Duct Probe Unit c/w Smoke Sensor
- Manual Call Point
- Beam Detector
- Loop Powered Zone Alarm Interface
- Local Control Module
- Monitored Input CC Output Interface
- Electronic Sounder
- Visual Alarm Device (VAD)
- Electronic Sounder with VAD
- 6000 Loop Repeater
- 6500 Panel

System Overview

Controls and Display (LCD) - All the functions of the Control Panel are accessed via a full colour 7" touch screen graphical display. Under normal quiescent conditions the display shows the current date, time and a programmable logo. In an alarm or fault condition the graphical touch screen will display the following:

- Device Address
- Loop number
- Zone number
- 60 characters of user definable device location text
- 40 characters of device alarm text
- 20 characters of panel text
- 20 characters of device loop text

All text is fully programmable on site.

The touch screen provides a simple select and touch programming aid for engineer configuration and end user operation. The panel is also equipped with 40 or 100 separate zonal fire LED's (expandable to 10,000) and 18 system LED's for mandatory requirements and information purposes. An optional integral low noise thermal printer is also available.

Device Location Text - Windows based text software is available to download from our website to enable the location text to be prepared in advance and then handed to the commissioning engineer for loading into the panel during commissioning. This simple process allows you more flexibility enabling you to make any last minute changes & speed up the entire process.

Printer - The optional integral printer is a 40-character low noise thermal printer. In operation the printer will provide on demand real time data of fire and fault conditions including time and date of events along with the device number and location text. By accessing the appropriate function from the user menu facility a variety of reports can be printed including the previous 5000 fire events and 5000 non fire events from the event log, the system device configuration and programming matrix, devices nearing their contamination limit and the current status of all devices.

Power Supply - The range of 6500 and 6600 control panels can be supplied with an integral 3A dc switch mode charger and 2 x 12V 12Ah sealed lead acid batteries. The system is also suitable for use with Protec 9300EN and 9800EN range remote power supplies with an extensive range of battery and charger sizes.

On Site Programming - The Protec Algo-Tec™ 6500 system is on site programmable. All of the commissioning configuration data can be entered and/or backed up using the Protec 6500/WINPROG windows based programming software via a PC. This feature enables the system to be re-configured and checked prior to attending site simplifying commissioning works on site, enabling text amendments to be carried out whilst on site and providing an invaluable remote backup should the need arise.

Features & Benefits

- **Open Protocol** - The 6500 Commissioning software, User and Commissioning manuals are available to download from our website www.protec.co.uk.

- **Design Flexibility** - Scalable, the 6500 system offers tailor made engineered solutions for all applications, from single panel systems (6500E) to large multi panel networks.

- **Secure Local Network** - Up to 6 (NET6), 64 (NET64) or 160 (NET160) Algo-Tec™ 6500 control panels, repeaters and illuminated zonal mimics can be interconnected in a loop configuration to create a secure local network.
  NET6 - Local NET6 network card allows up to 6 panels to be networked.
  NET64 - Local NET64 network card allows up to 64 panels to be networked.
  NET160 - Local NET160 network card allows up to 160 panels to be networked.

- **Easy to Install** - An extensive range comprising Loop Powered Alarm Sounders, Loop Powered Talking Sounders, Visual Alarm Devices, Interfaces, Manual Call Points and Multi Criteria Sensors can all be connected to the nearest control panel using a single 2-core cable for each of the high capacity Loops (up to 4 loops), accommodating up to 200 devices per Loop, 800 maximum per panel, 51,200 addressable devices network wide.

- **Easy to Address** - 'FAST' addressing (Firmware Addressed Secure Technology) ELIMINATES troublesome and time consuming setting of address cards and DIL switches.

- **Enhanced Performance** - The Protec Algo-Tec™ 6000*PLUS* sensors learn from their environment, applying interactive decision making algorithms to provide stability, threshold compensation and optimised performance.

- **Devices Display Address Number** - 'RVAV' Remote Visual Address Verification. Confirmation of the correct location of each device can be easily identified, using the devices in-built LED to indicate the device address number.

- **On Site Flexibility** - Configuration of all system functions is fully site programmable.

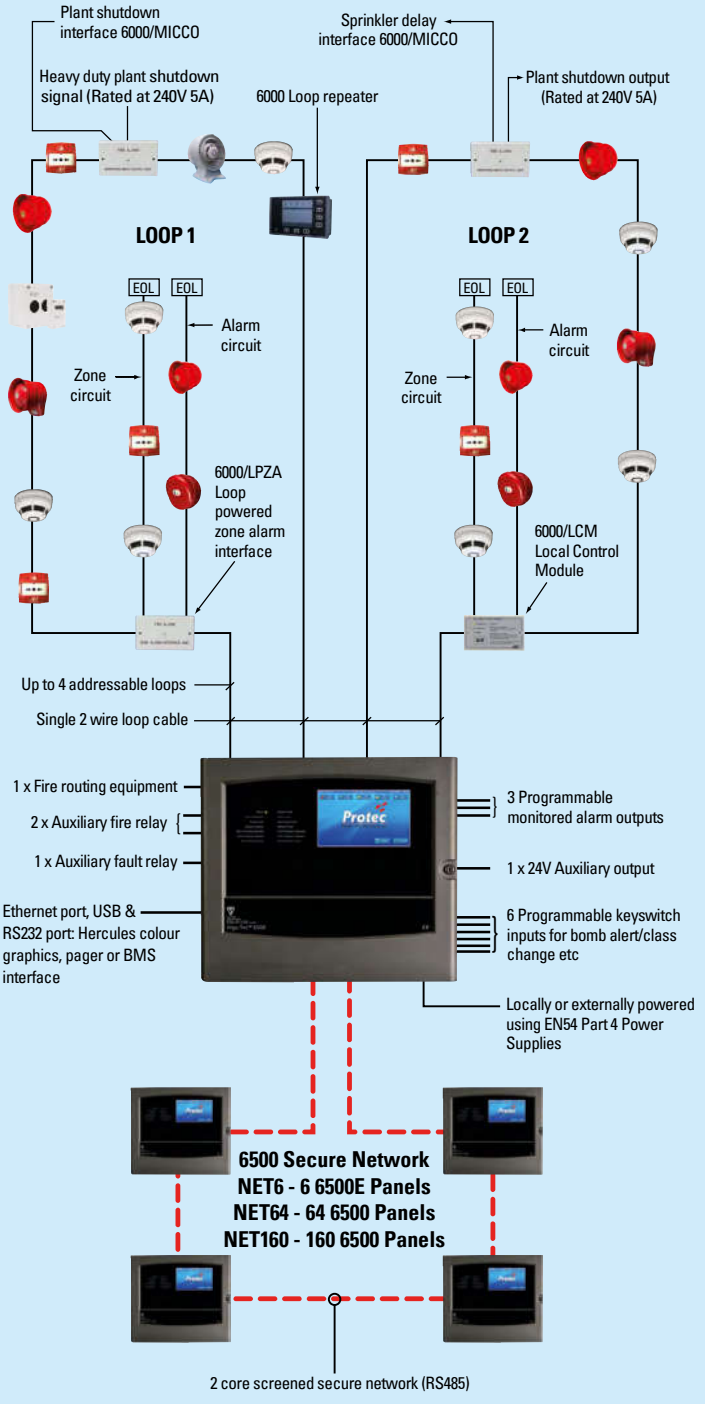
- **Simple to Operate** - Accessing information is easy using the large colour versatile touch screen interface.

