

**PERFORMANCE SPRINKLER SPECIFICATION LEICESTER TOWER BLOCK**

**Supply & Installation and Maintenance of sprinkler systems**

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# INTRODUCTION

## BACKGROUND

### This procurement exercise is for both works and services, required to meet the City Mayors commitment to install sprinkler systems in all Council owned residential tower blocks. These shall include but not limited to St Leonards Court, Clipston House, Framland House, and Gordon House.

### Maxfield House has an existing sprinkler system which also requires ongoing testing and maintenance by a specialist Contractor. The procured contract shall include provisions for the ongoing specialist testing and maintenance of water suppression systems.

### The procured contract shall include provisions for the installation of other water suppression systems, which may be identified in future by fire risk assessment.

### Once installed, it is envisaged that the combination of sprinkler systems together with good compartmentation will support a normal stay-put policy for all dwellings within high rise residential accommodation.

# DEFINITIONS

## GENERAL:

### Where used in the documentation the following definitions shall apply and shall be interpreted as such:

* + - * + Works: All services shown on the drawings and described in the specification shall be deemed to be included in the Contract.
        + Drawings: The tender drawings.
        + Elsewhere: Detailed or specified elsewhere in other clauses, sections, shown on the drawings or contained in the specification or conditions of Contract.
        + Services: Services means the inclusion of one or more system.
        + System: All equipment, accessories, controls, supports and ancillary items, including supply, installation, connection, testing, commissioning, and setting to work necessary for that section of the Works to function.
        + Design process: All the activities necessary to convert design input into design output.
        + Review: Give notice and submit details to the Contract Administrator for his comment and review, which shall be granted in writing only. In the event of the Contract Administrator not accepting that submitted, resubmit alternative details for review or modify that submitted in accordance with the Contract Administrator comments. Review of any submittal by the Contract Administrator shall not mean that the Contract Administrator is responsible for the correctness of the submittal or its suitability for purpose and does not relieve any Contract responsibilities.
        + Competent person: A person, by reason of theoretical and practical training or actual experience or both, is competent to perform the task or function or assume the responsibility in question and is authorised to perform such a task or function.
        + Duct: An enclosed space specifically intended for the distribution of services, with direct access for personnel.
        + Trench: A covered horizontal service space in the floor or ground with access from above.
        + Cavity: A space enclosed within the elements of a building within which services are installed, e.g., the space between ceiling and floor above. See Building Regulations.
        + Service Areas: Includes areas within a building with limited finishes such as loading bays, car parks etc.
        + Concealed Services: Includes installations within ducts, trenches, or cavities.
        + Exposed Services: Includes installations outdoors or unprotected within service or occupied areas.
        + Terminal Units: Terminal units such as radiators, convectors, fan coil units, induction units, variable or constant volume air boxes and other like equipment.
        + Ancillaries: All specified fittings, accessories, inserts, test points, bracketing, terminal equipment connected to and installed in the engineering services system.
        + CIBSE: The Chartered Institution of Building Services Engineers
        + BSRIA: The Building Services Research and Information Association
        + IET: The Institution of Engineering and Technology
        + IOP: Institute of Plumbing
        + FRS: Fire Research Station
        + HSE: Health and Safety Executive
        + Commissioning: The advancement of an installation from the stage of static completion to working order to the specified requirements
        + Testing: The measurement and recording of specified quantifiable characteristics of an installation or parts thereof and includes off site testing.
        + Setting to work: The process of setting a static system in motion
        + Regulation: The process of adjusting the rates of fluid flow in a distribution system to achieve specified values
        + Environmental testing: The measurement and recording of internal environmental conditions.
        + System proving: the measuring, recording, evaluating and reporting on the seasonal performance of the systems against their design values.
        + System demonstration: Demonstrating the capability of the installation to achieve and maintain the specified performance criteria.
        + Fine-tuning: The adjustment of the system where usage and system proving has shown such a need and includes the re-assessment of design values and control set points to achieve the required system performance.
        + The tender drawings: Drawings produced to enable those tendering to interpret the design and to submit a tender for executing all or any part of the Works as defined elsewhere.

## DEFINITIONS OF TECHNICAL TERMS

### The definitions of technical terms associated with the engineering services installations are those included the latest edition of:

* + - * + CIBSE - Guides; Commissioning Codes; Technical Memoranda; Building Energy Codes; Lighting Guides; Application Manuals.
        + IOP - Plumbing Engineering Services Design Guide
        + BSRIA - Technical Publications
        + Loss Prevention Council - Rules for Automatic Sprinkler Installations
        + BS 7671 Requirements for Electrical Installations (IET Wiring Regulations)
        + British Standards, including Codes of Practice.
        + Statutory Acts.

# SCOPE

## Scope of the Programme

### The appointed Contractor shall provide a fully hydraulically calculated design using specially developed software.

### The Contractor shall install sprinkler systems in

* + - 1. St Leonards Court, 166 Victoria Park Road, Leicester, LE2 1XR
      2. Framland House, Pluto Close, Leicester, LE2 0UW
      3. Clipston House, Taurus Close, Leicester LE2 0UN
      4. Gordon House, Jupiter Close, Leicester, LE2 0US

### The Contractor shall co-ordinate the design and installation with existing systems and fire safety strategy

### The Contractor shall commission the installed system and provide as installed drawings and provide to the Leicester City Council (LCC) with an operations and maintenance (O&M) manual for the completed system.

### The Contractor shall provide a preventative maintenance and repair callout service for a duration of one year from the date of final commissioning.

## Scope of works:

### The engineering services included in the Works and covered by this Contract comprise:

* + - * + Mechanical services.
        + Sprinklers

### The Contractor shall note that whilst LCC have provided concept design and performance specification to RIBA Stage E (Tender Issue), the Contractor shall be responsible for completing the design development and the full and detailed design post tender.

### The Contractor shall take on the design responsibility for the design works produced by LCC its entirety.

### The Contractor shall include to develop the scope and performance criteria, design development and detailed design for the following systems: -

* + - * + provision of automatic control systems
        + building energy management systems
        + manual sprinkler controls
        + frost protection
        + water storage

### The above Design Package shall be submitted to the Contract Administrator for comment prior to the commencement of work on site.

### The scope of works for the Contractor at first inspection appears straight forward however the Contractor must include for many aspects which are unique to this installation as listed below: -

* + - * + Works shall be carried out in occupied buildings.
        + All liaison with occupants, leaseholders, and tenants.
        + The liaison and installation of the statutory and other authorities’ works including all the aspects of removal, relocation/diversion, and new supplies as part of the works. This includes the following: -

The liaison with site facilities staff and liaison with other representatives as necessary to co-ordinate the works in the context of an operational site

The extent and timing for site works and deliveries etc.

The out of hours work necessary to enable disruptions to be kept to a minimum during the Contract works.

This is in addition to the works on site as listed in the Contract documents and to that end the Contractor shall provide a full-time coordination/liaison engineer on site who must be named in the tender returns.

### The Contractor shall be responsible for the following: -

* + - 1. Fabrication drawings and the co-ordinated installations / working drawings and record drawings.
      2. Drain and vent point locations and pipework gradients in accordance with BSRIA Documents Application Guide 1/89 flushing and cleaning of water systems.
      3. Bracket and support detailed design and locations. All types, loads and locations must be declared to the Contract Administrator prior to installation for comment (10 working days)
      4. Details of Electrical wiring diagrams of all equipment supplied by the Contractor showing all interconnections between equipment to enable the necessary wiring to be undertaken.
      5. Automatic controls detailed design insofar as it is required to meet with full physical, functional, and operational requirements of the Engineering Specification. The Contractor shall be responsible for ensuring the full compatibility of the plant and equipment with the specified function. Where interfaces (relays or other devices or modifications to hardware or software) are required the design and incorporation shall be the Contractors responsibility.
      6. Design of elements of the scheme provided by the Contractor for self-weight and other applied forces/loading in reasonable use. In particular any buried tanks or pipe work will require designed anchorage encasement or foundations.
      7. Thermal expansion accommodation and anchorage, including provision of bellows or bends.
      8. System water capacities and chemical additives - and arranging of the facilities required by BSRIA Application Guide 8/91 pre-commission cleaning of water systems.
      9. Selection of all anti-vibration mountings to suit the particular application of the mounts.
      10. Final exact locations of control sensors detectors and thermostats.
      11. The final selection of control valves and commissioning/balancing valves
      12. Any other information/calculations as may become required shall be provided by the Sub-Contractor at the Contract Administrators request.

### The Sub-Contractors duties and responsibilities are briefly summarised below: -

* + - 1. Design and detailed design of all services based on the performance design produced by the Engineer. The extent of the Contractor's design responsibility is detailed elsewhere in this specification.
      2. Detailed design of performance specified work for specialist elements indicated in this specification and associated drawings.
      3. Produce all necessary builders work information / drawings and installation drawings.
      4. Submit to the Engineer for approval.
      5. The co-ordination of mechanical services with the building fabric and structure, including co-ordination with all other Building and Engineering Contractors and production of manufacturers details, fabrication details and drawings and final builders work information. All of the above information shall be submitted for comment prior to plant being ordered or works carried out.
      6. Lead role in co-ordination of all mechanical engineering services as described, with the building fabric and structure, including co-ordination with all other Building and Engineering Contractors.
      7. The complete supply and installation of all mechanical services and automatic controls including delivery, offloading and storage of all plant and equipment.
      8. The complete testing, commissioning, and setting to work of the entire mechanical installation and automatic control system.
      9. Compliance with all Regulations and standards as set out in this specification including liaison with and obtaining approval from regulatory bodies and statutory authorities where required by law to do so.
      10. Production of record drawings and maintenance manuals for the complete mechanical services and automatic controls installation and instruction in operation of plant to the Contract Administrator. (Draft copies to be available prior to handover).
      11. The Contractor shall also include to provide a complete User Guide for the building in addition to the O&M manuals that shall detail day to day efficient running of the building.
      12. The Contractor shall take the lead role in preparing and carrying out an air tightness/air permeability test for the building. The Contractor shall employ a specialist to carry out an air tightness test in accordance with CIBSE Code TM23. The Contractor shall include to carry out all preparatory work associated with the test including blocking up louvres/grilles/door transfer grilles etc. as recommended by the specialist.

### The above list is not comprehensive and is provided only as guide to assist the Contractor in assessing his responsibilities.

### The scope of works for the Contractor both the main and the Sub-Contractors will involve the coordination of the works and details at the site.

### The Contractor shall include specifically the following coordination during the works and in pre planning prior to starting on site.