- **RS232 & Ethernet Ports** - Typically used to connect to a colour graphics system, pager system or BMS interface.

- **True System Management** - As each device incorporates a unique Fast serial number encoded during manufacture, TRUE SYSTEM MANAGEMENT is achievable, providing precise DEVICE history in addition to LOCATION history for a specific site system and total traceability of all devices manufactured from our commissioning files for quality management, using optional PC package.

- **Approved to the latest EN 54-2 & 4 supporting up to 800 devices** (in compliance with Clause 13-7 of EN54 pt2).

Typical 6500 Local Network System Schematic



KEY:

- Heat Sensor
- Optical Smoke and Heat Sensor
- Optical Smoke, Heat and CO Sensor
- Duct Probe Unit c/w Smoke Sensor
- Manual Call Point
- Beam Detector
- Loop Powered Zone Alarm Interface
- Local Control Module
- Monitored Input CC Output Interface
- Electronic Sounder
- Visual Alarm Device (VAD)
- Electronic Sounder with VAD
- 6000 Loop Repeater
- 6500 Panel

Additional Products

6000 Loop Repeater

The 6000/LOOP/REPEATER can be connected directly to the local Algo-Tec™ digital addressable data loop and takes up just one address. Events from the main panel are displayed on the repeater's large LCD display, providing system indication of any loop connected location on site. The low power consumption allows numerous repeat devices to be fitted, greatly increasing system visibility.

The power consumption of the repeater has been minimised through energy efficient design, preserving loop current and capacity. Quiescent 1.6mA, Alarm 12.7mA

The repeater can be surface or flush mounted as standard, allowing gland or conduit entrance through the rear, top or bottom of the enclosure. The device only requires a loop connection to provide both power and data, no network cabling, or external power supply is required.

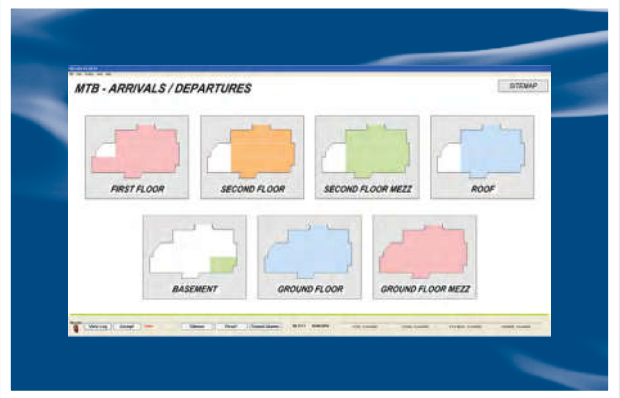
6500 Repeat Panel

The Protec 6500 repeat panel can be connected to the secure local network. The repeat panel has an identical display to the control panel including a full colour 7" touch screen graphical display, zonal fire LED's and system LED's for information purposes and mandatory functions. The repeat panel is available as surface or recessed mounted with a moulded polycarbonate hinged door finished in storm grey.

Illuminated Zonal Mimic

The Protec Network Mimic Panel provides a flexible platform for system indication and control solutions. A Mimic Panel can be configured for zonal indication, plant shutdown, fan control, damper control or other custom solutions.
The Mimic Panel is connected to the 6500 secure local network as part of a single distributed fire system, representing a single node. Multiple Mimic Panels can be placed on the local network.
Custom panel graphics are produced using industry standard graphical design software. Coloured architectural drawings, plans and custom logos can be directly imported.
A single Mimic Panel can support up to 1,000 RGB LEDs, 500 key/push/rotary switches and 5 clean contact outputs. The intensity of the LED outputs can be controlled by an ambient light sensor and each indicator is fault monitored.
An in-built setup feature of the Standard 6500 Windows based Commissioning Software is used to configure the Mimic Panel (allocating the system input/outputs to an LED indicator). The Software significantly reduces configuration time, increases information integrity and simplifies ongoing changes. The Commissioning Software provides a fully interactive graphical representation of Mimic Panel setup.

Hercules Colour Graphics System



The Protec Colour Graphics System is a Windows based PC package providing a graphical representation of the site enabling the precise location of an incident to be readily identified enabling a prompt response. Using touch screen or mouse, the operator can track an incident and zoom from a site plan to intermediate plan listing floor levels, then zoom to a specific floor plan and if necessary then zoom to a specific detailed area within the floor plan showing the device in question. Colour prints of the maps can be printed automatically or on demand.

Loop Devices

The Protec Algo-Tec™ 6000*PLUS* protocol utilises FAST™ addressing (Firmware Addressed Secure Technology). Every FAST™ device is manufactured with a unique serial number.
FAST™ addressing ELIMINATES troublesome and time consuming address cards and DIL switching whilst being far more secure than "soft addressing".

The Protec Algo-Tec™ 6000*PLUS* sensor range has been developed to incorporate advanced fire sensing technology, electronic sounders, high intensity visual alarm and speech enhanced talking sounder capability, all integrated within the sensor head and powered from the loop.