* + - * + The coordination of the statutorily authorities work and installation.
        + The coordination between the services and structures both existing and new
        + The coordination of the Contractor design elements and the other trades
        + The coordination of the design development of the provisional sums and the expenditure of any contingency.
        + The coordination with the relevant authorities to gain approvals and consents including the fire officer, planning authority, building control, police and safety officers and local authorities.
        + The coordination of drawings and details to progress the works on site.

## WORKS BY OTHERS:

### Works by others include enabling works comprising:

* + - 1. Structural modification of floor slab to accommodate water tank.
      2. Specialist Diamond drilling
      3. electrical modifications to ensure the feed from the electrical supply to the pump controller is separate from the normal services feed and all other circuits.
      4. Supply and fit new Lighting to plant room.
      5. Integration of sprinkler system with existing Fire alarm system control panel and Dualcom remote monitoring systems
      6. Fire stopping
      7. Installation of control valve cupboards

### WORKS BY STATUTORY AUTHORITIES/UNDERTAKERS:

## WATER MAINS SERVICES:

### To be carried out by

* + - * + Severn Trent Water Authority

# REFERENCES

### The sprinkler system shall be designed and installed in strict compliance with

* + - * + all manufacturers’ instructions.
        + BS 9251:2014
        + BS EN 806 – particularly in relation to backflow prevention
        + BS 1710 for the identification and marking of pipework.
        + Water supply (water fittings) Regulations 1999
        + Approved Document B of Building Regulation for England and Whales
        + LGA “Fire Safety in Purpose built blocks of flats”.
        + Regulatory reform (Fire safety order) 2005
        + Control of Asbestos Regulations
        + BS7671:2018
        + Health and Safety at Work etc Act 1974
        + Control of Substances Hazardous to Health Regulations

# THIRD PARTY ACCREDITATION

## THIRD PARTY ACCREDITATION

### The Contractor shall be accredited by a UKAS approved 3rd party scheme for the design and installation of both ‘domestic and residential’ and ‘commercial and industrial’ sprinkler systems, as follows either.

* + - * + LPCB LPS 1048 Level 4, or
        + FIRAS FHC (full hydraulic calculation) Certified, or
        + IFCC FHC (full hydraulic calculation) Certified.

# PRIVACY OF INFORMATION:

## CONFIDENTIALITY:

### The information contained in the tender documentation shall be treated as private and confidential.

### No information related to the Contract works shall be given to the press or other media without the written permission of the Contract Administrator or Employer.

# TENDER REQUIRED

## CHECKING DOCUMENTS:

### The bidder shall check the tender documentation for obvious errors and omissions. Should any such errors or omissions be discovered the bidder shall inform the office issuing the documents immediately in writing in order that a correction may be issued before the date for submission of the tender.

## ALTERATIONS TO TENDER DOCUMENTS:

### No alterations or erasures to the text of any part of the tender documentation shall be permitted.

### Any tender containing such alterations or erasures may be rejected.

## UNQUALIFIED TENDERS:

### Other than as part of an alternative offer as described elsewhere, no account will be taken of any qualification or special conditions that a Tenderer may impose on their tender.

### Any tender containing such additional conditions may be rejected.

## ALTERNATIVES:

### Alternative equipment, specialists, or methods of carrying out the works in addition to those described in the tender documents may be submitted. Alternative offers shall be indicated on the appropriate document and include:

* + - * + Details of the alternative equipment, specialist or method proposed.
        + Full technical data for each such alternative together with details of any consequential amendments to the design and/or other parts of the works. Demonstrate compliance with any stated British (or other equivalent recognised International) Standards.
        + A detailed breakdown of any omissions or additions to the basic tender sum indicated on the appropriate document.
        + Confirm equivalence in quality, operation and space requirements to those items which have been specified by name. Demonstrate the proposed alternative is fully equivalent to the specified item and identify any constructional, cost, programme, maintenance, or other differences.
        + Include for all necessary measures to ensure alternative manufacturer's equipment and the total installation is equivalent to that specified.
        + The Tenderer shall include the costs necessary for re-sizing and reselection of associated equipment (including pipework, ductwork, and cable sizes) resulting from the proposed alternative together with all resulting design and coordination.
        + Alternative offers will only be considered if accompanied by a compliant tender.

## EXCLUSIONS:

### If any part(s) of the Works cannot be tendered as defined in the tender documents, the Contract Administrator must be informed as soon as possible, defining the relevant part(s) and stating the reasons for the inability to tender.

## INTERPRETATION OF THE TENDER DOCUMENTATION:

### Should there be any doubt about the precise meaning of any item for any reason whatsoever, the tenderer must inform the office of issue of the tender documents in writing in order that the correct meaning may be given.

### Any clarification of the meaning or intent shall be issued in writing only and no other means of communication shall be valid. All Tenderers will be notified of any such explanation.

### No liability will be admitted, nor claim allowed, in respect of errors in a tender due to mistakes that should have been rectified in the manner described above.

## INDICATIVE DRAWINGS

### Drawings are provided are indicative and for tender purposes only, final design shall be to the Contractor’s own specialist design and installation.

* + - * + BDT/LF/06 dwg1 (St Leonards Court)
        + BDT/LF/06 dwg2 (Framland House)
        + BDT/LF/06 dwg3 (Clipston House)
        + BDT/LF/06 dwg4 (Gordon House)
        + BDT/LF/06 dwg5 (The Leys)

### These drawings are marked “For Tender” and are for guidance only and shall be checked, amended where necessary, and approved by the appointed sprinkler design and installation Contractor. The sprinkler head positions are indicative of the requirements of BS9251 and are subject to further detailed design by the appointed Contractor and shall be co-ordinated with existing services and fixings by the appointed sprinkler design and installation Contractor.

### Sprinkler pipework routes are indicative only and are intended to help inform the appointed sprinkler design and installation Contractor.

## SCHEDULE OF DRAWINGS AND SUBMITTALS:

### The Contractor shall provide a schedule of all proposed drawings and submittals required for comment. The schedule shall be provided one week from Contract appointment.

### Indicate as a minimum the following information on the schedule:

* + - 1. Drawing number and revision number
      2. Drawing title and service
      3. Scale
      4. Latest date required on site and/or for manufacturing purposes.
      5. Date required for final comment.
      6. Date for submission for comment
      7. Date of commencement of drawing production

### The schedule shall be updated as necessary on a regular basis at intervals agreed with the Contract Administrator during the Contract period.

### The programme for production of drawings and other submittals should include the necessary time for:

* + - * + Submission
        + Examination
        + Alterations and re-submission in the event of the initial submission not being accepted.
        + Final issue
        + Allow adequate time in the programme in order not to cause delays.
        + The full extent of all submittals shall be indicated in the schedule.
        + Group submittals for a particular part of the building or building engineering service as agreed with the Contract Administrator.

## PREPARATION OF DRAWINGS:

### The Contractor shall agree with the Contract Administrator a document numbering system prior to preparing any documents.

### All drawings shall be prepared using a computer aided draughting system and the software used to produce drawings shall be approved prior to commencement of drawing production.

### Each service shall be represented by a separate layer/overlay, for subsequent easy modification.

### Prior to commencement of drawing production agree the sequence of layers, pen colours and sizes.

### AutoCAD drawing files shall be.

* + - * + DWG
        + and converted to Adobe PDF format, drawing issues shall comprise both DWG and PDF
        + Drawing plots shall be "A" size to British Standard, with an agreed logo/title block.
        + The standard drawing size is to be A1.
        + Scales used on drawings shall be selected to clearly convey the proposals.

## PLANT ROOM AND SWITCH ROOM DRAWINGS, SCHEDULES AND SCHEMATICS:

### Provide good quality plant and switch room drawings, schedules, schematics, and instructions and hang in the respective plant room or any other appropriate location, or, where directed by the Contract Administrator.

* + - * + Protect surfaces of such information by
        + Pressure lamination
        + Framing under glass or other rigid, transparent, cleanable, and protective surface
        + Hang using suitable fixings and provide backboards if necessary.
        + A sample shall be submitted for approval to the Contract Administrator prior to commencing production.
        + Schematic drawings of circuit layouts showing:
        + Location, identification, and duties of equipment
        + Location of controls devices
        + Circuit layout
        + Valve schedules in the form of printed sheets showing the number, type, location, application/service and symbol, and normal operating position of each valve.
        + Control schematics.
        + Location of mechanical and electrical plant and equipment items.
        + First aid instructions for treatment of persons after electric shock.
        + Location of isolating switch for electricity supply.
        + Location of main incoming gas valve serving gas meter and isolation point.
        + Location of main incoming water main and isolation point.
        + Location of sprinkler fire main control valve.
        + Emergency operating procedures and telephone numbers for emergency call out service applicable to any system or item of plant and equipment.
        + Location of metering facilities.
        + All other items required under Statutory or other regulations.
        + Prepare electrical drawings in accordance with BS EN 61082-1.

## BASIS OF CONTRACT:

### The Contract shall be on schedule itemised lump sum for each building based on the specifications and drawings for each building.

## PROVIDE EVERYTHING NECESSARY:

### The Contractor shall provide everything necessary for the proper execution and completion of the Contract works to the true intent and meaning of the Contract documents.

### Details of construction or materials which have not been referred to in the Contract documents but the necessity for which may reasonably be implied or inferred from the said documents, or which are usually or essential to the completion of the Works, shall be installed with no additional cost.

## A LIST OF PROPOSED MANUFACTURERS/SUPPLIERS:

### A list of proposed manufacturers/suppliers of products, equipment and plant, including all items for which the choice of manufacturer/supplier is at the discretion of the Sub-Contractor, must be submitted with the Tender.

## SELECTION OF MANUFACTURERS/SUPPLIERS:

### Where manufacturers, suppliers or installers of products are not identified by name select products that comply in all respects with the specification and demonstrate such compliance.

* + - 1. As part of the tender submission.
      2. Where manufacturers, suppliers or installers of products are identified by name, or names, but no reference is made to "or approved" equivalent use these exclusively.
      3. Where manufacturers, suppliers or installers of products are identified by name, or names, but reference is made to "Or approved" equivalent alternatives may be selected and shall be submitted to the Contract Administrator for approval.
      4. Where manufacturers, suppliers or installers of products are identified by name, or names, but reference is made to "Or approved" equivalent the submitted tender must include the named or one of the named suppliers. Alternatives may be selected and shall be submitted to the Contract Administrator for approval, separately.