Typical Sensor Variants
6000*PLUS*/OPHT/**S** = c/w Sounder
6000*PLUS*/OPHT/**VAD** = c/w Visual Alarm Device
6000*PLUS*/OPHT/**S VAD** = c/w Sounder and Visual Alarm Device
6000*PLUS*/OPHT/**TS** = c/w Talking Sounder
6000*PLUS*/OPHT/**TS VAD** = c/w Talking Sounder and Visual Alarm Device

6000*PLUS*/HT - FAST™ Interactive Heat Sensor - Interactive addressable heat sensor with low thermal mass thermistor, giving fast response to temperature increases. Other Heat Sensor variants include:
6000*PLUS*/HT/S, 6000*PLUS*/HT/SVAD
6000*PLUS*/HT/TSVAD

6000*PLUS*/OP - FAST™ Interactive Optical Smoke Sensor - Interactive addressable high performance optical smoke sensor provide efficient reliable detection using the light scatter sensing principle with rapid response to a fire signal. Other Optical Sensor variants include: 6000*PLUS*/OP/S

6000*PLUS*/OPHT - FAST™ Interactive Optical Heat Sensor - Interactive addressable high performance optical smoke and heat multi-sensor. Other Optical Heat Sensor variants include: 6000*PLUS*/OPHT/S, 6000*PLUS*/OPHT/VAD, 6000*PLUS*/OPHT/SVAD, 6000*PLUS*/OPHT/TS, 6000*PLUS*/OPHT/TSVAD

6000*PLUS*/OPHTCO - FAST™ Interactive Optical Heat CO Sensor - Interactive addressable high performance optical smoke heat and carbon monoxide multi-sensor. Other Optical Heat Sensor variants include:
6000*PLUS*/OPHTCO/S, 6000*PLUS*/OPHTCO/VAD,
6000*PLUS*/OPHTCO/SVAD, 6000*PLUS*/OPHTCO/TSVAD

6000*PLUS*/BASE Low Profile Common Mounting Base - Compatible with the above range of Algo-Tec™ 6000*PLUS* Sensors.

6000*PLUS*/FFBASE Fast Fixed Base - Fast fixed recessed base is designed to recess the sensor into a false ceiling to give a lower profile view of the sensor.

6000/LOOP/REPEATER - Connected directly to the local data loop and takes just one address. The large LCD display provides clear indication of system fire and fault events.

6000/MCP - FAST™ Addressable Manual Call Point - Key operated test facility, a loop short circuit isolator is incorporated.

6000*PLUS*/UG4DP - Ventilation Duct Smoke Sensor Assembly - Single pipe air sampling unit for air speeds from 0.5 to 20m per sec. supplied with 6000*PLUS*/BASE suitable for use with 6000*PLUS*/OP FAST™ interactive optical smoke sensor.

6000/FIREBEAM - FAST™ Addressable Loop Powered Beam Detector - Combined transmitter/receiver unit and separate low level controller. With a beam range of 5-100 metres.

6000/SSR - FAST™ Addressable Loop Powered High Output Electronic Sounder - utilises a Piezo driver unit to enable high sound output and very low current consumption.

6000/VAD/W/RED - FAST™ Addressable Loop Powered High Intensity VAD - Approved to EN54-23 the wall mounted VAD has a unique lens that distributes the white light in a cuboid pattern to achieve 7.5m x 7.5m coverage @ 2.4m high.

6000/VAD/C/RED - FAST™ - Addressable Loop Powered High Intensity VAD - Approved to EN54-23 the ceiling mounted VAD has a unique lens that distributes the white light in a cylindrical pattern to achieve 7.5m dia coverage @ 3m high.

6000/SSR/VAD - FAST™ Addressable Loop Powered High Output Electronic Sounder with VAD - Approved to EN54-3, 17 & 23 the wall mounted combined sounder/VAD has a sound output of 100dB(A) @ 1m plus VAD light output of 7m x 7m coverage @ 2.4m high.

6000*PLUS*/TSR2 - FAST™ Addressable Loop Powered Talking Sounder - The 6000*PLUS*/TSR2 voice enhanced talking sounder is available with seven voice messages plus 'bell' sound in addition to the three fire alarm tones compatible with the Protec range of electronic sounders.

6000/FIU - Flush Mounted Short Circuit Isolator Unit - To isolate a short circuit fault on either the incoming or outgoing loop cables. Suitable for a 30mm deep electrical mounting box.

6000/LPZA - FAST™ Addressable Flush Mounted Loop Powered Zone Alarm Interface Unit - With a monitored detection circuit suitable for use with Protec 3000 series detection devices. Monitored alarm output circuit rated at 24Vdc 50mA max. A loop short circuit isolator is included.

6000/LCM - FAST™ Addressable Flush Mounted Local Control Module - Allows easy integration of Protec addressable fire detection systems into houses of multiple occupancy and offers novel features to reduce false alarms. The interface drives a zone of 3000 series detection devices and provides a supply to a local alarm circuit.

6000/MICCO - FAST™ Addressable Flush Mounted Loop Powered Monitored Input, Clean Contact Output Interface Unit - With a monitored input circuit suitable for use with simple switch devices and the output is a clean changeover contact 5amp rated at 240V ac. A link can be cut to provide a 7-second delay to the input. A loop short circuit isolator is incorporated.

Multi-way Input/Output Interfaces - A range of 16 way input/output interfaces are available with monitored alarm outputs or clean changeover contacts. All interfaces are FAST™ addressable.

6000/2IO - FAST™ Addressable DIN Rail Mounted Loop Powered Interface - with 2 x monitored inputs and two volt free changeover contacts.

TECHNICAL SPECIFICATION

KM575025
0086-CPR-575026
EN54-2 & 4

	Standalone	Networked
	6500E	**6500**
Rated Voltage	230Vac + 10% - 15% (50/60Hz)	
Working Voltage	21.5 - 30Vdc	
Temperature Range	-10° to +55° C	
Humidity	5% to 95% RH (no condensation, or icing)	
IP Rating	IP30	
Standby Load	185mA (2 loop) 226mA (4 loop) [1]	215mA (2 loop) 256mA (4 loop) [1]
Alarm Load	220mA (2 loop) 261mA (4 loop) [2]	250mA (2 loop) 291mA (4 loop) [2]
Display Type	Full colour, 7" touch screen graphical display	
Number of Loops	1, 2 or 4	
Max Number of Addressable Devices Per Loop	200	
Total Loop Load	1A per loop including all loop connected devices	
Printer	Optional	
Integral Charger / Remote Charger	Both (Internal or External Charger)	
Maximum Battery Capacity	Internal charger: 2 x 12V 12Ah	
Number of Zones	40	100 expandable to 10,000
Number of Input Groups	4,000	
Number of Output Groups	255 per panel	
Auxiliary Fire Relay (Single pole change over contacts, rated 1A @ 24V resistive load)	2	2
Auxiliary Fault Relay (Single pole change over contacts, rated 1A @ 24V resistive load)	1	1
Monitored Fire Routing Equipment Output (monitored for open and short circuit wiring faults)	1	1
Monitored Fire Protection Equipment Output (uses 1 of the programmable alarm outputs)	None dedicated but a programmable alarm output may be configured for this function	
Monitored Fault Routing Equipment Output (uses 1 of the programmable alarm outputs)	None dedicated but a programmable alarm output may be configured for this function	
Monitored Programmable Alarm Outputs (monitored for open and short circuit wiring faults)	3	3
Auxiliary 24 Volt Output (monitored for short circuit fault, maximum 150mA)	1	1
Programmable Clean Contact Outputs	0	0
Number of Keyswitch Input(s)	6 (3 terminal board & 3 display board)	
Secure Network NET6	Optional	Yes
Secure Network NET64	Optional [4]	Yes
Secure Network NET160	Optional [4]	Yes
Communication Port(s)	USB (for commissioning use only) / RS232	
Dimensions (mm)	440(W) x 385(H) x 144(D)	
Weight (Excluding batteries)	7kg	7kg
Device, Alarm, Loop & Panel Text	60 characters device location text, 20 characters device alarm text, 20 characters panel text, 20 characters device loop text	