## SUBLETTING:

### Where it is proposed to sublet any portion(s) of the Works a schedule must be submitted with the tender. The schedule should define such portion(s) and give for each the details of the proposed company.

# PRELIMINARY WORK AND CONSULTATIONS

## Consultations

### The Contractor shall consult with:

* + - * + Local Water Authority in respect of mains supply of water.
        + all relevant AHJs to agree and confirm the final category of system and design density.
        + all relevant AHJs and the LCC to agree where necessary the need for system resilience measures.
        + Western Power Distribution in relation to the likelihood of power outages
        + LCC in relation to the tenancy of vulnerable tenants and leaseholders
        + LCC’s nominated fire alarm maintenance company.
        + A structural engineer

## FIRST AID

### The Contractor must comply with the requirements of the Health and Safety (First Aid) Regulations 1981 nominate an 'Appointed Person' and keep on site a First Aid Kit.

# PROGRAMME

## Programme of works

### The order in which the sprinkler systems shall be installed shall be determined on a fire risk basis determined by the latest fire risk assessment for each building.

### At the time of writing the order of installation is

* + - 1. St Leonard’s Court
      2. Framland House
      3. Clipston House
      4. Gordon House

## CONTINUITY OF THE WORKS:

### No undertaking is given that the works will necessarily be able to proceed continuously.

### No claim will be allowed for discontinuity of work due to the necessity to conform to the Contract programme.

# DESIGN

## Design Principles

### In compliance with BS9251 the Contractor shall

* + - 1. Ensure that the design and installation of the sprinkler system is compatible with an integrated fire safety system for the whole building.
      2. Ensure that the design and installation of the sprinkler system does not in any way undermine or conflict with the existing fire safety features or fire safety strategy for the whole building.

### The sprinkler system shall be design and installed for the protection of life in the event of a fire.

### The sprinkler system shall be design in strict compliance with the manufacturer’s details and recommendations.

### The Contractor shall design the sprinkler system such that most maintenance and operation functions can be carried out from the common parts of the building.

### The Sprinkler system shall be a wet pipe system that is permanently charges with water.

### Sprinkler system be Category 2 as defined by BS9251:2014

### The Sprinkler system shall be distributed using pipe of robust metal construction.

### The use of CPVC pipework shall not be accepted.

## DIMENSIONS:

### Where installations are dependent upon site dimensions ensure that these are available before proceeding with the Works.

### Dimensions shall not be scaled from drawings.

### Where dimensions are indicated on drawings the Contractor shall check these on site, as appropriate, to ensure building construction tolerances and manufacturing tolerances can be accommodated.

### Equipment should not be ordered or manufactured using dimensions indicated on the Tender drawings.

## DESIGN COSTS:

### The costs for undertaking the design activities and production of information during the design stage shall be stated in the tender.

## DESIGN WARRANTY:

### The successful tenderer will be required to complete a form of warranty in favour of the Employer prior to the commencement of the design stage. The warranty shall be the JCT version.

## VARIATIONS TO THE DESIGN BRIEF

### Great Care has been taken by the LCC, together with specialist independent consultants to ensure that the proposed sprinkler system design and installation supports a coherent overall fire safety strategy for the building.

### The detailed design of the proposed sprinkler system shall therefore be integrated into the existing life safety and fire safety systems and procedures. Any variation to the design strategy as indicated within the indicative drawings, shall be fully justified by the appointed Contractor using their assessment of risk, and shall make specific reference to the context of the proposed variation in relation to the overall fire safety strategy.

### All design decisions made by the appointed Contractor shall be based on verified information relating to the fire safety strategy, its installed features and management procedures. The Contract shall not make any design decisions using unverified assumptions.

## DESIGN OF RESILIENCE MEASURES

### Following their consultations, the Contractor shall identify any need for resilience measures, as supported by a robust assessment of risk. All risk assessments shall be made using gathered and verifiable information. The Contract shall not make any design decisions using unverified or unreasonable assumption of risk.

### The need for other resilience measures shall be judged in the context that:

### The installation of sprinklers is not being carried out in response to any specific un-due risk.

### Sprinklers are being installed in response to a Mayoral decision.

### LCC’s classification for the type of accommodation at St Leonards Court, Framland House, Clipston House, and Gordon House is general purpose residential which is not specifically allocated for vulnerable persons.

### As a practical solution intended to limit water damage in the event of a malicious or accidental activation, the Contractor shall ensure that the activation of sprinkler systems transmits a signal to the existing alarm receiving centre (ARC). All Sprinkler system signals sent to the ARC shall also raise a call to the Fire and Rescue Service, thus having secondary life safety benefits for any vulnerable persons (as described in annex B of BS9251).

### LCC has contacted Phillip Longstaff at Western Power Distribution, who has indicated that the chance of a power outage at Maxfield House is no more likely than anywhere else in the City of Leicester; the Contractor shall make further consultations as may be necessary.

## SPRINKLER DESIGN PARAMETERS

### Sprinkler system detailed design shall be a Contractor design item, however for tender purposes the following design parameters shall be used:

### The sprinkler system will be designed to BS9251: 2014 Residential and domestic sprinkler standards. For tender purposes the Contractor should assume a Category 2 system and also that the system is **NOT** a compensatory feature. The Contractor shall obtain confirmation from building control that Category 2 is acceptable for this building due to the height being over 18m, but for tender purposes assume that Category 2 is acceptable.

### Minimum discharge density should be 4.0mm/min for a single head operation or 2.8mm/min through each sprinkler operating simultaneously up to a maximum of two sprinklers in a single area of operation.

### The sprinkler system shall be capable of providing a minimum duration of supply of 30 minutes.

### The maximum area protected by each sprinkler will be 25m2 with sprinklers up to 5.5m apart and half the design distance away from any walls.

### Designers and installer shall be LPS1301 certificated.

### The protection is to dwellings and ground floor bin Stores only with pipework running through unprotected corridors.

### The Contractor shall retain responsibility for overseeing these works and ensuring that all elements are correctly connected.

### The fire sprinkler system shall be a wet pipe sprinkler system. The new pipework will be “black” steel pipe to BS EN 10255, medium weight, joined with malleable iron screwed fittings to BS143, steel welded fittings to BS1965 and mechanical fittings and joints. The pipework should be painted with a red oxide finish (or other similar colour to ensure that the sprinkler pipework is distinguishable from flammable gas or flammable liquid pipework).

### The above sprinkler system shall be designed, supplied, installed, and commissioned in accordance with all the appropriate standards, including but not limited to the following:

* + - * + The Building Regulations
        + Acts of Parliament and Local Byelaws
        + British and European Standards and Codes of Practice
        + CIBSE Guides and Codes
        + Building Control Officer's Requirements
        + Fire Officer's Requirements
        + The Water Supply (Water Fittings) Regulations
        + COSHH Regulations
        + Construction Design and Management Regulations (CDM)
        + ISO 14001 - International Environmental Management Standard
        + HVCA TR/20 Installation and Testing of Pipework Systems Part Five - Cold Water Service.
        + HSE Approved Document and Guidance L8 Legionnaires' Disease - The control of legionella bacteria in water systems.

## PRESSURE EQUIPMENT DIRECTIVE/PRESSURE EQUIPMENT REGULATIONS:

### All equipment and assemblies which fall within the scope of the Pressure Equipment Directive (PED) 97/23/EC, implemented in the UK through the Pressure Equipment Regulations 1999, must be tested by the manufacturers, and be certified as compliant with the Directive. Such compliance shall be evidenced by displaying the appropriate CE Mark on the equipment and assemblies.

### Only relevant equipment and assemblies certified as compliant will be permitted under this specification, and any substitution put forward must also be compliant with the Directive.

## LEGIONELLA

### The Contractor shall design the sprinkler system such that.

* + - * + Water, pipes and storage tanks, are shielded from possible sources of heat, to maintain a water temperature below 20°C.
        + Water droplet and aerosol formation is minimised during installation.
        + The production of aerosols during routine testing and maintenance is kept to a minimum.

### The Contractor shall provide all necessary information to the LCC and to the existing legionella testing provider and provide all necessary liaison such that the legionella monitoring system for the site can be updated.

## CALCULATIONS:

### All calculations must be presented in a logical format and prepared to a recognised and agreed format and be suitably indexed.

### All software programs used in the preparation of designs shall be agreed with the Contract Administrator prior to commencement of design activities. The use of unverified software must be declared, and the initial outputs justified by full and complete hand calculations.

### Calculations that are preliminary in nature, i.e., do not form part of the final submittal, are to be referenced independently and clearly indicated 'Preliminary'.

### The Contractor shall state the methodology, formulae, design criteria, assumptions and all design margins used in the calculations.

### Where necessary calculation sheets shall be accompanied by an annotated layout drawing identifying terminal, fittings and the particular sections of ductwork or pipework.

### Each calculation sheet, drawing or schedule shall clearly identify the originator, date of production, checker (who signs or initials) and date of check.

# HEALTH AND SAFETY, AND SUSTAINABILITY

## GENERAL:

### The Contractor shall conform to all safety rules, regulations, and codes of practice.

### The Contractor shall Check that facilities provided by others fulfil the obligations and advise accordingly.

### The Contractor shall provide all necessary first aid facilities.

### The Contractor shall appoint a "competent person" on the site to manage health and safety during construction.

### The Contractor shall ensure, so far as is reasonably practicable, that all persons employed on, or visiting, the site are adequately informed, instructed, trained, supervised and equipped such that they are able to carry out their duties safely.

### The Contractor shall ensure that safety helmets and other necessary protective clothing are available to site visitors.

### The Contractor shall ensure all safety helmets and protective clothing must comply with the latest British Standards.

### The Contractor shall ensure that only authorised persons are allowed into any construction area.

### The Contractor shall ascertain the accuracy and sufficiency of information provided by the Employer or the Contract Administrator to ensure the safety of all persons and the Works.

### Wherever possible labour-saving lifting devices shall be used, and materials sized to allow easy manual lifting.

### Social/Economic and environmental sustainability standards

* + - * + BS EN 15643-3.
        + BS EN 15643-4.

## CDM REGULATIONS:

### The management of health and safety is to be undertaken in conformity with the requirements of The Construction (Design and Management) Regulations 2015, and the corresponding Approved Code of Practice.

### For the avoidance of doubt, the appointed Contractor shall be the Principal Contractor and the Principal designer.

### The Contractor shall comply with the requirements of the CDM Regulations by

* + - * + Compiling risk assessments
        + Preparing method statements
        + Providing information on the Contract works that might affect the health and safety of any person.
        + Providing all necessary input to the Pre-Construction Information and Construction Phase Plan
        + Providing all necessary input to the health and safety file

### The Contractor shall supply any method statements and comply with all CDM procedures required by the CDM co-ordinator and the Principal Contractor.

## PRE-CONSTRUCTION INFORMATION AND CONSTRUCTION PHASE PLAN:

### Pre-Construction Information is included as part of the tender documents.

### The Pre-Construction Information provides information required by the CDM Regulations and highlights significant risks to health and safety identified during the design stage.

### The Contractor shall produce the Construction Phase Plan in accordance with the requirements of the CDM Regulations prior to the commencement of works on site.

### The Construction Phase Plan shall not be limited to those particular risks identified in the Pre-Construction Information but shall include consideration of all reasonably foreseeable risks.

### The Construction Phase Plan must be adequately developed, as far as is reasonably practicable allowing for any phasing of works, etc., in sufficient time to allow it to be submitted for approval prior to the commencement of any works on site.

### In the case of phased works the health and safety plan relating to the work content of any phase must be adequately developed and submitted for approval prior to the commencement of any work within that phase of the project.

### Where design activities are undertaken or there is involvement in the design of any elements of the Contract works co-operate with and provide information to the CDM co-ordinator in accordance with the designer's duties under the CDM regulations.

### Ensure that all Sub-Contractors are issued with copies of the Construction Phase Plan prior to the submission of their tenders and that they price for compliance.

### Ensure that all Sub-Contractors complete appropriate assessments of the risks to health and safety in respect of their works as required under applicable statutory legislation, including The Management of Health and Safety at Work Regulations, The Control of Substances Hazardous to Health Regulations and The Control of Substances Hazardous to Health (Amendment) Regulations 2003.

### The Construction Phase Plan shall be reviewed and revised as necessary in line with any information received or any changes in the requirements of the Contract works. Any changes shall be promptly advised to all relevant parties.

### The Contractor shall ensure, so far as is reasonably practicable, that all sub-Contractors, employees and self-employed persons who are at work on the construction of the project conform with the requirements of the Construction Phase Plan.

## COSHH REGULATIONS:

### The Contractor shall comply with The Control of Substances Hazardous to Health Regulations and The Control of Substances Hazardous to Health (Amendment) Regulations 2003.

### provide with the tender an assessment of the risks in undertaking the Contract works.

### The Contractor shall provide with the tender a method statement on the steps proposed to meet the requirements of the Regulations.

### Undertake COSHH assessments for all activities and substances provided or used on site to assess their potential health hazards.

### Copies of all relevant COSHH assessments must be issued to the operatives concerned and strictly monitored. Particular attention must be given to the use of glues and sealant.

### Where the use of substances falling within the scope of the Regulations forms part of the Contract works notify the Contract Administrator in writing, together with the additional costs, if any, of use of non-hazardous alternative.

### Ensure during the course of the Contract works, and under all circumstances, that all substances falling within the scope of the Regulations are positively so identified at all times and that they are transported, handled, stored, used and disposed of in strict accordance with their manufacturer's/supplier's recommendations.

### Where use of substances falling within the scope of the Regulations are required for the operation and maintenance of the completed Contract works, ensure that.

* + - * + Suitable facilities are available for the onsite storage of such substances and that all necessary warning/instruction notices are provided at the point of their storage and use.
        + Provision of any special protective clothing, eye protection and similar safety equipment for the operation and maintenance of the Works and in sufficient quantity for 1 year of operation
        + Employer's staff have been fully trained in the use, handling, storage, transport and disposal of the substances concerned prior to handover.
        + The type, use and control of the substances have been fully and correctly identified in the operating and maintenance manuals/health and safety file.

## ASBESTOS

### The Contractor is advised that LCC properties may contain Asbestos containing materials which may include the following: Vinyl Floor tiles, cement bonded Flues, Pipe lagging, old wiring, Fire breaks, Boxing, cement bonded and AIB ceilings and walls and bath panels. Please note this list is not exhaustive as other asbestos containing materials may exist within LCC buildings.

### The Contractor is advised that the Contract Administrator has access to the Housing Departments Asbestos asset register and will be able to assist the Contractor in the identification of properties which may contain asbestos. The Contract Administrator will supply any held details of known Asbestos Containing materials at the time of works orders, the council does not warrant that this should be taken as definitive and that the supplier should take due diligence prior to carrying out any work for the presence of any Asbestos.

### In the case of any Asbestos being found the Contractor shall immediately notify the Contract Administrator who will arrange for further investigation and sampling as necessary.

### The Contractor will be required to train all of its employees in asbestos awareness on an annual basis. Details of such training shall be provided to the Contracts Administrator prior to the commencement of works.

### **Working on textured coatings.**

Textured coatings are known to contain approximately between 3% and 5% Chrysotile (white asbestos) and the material is prone to friability unless properly sealed. Removal of coatings to concrete ceilings or removal of plasterboard or lathe and plaster ceilings with a texture plaster finish requires that the job must be carried out under controlled conditions. This requires a sealed enclosure under negative pressure in order to capture any loose fibres released during the removal process. Furthermore, the work has to be inspected and cleared by an independent analyst before the enclosure can be removed.

### Limited work such as drilling holes, painting, and encapsulating can be carried out on textured coatings provided appropriate dust control measures are employed. Full details on what is allowed can be found in the HSE **Asbestos Essentials Task Manual**. When forming holes, it is essential to have all necessary equipment readily to hand before the work starts. Minimum requirements for tools and equipment required will be an H type vacuum cleaner, captured head if required for larger holes, heavy gauge plastic sheet, duct tape, Disposable suit, PP3 mask, over shoes, damp rags, or wet wipes.

### For clarity, the Contract is required to make available, operate and maintain specialist H class vacuums to facilitate the works described in this Contract. H type vacuums shall be made available at each dwelling where works are being carried out, to ensure they are available is and when required. Failure to provide sufficient H-type vacuum availability shall require the Contractor to cease all a works, until such time that the proper machinery is made available.

### Carpets, furniture, and fittings must be protected from contamination, preferably with plastic sheet.

### The first line of defence is good dust control; PPE and RPE only protect the wearer.

### Shadow vacuuming on its own is only good for controlling dust generated from drilling holes up to 30mm as a maximum size. Holes any larger need an appropriate capture head used with an H Type cleaner to fully contain any generated dust.

### Paste can be used as described in the HSE Asbestos task manual, but the use of paste must only be used if an H type cleaner becomes unserviceable and not as a general use method.

### Repairing holes in textured coatings to plasterboard can also be carried out to a limited extent. If any loose coating around the hole must be removed, it can only be removed by shadow vacuuming. If the hole cannot be cleaned properly in this way the work should be passed to a licensed Contractor. Before any further repair any exposed edges must be sealed with PVA and only then can filling and finishing can take place.

### Under no circumstances must any asbestos containing material be re fixed or replaced. The use and re-use of asbestos has been illegal since November 1999.

### **References to Asbestos Essentials, Task manual.**

a) EM2 Training.

b) EM4 Using an H Type vacuum cleaner.

c) EM5 Wetting Asbestos materials.

d) EM6 Using PPE Personal Protective Equipment.

e) EM8 Personal Decontamination.

f) EM9 Disposal of Asbestos Waste.

g) A26 Drilling holes in textured Coatings.

h) A27 Inserting and removing screws in Textured Coatings.

i) A28 Removing textured coating from a small area.

### Any uncontrolled release of asbestos fibres is reportable under RIDDOR and has to be notified to the Asbestos Team without delay and they will notify an uncontrolled release to the central safety team. Any uncontrolled release will normally require background air monitoring to be carried out which will be at the discretion of the Asbestos Coordinator or other member of the Asbestos Team. The results of such monitoring will be used to decide what further action is required by the Council to return the situation to normal.

### Contact details.

a) The LCC Asbestos Coordinator can be contacted on 0116 454 5246

b) The LCC Asbestos Team can be contacted on 0116 454 5268

## RISKS TO HEALTH AND SAFETY:

### The Contractor shall submit a statement with the tender describing any significant and unavoidable risks which may arise because of carrying out the Contract works, and the measures proposed to safeguard the health and safety of operatives and of any person who may be affected by the Contract works.

# EXISTING FIRE SATETY FEATURES

## INTEGRATED SYSTEM:

### The Contractor shall provide integrated system combining the following fire safety sub-systems:

* + - * + Fire detection and alarm.
        + Mains water
        + water storage
        + potable water
        + water drainage
        + fire compartmentation
        + fire stopping
        + Fire evacuation policy being ‘stay put’.
        + Smoke ventilation
        + Means of escape
        + Emergency lighting

## ALARM AND INDICATING EQUIPMENT

### The sprinkler system shall interface with the building’s existing Part 1 fire detection and fire alarm system. The existing Part 1 fire detection and fire alarm system will also require upgrading and reprogramming by the LCC’s existing Fire alarm maintenance Contractor. The appointed sprinkler Contractor shall liaise and co-operate with the existing Fire alarm Contractor to ensure that all systems are fully integrated.

### The activation of the sprinkler system shall be detected by means of flow switch.

### Control valves serving each floor shall be in the communal area, so they are readily accessible by the landlord.

### A separate flow sensor shall detect the activation of sprinkler system within the ground floor bin room.

### Each flow sensor shall be linked to the indicating equipment such that in the event of sprinkler activation, the indicating equipment shall.

* + - 1. Display sprinkler activation message which is distinguishable from any automatic fire detection (AFD) activation,
      2. Display the floor number(s) or bin area in which any sprinkler activation has occurred.
      3. Activate all existing Part 1 audible alarms on the same floor.
      4. Transmit a separate sprinkler activation signal, distinguishable from the existing signal for automatic fire detection (AFD), to the existing Alarm Receiving Centre (ARC); this signal shall be achieved by use of the existing CSL Dualcom device.

### The Contractor shall liaise with the LCCs appointed Fire Alarm Maintenance Company to ensure that all modifications to the design and configuration of the sprinkler alarm shall match the building’s cause and effect’ and fire evacuation strategy.

## ALARM RECEIVING CENTRE

### The Contract shall liaise as necessary with the LCC’s appointed specialist Contractor to ensure that the appropriate instruction is given to the ARC, which they shall follow in the event of sprinkler system activation.

### While the fire Alarm Contractor shall re-programme the indicating equipment, it shall be the Sprinkler Contractor’s responsibility to verify that in the event of sprinkler activation.

* + - 1. The correct corresponding message is displayed upon the indicating equipment.
      2. The correct signal is received by the Alarm receiving centre.