[1] Measured on the internal power connector at 24V dc, power fault LED on, buzzer on, fault relay deactivated, screen backlight dimmed.
[2] Measured on the internal power connector at 24V dc, power fault LED on, buzzer on, fault relay deactivated, general fire LED on, one fire routing output active, one fire contact active.
[3] 3 programmable clean contacts are provided which may be configured using the PC configuration tool.
[4] A 6500E panel can be upgraded to 6500 panel by adding a NET64KIT.
[5] Supplied via the 'External PSU 1' and 'External PSU 2' supply input. Measured with Voltage set to 24V dc, power Fault LED on, buzzer on, fault relay deactivated, screen backlight dimmed.
[6] Supplied via the 'External PSU 1' and 'External PSU 2' supply input. Measured with Voltage set to 24V dc, power Fault LED on, buzzer on, fault relay deactivated, General fire LED on, one fire routing output active, one fire contact active.

Protec Fire and Security Group

Protec: Scotland Tel: 0845 456 5390 Fax: 0845 456 5391
Protec: North East Tel: 0845 456 5396 Fax: 0845 456 5397
Protec: Yorkshire Tel: 0845 456 5388 Fax: 0845 456 5389
Protec: Midlands Tel: 0845 456 5398 Fax: 0845 456 5399
Protec: South East Tel: 0845 456 5394 Fax: 0845 456 5395
Protec: South West Tel: 0845 456 5392 Fax: 0845 456 5393

Protec Fire Detection Plc, Protec House, Churchill Way, Nelson, Lancashire, BB9 6RT

Tel: 01282 717171 Fax: 01282 717273 Web: www.protec.co.uk Email: sales@protec.co.uk

Protec Fire Detection plc

6000/MICCO - Monitored Input Clean Contact Output Interface

Fire Detection - Addressable

- Protec Algo-Tec™ 6000 Protocol
- Loop Powered
- Monitored Input Interface
- Clean Contact Output Interface
- Integral Short Circuit Isolator
- Optional Delayed Input Mode
- Optional Non Latching Alarm Mode

The Protec 6000 series MICCO is a loop powered fault monitored input and a volt free clean contact output interface. An on board isolator is provided which protects against loop short circuits on either the incoming or outgoing loop connections.

Under normal circumstances the input is terminated with an End of Line resistor. If the correct value of resistance is placed across the monitored input, the MICCO will activate the associated 6000 control panel within 3 seconds. A PCB link may be removed which will delay a sustained activation by 14 seconds, designed for use when interfacing to sprinkler systems. The input is fully monitored for open and short circuit wiring faults.

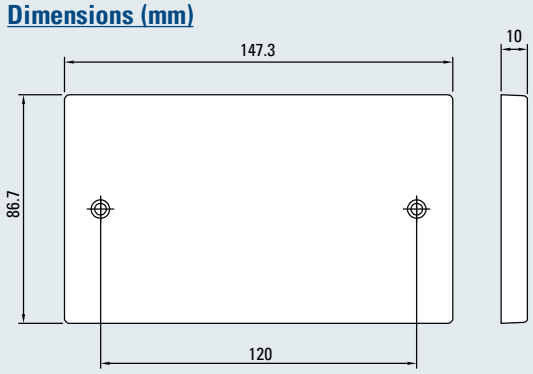
A set of volt free changeover contacts are provided which operate under panel control. However by the removal of the relevant PCB link the unit can be put into 'door closer' mode where any control panel fault or disablement, or removal of loop power to the device will activate the volt free contacts (and release any magnetic fire door retaining device).

Additionally the removal of a PCB link will put the device into non-latching alarm mode.

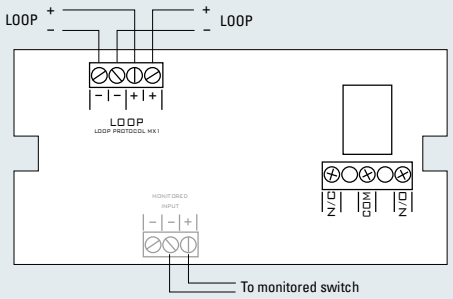
Fire Detection - Addressable

6000/MICCO Technical Specification

Dimensions (mm)



Wiring Diargam



Technical Specification:

Environment	-10˚C to 50˚C (95% R.H. non condensing)
Ingress Protection	IP40
Weight	109g
Loop Powered	Yes
Loop Standby Load	0.55mA (Average), 2mA (Peak)
Loop Alarm Load	2.2mA (Average), 5mA (Peak)
Loop Voltage	16 - 28V
Isolator	Yes
Inputs	Input monitored for short / open circuit fault and alarm
Outputs	Single pole changeover rated for 5A maximum at 230V AC (non inductive)
Device Protocol	Algo-Tec™ 6000
Relevant Standard	EN-17 & 18, CE Marked

Protec Fire Detection plc

Protec Fire Detection Plc, Protec House, Churchill Way, Nelson, Lancashire, BB9 6RT

Tel: 01282 717171 Fax: 01282 717273 Web: www.protec.co.uk Email: sales@protec.co.uk

9. SECTION 9 – Installation Expectations

The Contractors offer must include for all works shown and described within the Employers Requirements and tender documents as being necessary for the complete and proper execution of the Works.