# MATERIALS AND WORKMANSHIP:

## MATERIALS

### All materials, articles and workmanship shall be of the best quality and execution as detailed in the specification and drawings.

### All equipment and materials to be installed shall be new unless otherwise indicated.

### All equipment shall be installed in accordance with the manufacturer's written instructions and recommendations.

### All materials considered by the Contract Administrator to be unsound or not in accordance with the specification shall immediately be removed and properly replaced to the satisfaction of the Contract Administrator at no additional cost. All work carried out imperfectly or with faulty materials must be immediately removed and properly replaced to the satisfaction of the Contract Administrator at no additional cost.

### The manufactured articles specified shall serve as a quality standard.

### Where manufactured items are not specified by name submit with the tender all necessary details of proposed articles. The Contract Administrator shall approve these articles before their use is permitted.

## PROTECTION AND PACKAGING:

### All plant, equipment, materials, and prefabricated elements of the Works shall be properly packaged and protected against damage during delivery, storage and until fully, finally, and properly installed and set to work.

### The Contractor shall submit to the Contract Administrator a method statement on protection proposals for both stored and installed plant, equipment, and materials.

### Protection shall also include adverse effects of environmental conditions prevalent in the stored and installed location.

### Any plant or equipment subject to incorrect storage or inadequate protection will be deemed unacceptable for incorporation into the works and new plant or equipment will be required as a replacement.

### Damaged plant, equipment, and materials or that suffering from deterioration shall be replaced prior to handover.

### All plant, equipment and materials shall be protected against ingress of water and dust, formation of condensation, extremes, and rapid changes of temperature, building works and operations of others.

### All open ends of pipes, ducts, conduit, and trunking etc. shall be capped except when being worked upon.

### After removal of any temporary protection the Contractor shall paint parts liable to corrosion.

### Filter media shall only be installed when the plant items concerned are commissioned and tested.

### The Contractor shall install items such as grilles, diffusers, light fittings, switches, electrical accessories etc. as near to practical completion as practicable.

## PROCUREMENT OF MATERIALS:

### The Contractor shall allow for the procurement of materials and equipment from suppliers at such a time, and in such a manner as may be necessary to allow for the completion of the Works in accordance with the Contract programme.

### The Contractor must clearly state in the tender submission any foreseen difficulties with delivery periods for selected equipment or proposed alternatives.

### No additional costs resulting from non-compliance will be accepted by the Employer.

### BS 8534 - Construction procurement policies, strategies, and procedures. Code of practice.

## RATIONALISATION OF COMPONENTS:

### Similar items of apparatus and equipment shall be made and provided by the same manufacturer where practicable and corresponding parts of all apparatus and equipment shall be interchangeable to reduce the need for different attention and spares.

## EU DECLARATION OF CONFORMITY:

### Provide an EU Declaration of Conformity prior to delivery to site.

### As requested by the Contract Administrator for all equipment.

### The declaration shall state the following as a minimum:

### The manufacturer or his authorised representative.

* + - * + Description of equipment.
        + The harmonised standard(s) that have been applied.
        + The signatory who has been empowered to enter commitments on behalf of the manufacturer.
        + The last two digits of the year in which the CE marking was affixed.
        + Where only a Declaration of Incorporation for component parts of the assembly can be provided advise all aspects to be considered to enable others to provide a Declaration of Conformity.

## ORDERING SCHEDULE:

### The successful Contractor shall prepare an ordering schedule for submission to the Contract Administrator that shall indicate the following data:

* + - * + Item of material or plant
        + Manufacturer
        + Date of order and reference number
        + Acknowledgement of order and reference
        + Delivery period quoted.
        + Date required on site.
        + Allowable programme float
        + Date delivered to site.

### The Contractor shall update and modify and submit the ordering schedule on a regular basis as agreed with the Contract Administrator. Indicate on the schedule any possible problems and when delivery to site has been achieved.

## BUILDERS WORK

### The Contractor shall produce his own builders work drawings to identify all major and minor builders work requirements.

### All major builders work (larger than 100mm diameter or 100mm x 100mm) shall be undertaken by the principal Contractor and provided to the appointed structural engineer for review / comment and approval prior to action at a site level.

### The Contractor shall undertake all minor builders work (smaller than 100mm diameter or 100mm x 100mm).

### All boxing in associated with the building services installations shall be undertaken by the Contractor in accordance with agreed architectural details. The Contractor shall ensure that where services are to be boxed in, they are installed in accordance with agreed pipework/ductwork centres etc.

### The Contractor shall provide, supply, and install all means of fire stopping to services penetrating cavity barriers and fire compartment walls, floors, ceilings, etc., in order to maintain the integrity and fire resistance rating of the fire compartment or cavity barrier; and in accordance with the Building Regulations and the requirements of the local Fire and Building Control Officer.

### All penetrations are to be temporarily fire stopped during construction and permanently fire stopped prior to handover. All penetrations are to be labelled and documented with both the temporary and permanent solutions with photographic evidence.

# SPRINKLERS SYSTEM OBJECTIVES

## PERFORMANCE OBJECTIVES

### A new automatic fire sprinkler installation shall be provided to the dwellings, and bin store to comply with BS9251:2014 Residential and Domestic Sprinkler standards.

### The installation of automatic sprinkler systems shall provide the following benefits for the building occupants and property protection:

* + - * + Limited and delayed fire growth due to fire suppression by sprinkler water.
        + Pre-wetting of the area surrounding the fire.
        + Reduced smoke production.
        + Reduced smoke temperature.
        + Increased time for safe evacuation.

### The Contractor shall size and select all zone valves, risers, distribution systems, sprinkler feeds and sprinkler heads, to be suitable for the applicable hazard / design density. The Contractor shall select all system components to be entirely suitable for the fire risk and compliant with the relevant fire codes as specified.

### The Contractor shall be responsible for the detailed design, procurement, supply, installation, testing, commissioning, demonstration, handover, and the production of detailed record documentation, including operating and maintenance manuals for the complete fire sprinkler systems. The Contractor shall produce a block plan and area legends for the new system, to include building plans, sizes of fire mains, valve set references/locations, design requirements, hydraulic requirements, and the installation date.

## SPRINKLER SYSTEM DESCRIPTION GENERAL

### The Contractor shall include for the carrying out of the following duties, which shall include the design, supply, installation, testing, commissioning, and setting to work of all plant, services and equipment as necessary to produce a suitable and fully operational system.

### A new dedicated sprinkler storage tank shall be provided at ground level within the Landlord’s Store area of the building.

### A new sprinkler feed shall be taken from the outlet side of the new water storage tank and run through the building to provide the sprinkler supply.

### A new mains water connection to the water storage tank shall be provided from the existing landlords water supply for the building.

### The storage facility shall be sized assuming that the tank is not being refilled during use.

### A duty and standby sprinkler pump will be installed in the tank room to serve the new sprinkler installation, Pumps will be controlled via a dedicated control panel provided by the sprinkler specialist to control all elements of the sprinkler installation.

### A sprinkler main shall rise to serve all floors with a lockable, full bore, isolation valve, pressure reducing valve, flow switch, ¼ turn drain valve and test valve on each floor.

### Bin stores will be protected and shall be complete with a separate flow switch.

### Flow switches shall be monitored via the building fire detection system and will also be monitored via a mimic panel located in the caretaker’s quarters.

### All electrical, power and control wiring from the sprinkler control panel will be completed by the sprinkler specialist Contractor.

### A single power supply provides power to the building’s electrical services; therefore, the Contractor shall ensure that.

* + - * + The power supply feeder from the mains supply to the pump controller shall be separate from the normal services feeder and all other circuits.
        + The electrical supply to the sprinkler pump controller shall be taken from the input side of the main switch on the incoming supply to the premises.

### Nominally Grundfos Firesafe Soft Start Interlock Panel

### All pipework in unheated areas will be lagged and trace heated.

### All pipework shall be encased along its entire length, using suitably sized Pendock MX profile with melamine finish or equal and approved. This shall be installed within the landlord areas and the apartments. The encasement shall be installed at one side of all spaces providing a ‘bulkhead’ style service route.

### Sprinkler heads shall be provided throughout all apartments as indicated on the drawings. The sprinkler heads shall be concealed side wall (horizontal) heads suitable selected to cover the room in which it is installed. The concealed element will be flush mounted to the side of the Pendock encasement or building fabric as required.

## GENERAL

### All Works shall be undertaken to leave a minimum dead leg.

### The modified elements of the system shall be flushed, filled, tested, commissioned, and set to work.

### Building elements affected by these works shall be made good, including appropriate repairs and fire stopping at redundant penetrations. These works shall be undertaken in line with the Client's requirements, including the following.

### The installation shall include appropriate fire stopping where pipes pass through fire barriers/fire compartments. Isolation valves shall also be installed either side of any partitions and the service shall be sleeved as appropriate.

# CENTRAL CONTROL/BUILDING MANAGEMENT

### PERFORMANCE OBJECTIVES:

### The Contractor shall note that whilst Leicester City Council have provided a concept design and produce a performance specification to RIBA Stage 3, the Contractor shall be responsible for completing the design development and the full and detailed design post tender.

### The Contractor shall include to undertake the design development and the full and complete detailed design, the supply, installation, commissioning and setting to work of all the Automatic Controls Services associated with the Leicester Tower Blocks project including, but not limited to, the following.

### Provision of a DDC (direct digital control) automatic control installation to allow safe and efficient operation of the installed mechanical systems.

## AUTOMATED CONTROLS DESIGN PARAMETERS:

### The automatic controls installation shall be designed and installed in accordance with all appropriate standards, including but not limited to the following:

### CIBSE Guides and Codes

### The Building Regulations (including Approved Document H)

### BS 671 and all other relevant British and European Standards

### COSHH Regulations

### Plumbing Engineering Services - Design Guide (Institute of Plumbing)

### Construction Design and Management Regulations (CDM)

### ISO 14001 - International Environmental Management Standard

### Main Contract Preliminaries

### Acts of Parliament and Local Byelaws

## SYSTEM DESCRIPTION:

### The Contractor shall include for the detailed design (to meet the stated performance requirements) supply installation and commissioning of the following:

### Wall and floor mounted control panels containing all necessary DDC out stations, controllers, associated components, power and controls wiring. Together with selector switches and status lights, to provide the required control functions for the specified central plant items systems.

### All necessary power and control wiring complete with dedicated containment.

### Installation of a remote pump fail indicator.

### All electrical installation standards and material quality will be in accordance with the standards and Y clauses contained within the electrical Building services specification.

### The Contractor shall allow to quote separately to complete the annual maintenance requirement associated with this installation for the first year and also forward costs for the second year’s maintenance Contract.

### The specification will be laid down as a performance specification the Contractor is therefore to allow for all design components and installation works to comply with the specified control operating parameters detailed within the control’s requirements section.

## CONTROL REQUIREMENTS:

### Generally, to develop the performance specification into a fully functioning design complaint with the system description and design parameters. To include but not limited to the following.

### The specification for the control system is laid down on a performance basis and allowance shall therefore be made by the Contractor for all necessary items to meet the required control functions whether specifically indicated or not. The Contractor shall therefore be responsible for the correct allocation and selection of all control system elements including control valves, control sensors, actuators and controls that are required to meet the specification.

### The Contractor shall allow for employing a controls specialist and for advising his specialist of all necessary system details as outlined in other sections of this specification, including calculated absorbed powers for motor starters, etc.

# SPRINKLER PLANT GENERAL

### The sprinkler specialist shall provide a standalone panel to control the operation of pumps pressure switches test circuits etc. to allow the operation of the domestic sprinkler system which shall be supplied delivered installed and commissioned by the sprinkler specialist. This panel shall be complete with a common alarm facility which will operate should a fault occur and alarm in the caretakers’ quarters.

### Each system (zone valve) shall be linked to the existing Fire Alarm System. Each system shall also have a flow switch adjacent to each valve set, linked back to the central system.

### Flow switches shall be of the vane type water flow switch, as manufactured by Potter or equivalent. All flow switches shall be connected to the alarm system with alarms fed back to the central control room. Water vane type switches shall be labelled to ensure the correct mounting orientation in direction with the intended flow. If drilling of the system riser is necessary to mount the flow switch, the drilled-out disk shall be retrieved and attached to the mounting U-bolt of the flow switch.

### All sprinkler systems shall be controlled from a sprinkler panel supplied by the sprinkler specialist all power and control wiring from the panel shall be completed by the sprinkler specialist.

# SPRINKLER SYSTEM COMPONENTS

## PATENT RIGHTS:

### The Contractor shall indemnify against all claims, costs, or expenses in connection with any patented, copy righted or protected articles supplied and used on or in connection with the Works.

### Any payments or royalties payable in one sum or by instalments shall be included in the Contract price and paid to whom so ever they may become due.

### In the event of any claim being made in connection with such patented or protected articles, the Contractor shall conduct any negotiations or litigation in connection with such claim at their own expense.

## MATERIALS USED:

### All materials supplied shall be a type that will not support bacteria.

### Substances publicised by the Health and Safety Executive, Building Research Establishment, British Standards Institution or other authorities or professional bodies as being deleterious to Health and Safety shall not be incorporated into any part of the Works.

### Deleterious materials shall not be utilised on any part of the Works. Deleterious materials include but are not limited to:

* + - * + halon/CFC's
        + asbestos or products containing asbestos.
        + urea formaldehyde or materials which may release formaldehyde.
        + materials comprised in whole or part of man-made and/or naturally occurring mineral fibres which have a diameter of 3 microns or less and a length of 200 microns or less or which contain fibres not sealed or otherwise not stabilised to ensure that fibre migration is prevented.
        + lead where the metal or its corrosion products may be directly ingested, inhaled, or absorbed.
        + polyurethane or polyisocyanurate foam
        + polychlorinated biphenyls (PCBs) or similar compounds
        + pentachlorophenol, lindane or tributyltin (TBT) oxide
        + extruded polystyrene other than low ozone depletion materials
        + any other substances generally known to be deleterious at the time of installation.
        + All jointing materials shall be of a type approved by the respective authority.
        + Warrant that deleterious materials are not incorporated in the Works.
        + Notify the CA, in writing, as soon as reasonably practicable of any material designated by the Building Research Establishment, British Standards or codes of practice as deleterious at any time during the Contract.

## SPRINKLER INSTALLATION CONTROL VALVES:

* + - * + Type Wet Valve
        + Application Alarm Valve
        + Manufacturer and reference Reliable
        + Standard
        + UL Listed
        + FM Approved
        + BS EN 12845.
        + Main control valve sets
        + Installations except life safety installations.
        + Life safety installations.
        + Single alarm and bypass arrangement.
        + Duplicate alarm arrangement.
        + Subsidiary control valve sets

## SPRINKLER HEADS:

* + - * + Type Refer to section 100.020 Design Parameters
        + Application Refer to section 100.020 Design Parameters
        + UL Listed
        + Standard - BS 9252:2006.
        + Sprinkler Pattern
        + Conventional pattern.
        + Dry pattern.
        + Flat spray pattern.
        + Flush pattern.
        + Horizontal pattern.
        + Recessed pattern.
        + Concealed pattern.
        + Sidewall pattern.
        + Pendent pattern.
        + Spray pattern.
        + Upright pattern.
        + Operation
        + Glass bulb.
        + Finish
        + Finish shall be appropriate to the environment in which the sprinklers are used.
        + Cover plate finish for flush sprinklers to be agreed (if required).
        + LABELs AFFIXED TO PENDOCK

## SPARE SPRINKLER HEADS:

### Provide and fit the requisite number of each type of sprinkler head utilized complete with suitable spanners for each type of head.

## WATER STORAGE

### Water storage tank shall be supplied by an LPCB registered manufacturer.

### Each building shall include nominally M100 Sectional tank with a maximum capacity of 13.6m³ and an effective capacity of 12.8m³.

## FLOW SWITCHES:

### Include for providing and fitting approved flow switches adjacent to each isolating valve complete with test valves and site glasses coupled into the common drainpipes included in this package discharging as shown on the system drawings.

## FLOW SENSOR OUTPUTS:

### Provide the following interface characteristics:

### Analogue output. As variable currents (4-20mA) or as variable voltages (0-10V). Ensure that it is possible to characterise analogue outputs to obtain a near linear response from the controlled items of plant.

### Digital output. Ensure that digital outputs can be selected as 'normally closed' or 'normally open’.

## MANUAL CONTROLS – VALVE SET

### The Contractor shall supply and fit one number sprinkler valve set in the communal areas of each habitable floor.

### Each valve set shall nominally include.

* + - * + Lockable test valve
        + Flow switch
        + Pressure gauge
        + Lockable valve
        + Non return valve.
        + Pressure reducing valve.

## Sprinkler Pipework Trace Heating

### All control equipment associated with the trace heating of sprinkler pipework within unheated areas will be provided competed by the sprinkler specialist and shall include for trace heating tape and a space mounted thermostat to ensure sprinkle pipework does not freeze.

## PUMP SETS

### Each installation shall include nominally two number Grundfos Firesafe R14 premium packages to act as duty and standby.

### Each package (duty and standby) shall nominally include.

* + - * + duty pump
        + suction and delivery pipework
        + 1 x suction isolation valve
        + 1 x delivery isolation valve
        + 1 x delivery check valve
        + 1 x flow switch mounted to delivery pipework for fire alarm signal.
        + 2 x pressure switches to operate pump as Jockey pump and as main fire pump.
        + 8 litre pressure vessels
        + 1 x drain point.

## CONTROL FUNCTIONS AND ROUTINES - CONTROL INTERLOCKS:

### Ensure that if the internal air temperature falls below the pre-set protection temperature, the heating system and related plant is turned on and heat supplied to maintain the air temperature at or above the protection set-point temperature.

### Nominally Grundfos Firesafe soft start interface

# FINISHES:

### The Contractor shall

* + - * + Ensure all equipment is designed to common installation practices.
        + Provide all equipment as a matching suite.

### The Contractor shall include within its design such features to create.

* + - * + An appealing aesthetic appearance
        + A resistance to accidental damage and deliberate vandalism

# COMPARTMENTATION AND FIRE STOPPING

### LCC has taken great care to ensure that the original compartmentation of the building is maintained, reinstated, and improved where necessary. The Compartmentation is a key feature of the fire safety strategy for the building.

### When installing the Sprinkler system, the appointed Contractor shall ensure that any penetrations shall be suitable fire stopped.

### Service penetrations shall be temporarily fire stopped using mineral fibre insulation.

### Final fire stopping shall be installed and recorded by specialist 3rd party accredited installer.

### NOTE: The use of Polyurethane expanding (pink) foam shall not be permitted.

# ORGANISATION AND MANAGEMENT

## STAFF:

### The Contractor shall employ a competent site-based project manager/engineer and supporting team dedicated to the project and not involved in the installation of the Works who shall have full authority to act in connection with the Contract works.

### Staff of sufficient number and competence in the opinion of the CA, shall be provided as necessary for design, drawing and technical information production, programming, tenant liaison and administration to ensure efficient and satisfactory execution of the Contract works.

### The Contractor shall provide all necessary superintendence during the execution of the Contract works. The said staff shall be in attendance on site during the whole time that work is in progress.

### The Contractor shall employ on the site suitable qualified engineering staff to oversee the Contract works from commencement to completion. The said staff shall be in attendance on site during the whole time that work is in progress.

### The Contractor shall be responsibility for all drawings and technical information production shall be undertaken by a nominated engineer.

### Curriculum Vita’s shall be submitted with the tender for all key staff.

### Any change made to the appointment of staff during the Contract works shall be agreed with the Contract Administrator with maximum notice being provided.

### If the Contract Administrator is of the opinion that any member of the site staff has been guilty of a serious breach of his duties, he may by notice require that person to be replaced within 1 weeks of the notification.

# USE OF THE SITE:

## NOISE AND NUISANCE:

### The Contractor shall ensure that the Contract works are undertaken with as little noise as possible.

### The Contractor shall take all necessary precautions to prevent nuisance from smoke, rubbish, and other causes.

### The Contractor's attention is drawn to the requirements of Sections 60 and 61 of the Control of Pollution Act 1974 which relate to the Control of Noise from construction sites, and to the British Standard BS 5228 1978 "Code of Practice for Noise Control on Construction and Demolition Sites”.

### The best practicable means shall be taken to minimise noise emission as defined in Section 72 of the Control of Pollution Act 1974

## Site Rules: Hours of work:

### The hours of work shall be limited to Monday to Friday, 8:00 to 18.00, including set-up and clean-up time.

### There shall be no working on Saturdays or Sundays or on the following days.

* + - 1. Public Holidays (including any amendments)
      2. Easter - Good Friday and Easter Monday
      3. May Day - Monday
      4. Spring Bank Holiday - Monday
      5. Late Summer Bank Holiday - Monday
      6. Christmas - 24th December plus the following 3 weekdays.
      7. New Year - New Year’s Day

### Unless prior agreement is given by the Contract Administrator or their appointed person. In the event of an excessive noise emission being detected, the Contractor will be expected to immediately remedy the situation at no cost to the Council.