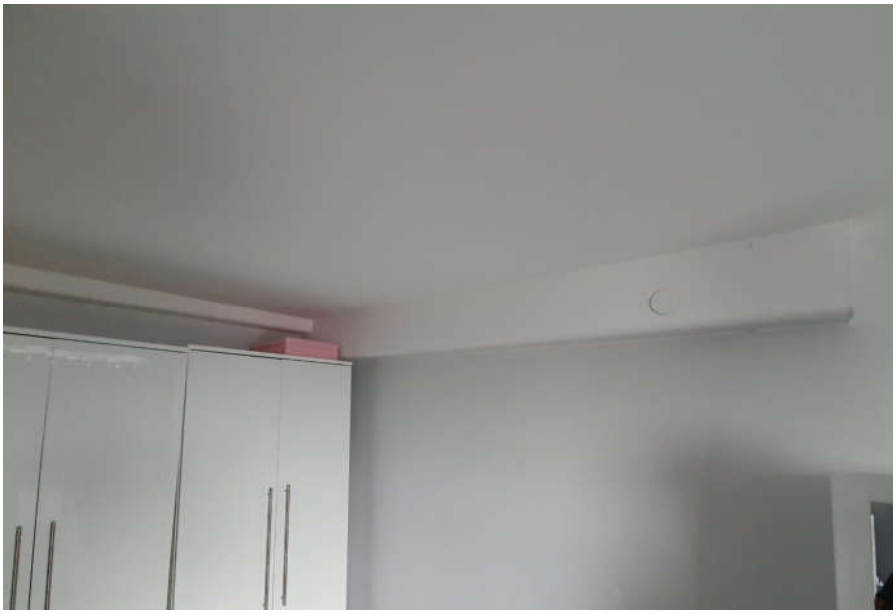
To ensure that the quality expectations of the client is met the contractor is at liberty to attend site and review the previous installation works undertaken across the Bucknall New Road Estate, Linfield Rd, Stoke-on-Trent ST1 2PB.

Photographic details of the previous works are included below for your information and represent the minimum standards expected. All boxing to be appropriately finished and sealed against existing structure in all locations.

As part of the Contractors Proposals the contractor is to confirm at tender stage his proposals and materials / manufacturer of all boxing requirements, including: -

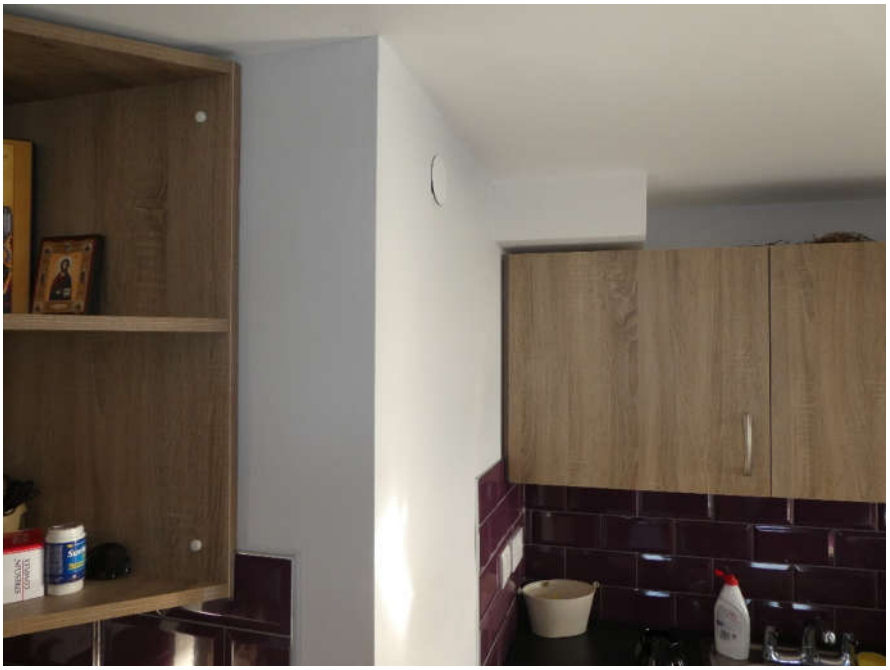
- Apartments
- Communal Areas
- Stairwells

8.1 Typical expectation of sprinkler head penetration in tenanted areas



8.2 Typical expectation of proprietary boxing installation within tenanted areas

8.3: Typical painted pipework to back of house areas



8.4: Typical expectation of sprinkler head penetration in tenanted areas

8.5: Typical Upper Floor Circulation Space Sprinkler Head

8.6: Typical Upper Floor Circulation Space

8.7: Typical Stairwell Sprinkler

8.8: Pump installation

8.9: Typical zone valve assembly

10. SECTION 10 – Access Arrangements

The Contractors offer must include for all works shown and described within the Employers Requirements and tender documents as being necessary for the complete and proper execution of the Works.

The contractor is to note that the employer has customer liaison officers to assist in the delivery of the works but will have no dedicated resource available. Whilst the employer's customer liaison officer will assist with liaising with tenants, and help to gain access where consistent, continued and documented access issues are apparent, it will be the contractor's responsibility to organise the resources, programme the works and arrange access.

The contractor is to include for providing a dedicated full time customer liaison officer (CLO) to arrange access into all apartments to discuss the works, undertake pre-entry surveys to determine any apartment specific issues, undertake dilapidation surveys and general liaison / answering queries and ensuring that sufficient information is provided, and support given to tenants during the sprinkler works programme.

Key Responsibilities of Contractors CLO include:

- Prevent and limit dissatisfaction, resolve complaints and queries quickly and efficiently;
- Ensure all forms of communication are created, implemented, and understood by all links in the communication chain, i.e., office, site and client;
- Ensure all communications are given in a timely manner, to suit the customer and lead times applicable;
- Notify customers of the intended start dates for the work and update the customers accordingly;
- To manage customer expectations by ensuring they understand the nature and scope of works, the likely extent of disruption during the works and the mutual obligations of themselves and the contractor before, during and after the works;
- Ensure you visit/contact customers regularly;
- Deal with any issues/complaints on behalf of the customers, resolving them in order to stop complaints being registered in accordance with company standards;
- Document missed appointments, no response to access letters / telephone calls / door canvassing for each tenant contacted;
- Distributing and collating customer satisfaction questionnaires. Return rate to be minimum 75% over all 4 blocks

On appointment the successful contractor will be provided with contact details for all tenants to start the necessary pre-entry arrangements and access requirements.

Should three consecutive access letters and follow up telephone calls be unanswered or two consecutive appointments missed the contractor's customer liaison officer will need to inform the clients customer liaison officer and project manager for raising via, and actioning by, the clients housing enforcement officer.

11. SECTION 11 – Asbestos Considerations

The Contractors offer must include for all works shown and described within the Employers Requirements and tender documents as being necessary for the complete and proper execution of the Works.

The contractor will note the contents of the Pre-Construction Health and Safety Pack and Appendix B which contains all available asbestos survey information the client holds across the 4no blocks. Full targeted surveys across all apartments and communal areas will be provided prior to site commencement.

The contractor is to note the following: The nature and condition of the site/ building cannot be fully and certainly ascertained before it is opened up. The accuracy and sufficiency of the information contained within these Employer's Requirements is not guaranteed by the Employer or the Employer's Agent. It is the Contractors responsibility to ascertain if any additional information is required to ensure the safety of all persons and the Works.