### The Contractor shall use the best practicable means, as defined in Section 72 of the Control of Pollution Act 1974, and all subsequent amendments thereof, to always reduce noise to a minimum.

### Only the quietest suitable plant and machinery shall be used, properly silenced, and maintained in accordance with the manufacturer's instructions. The Contractor is expected to consider the location of plant on the site to conform with the noise level restrictions.

## POLLUTION

### The Contractor shall take all reasonable precautions to prevent pollution of the site, the Works and the general environment including streams and waterways. If pollution occurs, inform the appropriate Authorities and the CA without delay, and provide them with all relevant information.

### The Contractor shall fit all compressors, percussion tools and vehicles with effective silencers of a type recommended by the manufacturers of the equipment.

### The Contractor shall be responsible for the preparation, cutting and threading of pipework shall not be carried out within the residential tower block.

## CO-ORDINATION OF TRADES:

### The Contractor shall allow for co-ordinating the Contract works with the works of other trades and installations which may be on site during the period of the Contract.

## CO-OPERATION WITH OTHERS:

### The Contractor shall ensure that the Contract works integrates with that of others and that full co-operation is maintained during the execution of the Works with that of others.

### The Contractor shall co-operate with all tenants, landlord staff, tenants’ association, other Contractors, Sub-Contractors, suppliers, LCC and statutory undertakings in the execution of the Works.

### In the event of any extra costs being caused by failure to programme and arrange the execution of the Works so that it fully integrates with that of others, the installer of the Works may be liable for any additional costs thereby incurred.

### In particular, the following works carried out by others will require close and careful liaison and co-operation with CCTV Installers, Openreach, Mechanical Building Services Contractor, Access control/Intruder alarm specialist, CCTV specialist, fire detection and alarm specialist, fire stopping specialist, Leicestershire Fire and rescue service, Severn Trent Water Authority.

## USE OR DISPOSAL OF MATERIALS:

### The Contractor shall remove from the site any rubbish and debris arising out of the execution of the Contract works.

### Daily the Contractor shall

* + - * + Clear all rubbish and any debris arising out of the execution of the Contract works to a central area where others will remove it from the site daily.
        + Do not discharge any oil, noxious liquids, or gases and

all water discharged shall be reasonably free from impurities.

## SECURITY

### The Contractor shall ensure that its employees maintain the security of the Council’s premises. The Contractor shall comply with the security regulations including any made for the purpose of the General Data Protection Regulations May 2018 and all subsequent amendments thereof.

### The Contractor shall be responsible for the safe keeping of any keys, passes and other means of access provided to the Contractor by the Council, and shall only permit such keys, passes and other means of access to be given to the Contractors and employees whose names and addresses have been supplied to the Council and then only to the extent required for the purpose of this Contract. In addition, the Contractor shall ensure that Council is informed immediately of the loss of any keys, passes and other means of access, and shall reimburse to the Council any cost of replacement because of such loss.

### The Contractor will make sure that any tenanted properties are kept safe and secure during any works and that relevant health and safety aspects are undertaken for the safety of the tenant and or any other members of the public.

## WORKING AREA:

### Installation shall be carried out in internal areas which may include.

* + - * + Communal public areas (corridors and lobbies)
        + Restricted access communal areas (service risers)
        + Occupied private residences (leaseholder and tenanted dwellings)
        + Landlord restricted areas (plant rooms and other areas)

## ADVERTISING:

### No form of advertising will be allowed on any part of the site or the Works without written Contract Administrator approval.

## STORAGE:

### The Contractor shall provide weatherproof, safe, and secure storage shall be provided for all materials and equipment.

### All materials and equipment and materials shall be offloaded, stored, and transported in accordance with manufacturer's recommendations.

### All electrical equipment and components shall be kept dry and free from dust.

### Plug, cap or seal open ends on all ductwork, tubes, conduit, trunking, and associated equipment whilst in storage and during transportation to site.

### The Contractor shall provide racks to prevent distortion of pipes, conduit, and similar materials.

## PARKING

### The Contractor is responsible for arranging any necessary parking permits/highway licences and any costs associated with and should allow for this provision within their pricing. Information on parking (resident parking zones, etc.) can be found on the Authority’s website https://www.leicester.gov.uk/transport-and-streets/parking-in-leicester/get-a-parking-permit/.

## INTERFERENCE WITH TRAFFIC:

### Maximum facilities for access and transit shall be provided in all works that may interfere with the traffic on the roads, paths and footways, corridors, and stairwells. Should any part of the Works be executed in such a way as to cause unnecessary obstruction to traffic with neglect to remove or remedy the same forthwith when called upon to do so, then any obstruction shall be removed, and the costs recovered.

### Under no circumstance is the Contractor permitted to park on or across grassed areas and/or pavements (pedestrian paths) with their vehicles or vehicles associated the works.

### the Contractor shall be responsible for any damage caused to the highway, kerbs, grass verges, pavements, foot paths, hard-standing, patios etc., which is associated with and occurs because of the works. Any damage caused shall be reinstated to the satisfaction of the Authority and/or Highways/Street Environment Management Team all at the Contractors’ own expense.

## DAMAGE TO STRUCTURE, DECORATION, AND TENANTS BELONGINGS:

### The Contractor shall exercise due care and attention in carrying out the Works and be fully responsible for any damage caused to the structure or building finishes.

### The Contractor shall obtain permission from the Contract Administrator before any holes are cut in floors, walls, or steelwork, etc.

# BUILDERS WORK

## BUILDERS WORK:

### Where structural and/or architectural facilities or provisions, for engineering services are already indicated check that these are correct, satisfactory, and adequate for the purpose and confirm same in writing to the Contract Administrator.

## Timescale:

### Where the preliminary builder's work facilities issued prior to the award of Contract are not correct or insufficient, advise the Contract Administrator immediately and obtain further instructions.

### Where alternative equipment or materials has been offered that the Contract Administrator has accepted and which subsequently varies the works in any way whatsoever, then undertake the redesign of the associated builder's work.

## BUILDER'S WORK RESPONSIBILITIES:

### The requirements for and responsibilities about builder's work items are in addition to that normally provided as is normal custom and practice in the building industry.

### Confirm and amplify any information provided by the Contract Administrator.

### Provide builder's work information, appropriate to the stage of design development. Revise, supplement and/or issue final information, drawings/details for the actual requirements of the Contract works.

### Provide fully dimensioned drawings showing both size and position of builder's work making do reference to the structural engineering and architectural final dimensioned detailed drawings.

### As approved by the Contract Administrator Mark out on site, all cut holes and chases required, any pockets cast in concrete, any inserts, any built-in sleeves, or similar items.

### All builders work information shall be provided to comply with the programme and include sufficient time for the necessary approvals.

### All materials provided for fixing by others are to be included in the Contract works cost and supplied in accordance with the programme.

## SCOPE OF BUILDER'S WORK:

### Builder's work is included in the Contract works.

### The Contractor shall provide the following as necessary for the complete installation.

* + - 1. all supporting steelwork.
      2. brackets, clamps, and fixings
      3. Pipe, duct and cable sleeves through walls, floors, slabs etc.
      4. Supply all sleeves and hand-over to others for fixing.
      5. Making good around sleeves to provide correct fire barrier shall be by others.
      6. Pipe and duct penetrations through the building envelope
      7. Carry out final weatherproof flashing over pipe or duct angle flange.
      8. On ducts through roofs the provision and fixing of timber or metal up-stands will be by others
      9. Anti-vibration mountings
      10. Install Anti-vibration mountings.
      11. Undertake direct drilling fixings if applicable.

## MARKING OUT OF BUILDER'S WORK HOLES ON SITE:

### If approved by the Contract Adminstrator, mark on site actual locations of holes through walls, partitions, floors etc. also, chases, in non-fair-faced walls, etc. for conduits, pipes and the like in preference to providing drawings of such builder's work requirements. The Contract Administrator is to be given the opportunity to inspect prior to work being carried out.

### The Contract Administrator shall inspect all marking out on site prior to work commencing.

### The Contractor shall establish a method of working with the Contract Administrator to ensure the works may proceed without hindrance.

### The maximum size for a hole for marking on site shall be agreed with the structural engineer.

## BUILDER'S WORK INFORMATION TO BE PROVIDED:

### All builder's work drawings shall be fully dimensioned.

### Builder's work drawings to be provided shall be as follows:

* + - 1. Details of all bases for plant formed in concrete, brickwork, or blockwork.
      2. Details of all attendant builder’s work, holes, chases, etc. for conduits, cables, and trunking etc. and any item where access for a function of the installation is required.
      3. Details of all types of purpose made brackets for supporting service or plant/equipment.
      4. Details of all accesses into ceilings, ducts, etc.
      5. Details of all special fixings, inserts, brackets, anchors, suspensions, supports etc.
      6. Details of all sleeves, puddle flanges, access chambers
      7. The Contractor shall submit all necessary loads and thrust calculations with drawings/details.
      8. Refer to main Contract preliminaries, architectural and structural information.
      9. Refer to architectural and structural engineering drawings for full details.

## RISKS TO HEALTH AND SAFETY:

### The nature and condition of the site/building(s) cannot be fully and certainly ascertained before opening.

### The following risks are or may be present.

* + - * + PRE-CAST CONCRETE:

### Under no circumstances will holes be cut in pre-stressed concrete.

## LOCATION OF PLANTROOMS:

### The location of major plantrooms and respective major equipment contained therein.

### Refer to tender drawings.

## LOCATION PLATES:

### The Contractor shall provide and fit on the doorways into the sprinkler control valve chambers a location plate bearing the words "SPRINKLER CONTROL VALVE INSIDE".

## BLOCK PLANS:

### The Contractor shall provide and fit in the pump room a block plan showing the site together with areas of protection, location of control valves and water supply, hazard classification of each area concerned, maximum permitted height of storage, height of highest sprinkler above 'C' gauge and north point.

## PLANTROOM SCHEDULES AND SCHEMATICS:

### The Contractor shall provide good quality plant and switch room drawings, schedules, schematics, and instructions and hang in the respective plant room or any other appropriate location or, where directed by the Contract Administrator.

### The Contractor shall protect surfaces of such information by

* + - * + Pressure lamination.
        + Framing under glass or other rigid, transparent, cleanable, and protective surface.
        + Hang using suitable fixings and provide backboards if necessary.