We therefore must draw to the attention of all Site staff and personnel working on the sites the nature of possible contamination and the need to take appropriate precautionary measures. The contractor is to therefore remain vigilant against the risk posed by asbestos containing materials in construction elements.

The attention of the Contractor is particularly drawn to the use of asbestos fibres in 1970's high rise residential construction. It shall be the sole responsibility of the Contractor to ensure that any work carried out on asbestos based or asbestos-cement components complies with the Asbestos (Licensing) Regulations, the Control of Asbestos at Work Regulations and all requirements of the Health and Safety Executive, including all relevant Codes of Practice.

Separate and Fully Detailed Health and Safety Procedures, together with method statements and proposed working practices, must be submitted with this tender for builders work in connection with the sprinkler installation i.e. forming openings / working with asbestos containing materials / fixing into surfaces etc.

The contractor is to allow for all works as necessary and is deemed to have included and allowed for any works necessary to deal with **known** issues identified within the Tender Information. In addition to the contractors submitted tender price, and where the existing information remains silent, but areas are later found to contain asbestos materials the contractor is to include a cost for carrying out non-licensable works under, the Control of Asbestos at Work Regulations and all requirements of the Health and Safety Executive, including all relevant Codes of Practice.

For competitive tender purposes the contractor is to include within his tender, as an additional provisional item, the cost to undertake works in accordance with current asbestos legislation and Codes of Practice for all works envisaged and discussed within this document. Allow for undertaking works to asbestos containing materials to 10x apartments to each block (40no apartments in total) (include all contractors OHP).

Cost to Complete to be carried forward to summary page

40x apartment **£……..**

A.8. Section 11 Appendix A – HSE Guidance

Section 11 Appendix A – HSE Guidance

a26
asbestos essentials

Drilling and boring through textured coatings

Non-licensed tasks

Essential information

Important: You must read sheet a0 *Introduction to asbestos essentials*

Also read the following sheets:

em0 Risk assessments and plans of work

em1 What to do if you discover or accidentally disturb asbestos during your work

em2 Information, instruction and training

em4 Using a Class H vacuum cleaner for asbestos

em6 Personal protective equipment (including RPE)

em7 Using damp rags to clean surfaces of minor asbestos contamination

em8 Personal decontamination

em9 Disposal of asbestos waste

What this sheet covers

This sheet describes good practice when you need to drill through textured coating.

If the coating is on asbestos insulating board, see sheet a1.

Preparing the work area

- Restrict access – minimise the number of people present.
- Close doors. Use tape and notices to warn others.
- Ensure adequate lighting.

Equipment

- 500-gauge polythene sheeting and duct tape
- Warning tape and notices
- Class H vacuum cleaner (BS 8520) for cleaning (if available – see sheet em4)
- Drill – manual or powered, set at the lowest speed
- Drill bit, or hole cutter for holes greater than 20 mm diameter
- Thick paste, eg wallpaper paste or shaving foam, or a drill cowl to contain drilling debris
- Permanent sealant
- Paint brush
- Bucket of water and rags
- Asbestos waste bag
- Clear polythene bag

Textured coating is common on ceilings

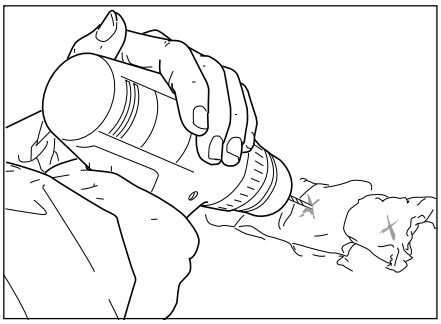
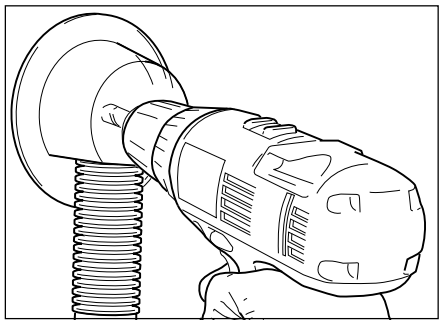
Other hazards

Work at height – see www.hse.gov.uk/work-at-height. Take precautions to avoid falls.

There may be other hazards – you need to consider them all.



Drill through paste or foam or use a plastic cowl with a Class H vacuum cleaner (if available)

A hand drill creates less dust. If you have to use an electric drill, put it on the slowest setting

Personal protective equipment (PPE) – see sheet em6

- Provide:
  - disposable overalls fitted with a hood;
  - boots without laces (laced boots are hard to decontaminate);
  - respiratory protective equipment (RPE).

Procedure

- Remove furniture and fittings from the area, or protect them from contamination using 500-gauge polythene sheet.
- Protect nearby surfaces from contamination. Cover with 500-gauge polythene sheeting and fix with duct tape to non-asbestos surfaces.
- For cable and pipework, make the hole slightly bigger than required.

Drilling and boring

- Cover the drill entry and, if accessible, exit points with a generous amount of paste, foam or a drill cowl.
- Drill through the paste, foam or drill cowl.
- Clean off the paste, foam and debris with damp rags, or remove the device and clean the surface. Clean the back surface with damp rags, if accessible.
- Rags and paste or foam contain dust and fibres. Dispose of as asbestos waste.
- Seal the drilled edge with sealant.

Cleaning and disposal

- Clean the area and equipment with the Class H vacuum cleaner (if available) and/or damp rags.
- Put debris, used rags, paint brush, polythene sheeting and other waste in the asbestos waste bag and tape it closed.
- Put the asbestos waste bag in a clear polythene bag and tape it closed.
- Disposal – see sheet em9.

Personal decontamination

See sheet em8.

Clearance and checking off

- Visually inspect the area to make sure that it has been cleaned properly.
- Clearance air sampling is not normally required.
- Get the premises owner, dutyholder or client to check off the job.

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a28
asbestos essentials

Removing textured coating from a small area, for example 1 m²

Non-licensed tasks

Essential information

Important: You must read sheet a0 *Introduction to asbestos essentials*

Also read the following sheets:

em0 Risk assessments and plans of work

em1 What to do if you discover or accidentally disturb asbestos during your work

em2 Information, instruction and training

em4 Using a Class H vacuum cleaner for asbestos

em6 Personal protective equipment (including RPE)

em7 Using damp rags to clean surfaces of minor asbestos contamination

em8 Personal decontamination

em9 Disposal of asbestos waste

What this sheet covers

This sheet describes good practice when you need to remove a small area of textured coating, eg around 1 m², in preparation for other maintenance work.

If steaming or gelling methods are used other than in preparation for maintenance such as fitting smoke alarms or light fittings then the work will be notifiable non-licensed work (NNLW) – see sheet a0 *Introduction to asbestos essentials*.

This sheet is *not* appropriate for large areas. The work is still non-licensed but you need to make a full risk assessment and the work will be NNLW – see sheet a0 *Introduction to asbestos essentials*.

If the coating covers asbestos insulating board, use an HSE-licensed contractor.

Preparing the work area

- Do you need to isolate any services?
- Restrict access – minimise the number of people present.
- Close doors. Use tape and notices to warn others.
- Ensure adequate lighting.

Equipment

- 500-gauge polythene sheeting and duct tape
- Warning tape and notices
- Class H vacuum cleaner (BS 8520) (If available – see sheet em4)
- Penetrating stripping fluid or gel, or a steam generator
- Permanent sealant
- Plastic dustpan
- Scraper
- Paint brush
- Bucket of water and rags
- Asbestos waste bag
- Clear polythene bag

Caution

Never scrape through or sand down textured coatings or stripped surfaces. Don't use power tools to cut through textured coatings.

Other hazards

Work at height – see www.hse.gov.uk/work-at-height. Take precautions to avoid falls.

Slips and trips – see www.hse.gov.uk/slips. Floors protected with polythene become very slippery when wet.

There may be other hazards – you need to consider them all.

Personal protective equipment (PPE) – see sheet em6

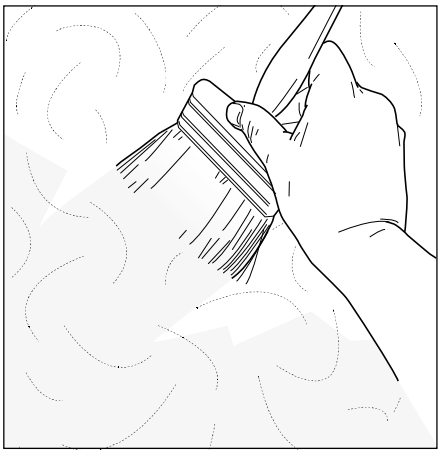
- Provide:
  - disposable overalls fitted with a hood;
  - boots without laces (laced boots are hard to decontaminate);
  - respiratory protective equipment (RPE).

Procedure

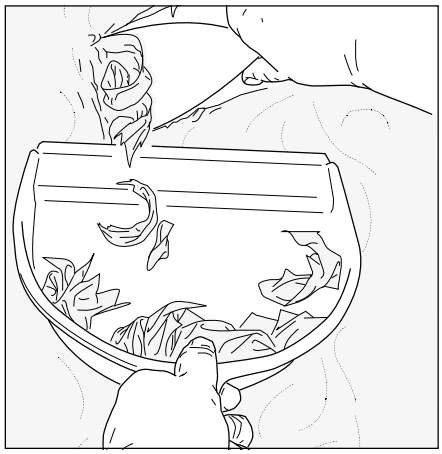
- Remove furniture and fittings from the area, or protect them from contamination using 500-gauge polythene sheet.
- Protect nearby surfaces from contamination. Cover with 500-gauge polythene sheeting and fix with duct tape to non-asbestos surfaces.

Removal

- Dampen and pick off any loose pieces of coating and put them in the asbestos waste bag.
- Either gently brush on penetrating fluid, or dampen and loosen the coating with steam.
- When loose, gently scrape the coating into the dustpan.
- Empty this into the waste bag.
- Seal the stripped surface with sealant.



Gently brush on penetrating fluid, or dampen and loosen the coating with steam



Gently scrape the coating into the dustpan

Cleaning and disposal

- Clean the area and equipment with a Class H vacuum cleaner (if available) and/or damp rags.
- Put debris, used rags, paint brush, polythene sheeting and other waste in the asbestos waste bag and tape it closed.
- Put the asbestos waste bag in a clear polythene bag and tape it closed.
- Disposal – see sheet em9.

Personal decontamination

See sheet em8.

Clearance and checking off

- Visually inspect the area to make sure that it has been cleaned properly.
- Clearance air sampling is not normally required.
- Get the premises owner, dutyholder or client to check off the job.

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12. SECTION 12 – Other Work Programmes

The Contractors offer must include for all works shown and described within the Employers Requirements and tender documents as being necessary for the complete and proper execution of the Works.

The contractor is to note that full and inclusive possession and use of the site will not be given. The client will be undertaking various other refurbishment, redecoration and remodelling work programmes throughout the course of the works. These programmes include but are not limited to the following: -

- Void apartment repairs and redecoration;
- Ad-hoc maintenance and repairs works.

The contractor will be the principal contractor under the CDM Regulations 2015 for all works being undertaken under the terms of the contract but is to also note that Unitas Stoke on Trent Ltd (or their agents) will also be acting as principal contractor for the work packages described above. This will result in instances of 2x principal contractors working in distinct areas.

The contractor is to therefore allow for all necessary liaison with the client's other principal contractor(s) and is to liaise and work with / not against other site attendees to ensure the successful delivery of all contracts.

For information purposes please see current indicative work programmes proposed to be carried out by others during the course of the contract.

13. SECTION 13 – Key Dates

The Contractors offer will be judged on design intent and interpretation, quality control, programme and price. The Contractors offer must include for all works shown and described within the Employers Requirements document as being necessary for the complete and proper execution of the Works.

The Contractor is to submit with his offer a Construction Programme of work with a summary showing the sequence and timing of the principal parts of the Works and periods for planning and design, with any exclusions itemize.

At the same time as submitting the proposed programme or summary, confirm that it is compatible with the Information Release Schedule. If any part of the programme is not compatible with the Schedule submit alternative proposals and reasons for varying the times for release of information. In addition to and at the same time as tendering based upon the date or period detailed below and in the tender documentation, an alternative tender based upon a different date for completion or period may be submitted.

	KEY ACTIVITIES	KEY DATES
a)	Tender period (4 weeks)	17.02.20 – 13.03.20
b)	Tender Analysis (1 weeks)	16.03.20 – 23.03.20
c)	Contractor Appointment	06.04.20
d)	Contractor Design Period (10 weeks – note overlap with mobilisation, site set up and construction phase)	06.04.20 – 12.06.20
e)	Contractor mobilisation (3 weeks)	06.04.20 – 24.04.20
f)	Site setup	27.04.20
g)	Construction Phase (40 weeks)	27.04.20 – 29.01.21
h)	Pilot Apartment	27.04.20 – 01.05.20

If the tenderer seeks to amend or amplify the tender key dates in any way, this intention must be clearly stated in every case. Failure to state such intention will be taken to mean that the contents of the tender programme have been totally satisfied in all respects.

14. SECTION 14 – Alternative Tender

If the tenderer seeks to amend or amplify the brief in any way, this intention must be clearly stated in every case. Failure to state such intention will be taken to mean that the contents of the tender documents have been totally satisfied in all respects.

Please note that the Contractor is at liberty to attach either an alternative time tender or an addendum to the Contract Sum Analysis (see below) indicating potential savings to the tender sum should the substitution of material/products/ methodology be allowed.

In addition, the contractor is at liberty to provide an alternative proposal for the installations. Any alternative proposals are to achieve the Employers Requirements detailed elsewhere.

Where an alternative approach is proposed full details are to be provided for assessment. Please note that the client is not duty bound to accept any alternative methodology and the proposals as detailed in the Employers Requirements are to be costed in the first instance.

Alternative costings and applicable savings to be detailed below.

Alternative Contract Works

○	£
○	£
○	£
○	£
○	£
○	£
○	£
○	£
○	£
○	£
○	£
○	£
Sub Total	**£**
Total	**£**
Proposed contract Saving	**£**_____

15. SECTION 15 - Tender / Contract Sum Analysis

The Contractors offer must include for all works shown and described within the Employers Requirements document as being necessary for the complete and proper execution of the Works.

KEY ACTIVITIES		Totals
Preliminaries		
○ Liaison with Stake holders	£	
○ Site Set up / establishment / Accommodation	£	
○ Management and Staff	£	
○ Full time CLA	£	
○ Site services and facilities	£	
○ Plant and Equipment / Temporary Works	£	
○ Insurances	£	
○ Collateral Warranties	£	
○ Provisional Sums	£	
Sub Total	**£**	
Design		
○ Sprinkler System Design and Calculations	£	
○ Structural Engineer (if required)	£	
○ MEP / Civil Engineer Inc Utility provider liaison and identification of services	£	
Sub Total	**£**	
Contract Works		
○ Sprinkler Pumps	£	
○ Electrical panels & works inc power, control, signal wiring, connection to existing	£	
○ Pipework	£	
○ Valves and associated equipment	£	
○ Sprinklers	£	
○ External Builders work (Southern Court – Connections, excavation, licenses, statutory approvals)	£	
○ General Builders work (bases, excavation, wall/floor penetrations, making good)	£	

- Fire stopping £
- Concealment / finishing £
- Working with Asbestos containing Materials (40 no apartments – provisional quantity only) £
- Civils / MEP works (inc excavation, disposal, builders work and reinstatement). £
- Setting to work, Testing and Commissioning £
- Certification, Drawings and Manuals £
- Other / Miscellaneous items £

Sub Total £

Total £

16. SECTION 16 – Tender Return Checklist

The Contractors offer will be judged on design intent and interpretation, quality control, programme and price. The Contractors offer must include for all works shown and described within the Employers Requirements document as being necessary for the complete and proper execution of the Works.

The Contractor is to submit with his offer the Contractors Proposals in the format required by this document which shall provide all necessary supporting information including but not limited to his design intention, the Contract Sum Analysis, his construction methods, a method statement, his programme for the design and construction of these and any other matters taken into account in his pricing for the Works.

For avoidance of doubt, the Contractor's tender offer is to be a "fixed price lump sum" offer subject only to adjustment in respect of Change Orders issued by the Employer's Agent.
The Contractor's Proposals to be submitted with the tender should include the following as a minimum:

a) Design, documents to include the following Contractor's Proposals: ☐
   - Design drawings.
   - Technical information.

b) A priced tender/contract sum analysis fully completed in the form prescribed together with supporting priced preliminaries and a 'builders' type' bill of quantities (including quantified schedules of rates for mechanical and electrical installations) for variation and valuation purposes. ☐

c) A Contract cashflow forecast. ☐

d) Schedule of manufacturers of equipment for mechanical, electrical and any other specialist installations. ☐

e) Details of major sub-contractors intended to be used in the Works. ☐

f) Method statements and risk assessments (general) ☐

g) Method Statements and Risk Assessments and proposed methodology for working with Asbestos ☐

h) Health & safety policy. ☐

i) Quality control policy and documentation. ☐

j) Overall detailed programme. ☐

k) CV's of key personnel. ☐

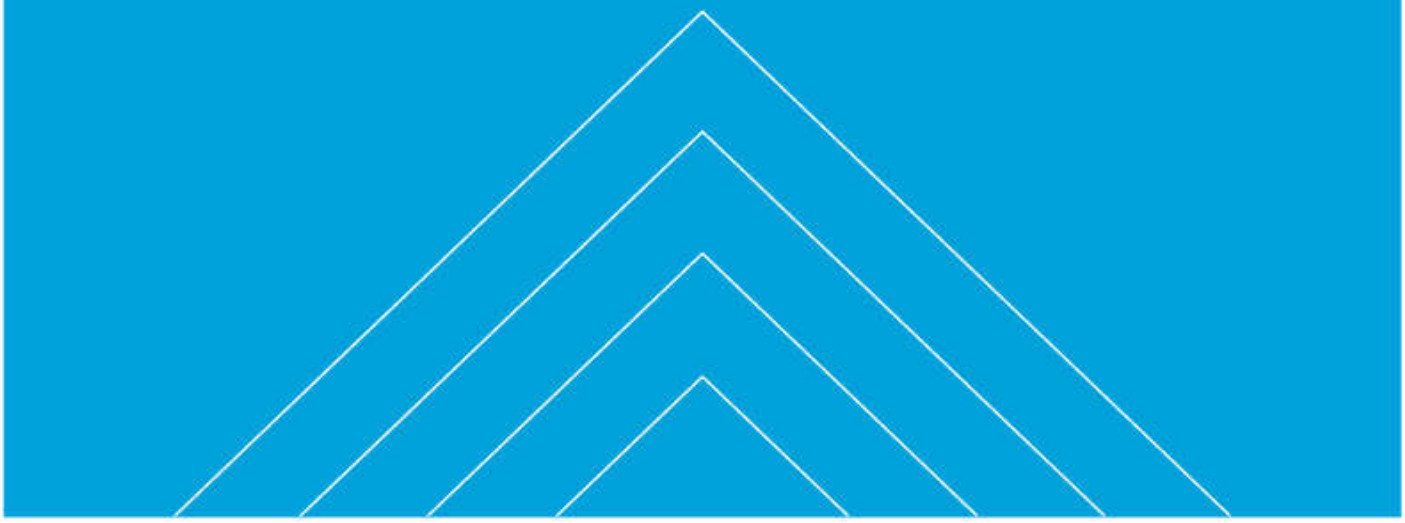
l) Insurance verifications. ☐

m) Project Examples ☐

n) Organogram. ☐

o) Alternative Tender (if applicable) ☐

Appendices



Appendix A.

Pre-Construction Information Pack

Appendix B.

Current Asbestos Information

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