### A sample shall be submitted for approval to the Contract Administrator prior to commencing production.

### Schematic drawings of circuit layouts showing:

* + - * + Location, identification, and duties of equipment.
        + Location of controls devices.
        + Circuit layout.
        + Valve schedules in the form of printed sheets showing the number, type, location, application/service and symbol, and normal operating position of each valve.
        + Control schematics.
        + Location of mechanical and electrical plant and equipment items.
        + First aid instructions for treatment of persons after electric shock.
        + Location of isolating switch for electricity supply.
        + Location of main incoming gas valve serving gas meter and isolation point.
        + Location of main incoming water main and isolation point.
        + Location of sprinkler fire main control valve.
        + Emergency operating procedures and telephone numbers for emergency call out service applicable to any system or item of plant and equipment.
        + All other items required under Statutory or other regulations.

# INSTALLATION WORKS

### EXISTING SERVICES OBLIGATIONS AND RESPONSIBILITIES:

### The Contractor shall

* + - 1. remove, re-route, or reposition existing services where necessary.
      2. Prepare method statement(s) for any removal, rerouting or repositioning of existing services including.
         * Risk assessments.
         * Permit to work.
         * Temporary works.
         * Method of removal.
         * Prepare method statement(s) for the maintenance of existing services.
         * Prior to commencement of works.

### The Contractor shall ensure existing services remain functional for the duration of the Contract including the provision of any additional work and materials necessary to maintain these existing services.

### The Contractor shall determine and define any physical site restrictions, constraints and hazards which may affect the undertaking of visual inspections, including health and safety matters, prior to commencement of the Works.

### The Contractor shall assess the general condition of existing services, based on visual inspection, indicating any faults or defects found and recommended where further specialist investigation is required. Prepare a report.

## Prior to commencement of works

### The Contractor shall survey the existing services installations to determine.

* + - * + Condition.
        + Function.
        + Size.
        + Material.
        + Location with respect to existing structure and architecture.
        + Safety.
        + Maintainability.
        + Hazardous substances/materials.
        + Compliance with current statutory regulations, codes of practice or normal good practice.
        + Determine the presence of deleterious materials relating to the services. Submit a report to the Contract Administrator.
        + Survey the existing structure.

### The Contractor shall incorporate the survey data into the installation information where applicable.

### The Contractor shall include the following information where applicable:

* + - * + Dimensional data.
        + All structural data.
        + Topographical data.

### Advise on the requirement for any urgent works or required action because of non-compliance and any parts of the services installation found to be potentially hazardous.

### Identify special training and other requirements that should be satisfied before commencement of the Works.

### Produce record drawings for the complete existing services.

## SITE MODIFICATIONS:

### Site modifications to assemblies shall not be made without written approval of the Contract Administrator.

### Where site modifications to assemblies are authorised undertake in accordance with manufacturer's certified drawings and instructions, the Contractor shall ensure that all modifications undertaken comply with the relevant standards and all test certification obtained.

## ISOLATIONS

### Isolation of services shall also be confirmed prior to cutting in.

### Isolation of supplies shall be undertaken in line with the Client's requirements, ensuring that sufficient notice of the works is provided.

## SPECIALIST DIAMOND DRILLING

### All service penetrations through concrete walls and floors shall be created using specialist diamond drilling sub-Contractor.

### Diamond drilling shall be carried out using non percussive techniques.

### Use specialist suppression and collection systems for both wet and dry drilling techniques.

### The Contractor shall give due regard to the fact that the site will remain occupied during all works, including diamond drilling works.

## DRYING OUT:

### The Contractor shall make do allowance in the sequence of the work to provide heat for drying out. This activity shall not relieve any responsibilities to hand over the installation in good order.

### The interim period from the time of commencement of use for drying out to the handover shall not be considered as constituting any part of the defect liability period.

# FIRE COMPARTMENTATION AND FIRE STOPPING

## EXISTING COMPARTMENTATION

### The Contractor shall ensure that existing fire compartmentation is maintained by providing new fire stopping solutions to all new service penetrations.

### The Contractor shall provide and install tested Fire Protection (fire stopping) systems, suitable for all new sprinkler pipework and cable penetrations in all existing fire separating elements and protected shafts.

### The Contractor shall supply and fit fire-stopping materials around existing new penetrations to limit the spread of smoke and fire through existing compartments in concrete/ masonry/ wood/ gypsum and drywall. These will include areas such as false ceilings/ basements, service risers, and roof spaces, all to create and re-instate barriers to limit the spread of smoke and fire.

## Contractor’s Membership of Specialist Trade Association (Installer)

### The Contractor shall ensure that the fire stopping is installed by a specialist installer who is a member of the Association of Specialist Fire Protection (ASFP) or the European Association for Passive Fire Protection (EAPFP) or similar specialist firestop trade organisation. As a condition of membership of the specialist trade association (ASFP or EAPFP), the specialist fire stopping Contractor must hold third-party certification for their installation work and services.

### The manufacturer of all Fire protection (fire stopping) systems, products and materials shall be a member of the Association of Specialist Fire Protection (ASFP) or the European Association for Passive Fire Protection (EAPFP) or similar specialist firestop trade organisation.

## Third-Party Certification of fire stopping installer

### The fire performance of fire stopping products, components or system is dependent upon satisfactory site installation. Therefore, to provide confidence in the appropriate standard of workmanship being provided, the specialist fire stopping installer shall be registered with a scheme of third-party certification.

### The third-party accreditation scheme (e.g., Firas, IFC, LPCB or BM Trada) shall be independent and accredited by a UKAS approved certification body.

### The fire stopping installer’s third-party accreditation and certification membership shall include:

* + - * + Verification of the test evidence.
        + Verification of the scope of application.
        + Auditing of offices to check.
        + that written procedures are in place to account for the correct use of staff.
        + records for the correct purchase of appropriate materials/products are present.
        + Use of staff whose competency has been evaluated.
        + Certificate of completion of works lodged with certification body.
        + Independent inspection of works by certification body.

## Third-Party Certification (product manufacturer).

### The Contractor shall ensure that all fire protection (fire stopping) systems, products and materials hold third party certification (e.g., FM Global, IFC, LPCB or BM TRADA). The Third-Party Scheme shall be tailored to the specific product type and shall concentrate the characteristics important to the fire performance of the product, evaluating its fitness for purpose.

## EUROPEAN TECHNICAL ASSESSMENT (ETA)

### The Contractor shall only use fire-stopping products, materials and components which have successfully undergone a European Technical Assessment (ETA) and carry the CE marking.

### The Construction Products Regulation requires that construction products on the EU market covered by a harmonised European product standard (h EN) should normally have CE marking. Passive fire protection products and fire stopping systems are not currently covered under a harmonised standard (h EN) and legally are not required to be CE marked. However, the Construction Products Regulations do allow for CE marking via a European Technical Assessment (ETA). All fire-stopping products shall be CE Marked to shows that each product has an ETA and is third party approved with a Certificate of Conformity. Therefore, the Council requires CE marking for all fire-stopping products because this represent the manufacturer's claim that the test requirements of all relevant European Directives have been satisfied for the purpose to which the product is being used. In achieving CE marking, all product used in fire stopping products shall have achieved an Assessment and Verification of Performance (AVCP) equivalent to System 1 (product certification and continuous surveillance by third party) or System 1+ (product certification, continuous surveillance and audit testing by third party).

## FIRE STOPPING TEST EVIDENCE

### All fire-stopping materials and systems shall:

* + - 1. Be CE marked and have a European Technical Assessment (ETA) based EN test standards.
      2. Be tested to BS EN 1363-1:2012 fire resistance tests: general requirements.
      3. Be tested to BS EN 1366-3:2009 fire resistance tests for service installations; Penetration seals.
      4. Be tested to BS EN 1366-4:2006 fire resistance tests for service installations; Linear joint seals.
      5. Be tested to BS EN 1366-5:2010 fire resistance tests for service installations; Service ducts and shafts and.
      6. Be classified to BS EN 13501-2:2016, Fire classification of construction products and building elements. Classification using data from fire resistance tests, excluding ventilation services.

## MARKING OF FIRE STOPPING

### The Contractor shall affix a label to each fire-stopping installation (or adopt a similar identification system) so that each fire stopping installation shall readily display the following information:

* + - 1. The specialist installer’s company name
      2. The Specialist installer’s company address
      3. The specialist installer company contact details including telephone number and email address.
      4. A unique reference number for the fire stop installation.
      5. Address of the fire-stopping installation
      6. A short description of the location within the building.
      7. The UKAS approved third-party accreditation scheme and membership number.
      8. The date of installation.

## FIRE STOPPING, DIRECT FIELD OF APPLICATION

### All fire-stopping installations shall be within the field of application determined by direct test evidence and as described in the Declaration of Performance (D o P).

### The Contractor shall ensure that all Fire Protection (fire stopping) Systems are designed to.

* + - * + allow for the effects of movement without compromising fire resisting properties.
        + Particularly in areas of mixed penetrations.
        + Meet the requirements of Approved Document B.
        + Maintain or increase the level of fire compartmentation.
        + Regulation 38 of Building Regulations (England and Wales).

## The Contractor shall provide before and after photographic images of the installation.

* + - * + ensure the correct location of the fire-stopping and penetration seals.
        + ensure that the proposed fire resistance periods are appropriate given the changes to the design.
        + ensure that the systems are appropriate for the end-use.
        + ensure that the systems have appropriate test reports/assessments showing it to be fit for purpose.
        + ensure that adequate documentation is provided for the building manager(s) so that they may inspect and maintain the fire-stopping and penetration sealing systems.
        + Loadbearing where required.
        + compatible with the substrate and building construction.
        + be safely accessible for installation and maintenance.
        + airtight or water resistant where required.

### The Contractor shall ensure that fire stopping systems are not used beyond the scope of them of the direct test evidence; the use of Engineering Judgment (EJ) shall not be permitted.

# FIRE STOPPING AND COMPARTMENTATION

## INSTALLATION OF FIRE STOPPING

### The Contractor shall provide and install tested Fire Protection (fire stopping) systems, suitable for service penetrations and all fire separating elements.

### All firestopping works shall be carried out by a specialist fie stopping Contractor that holds membership of the Association of Specialist Fire Protection (ASFP) or the European Association for Passive Fire Protection (EAPFP) or similar specialist firestop trade organisation.

### the specialist firestopping sub-Contractor shall be registered with a scheme of third-party certification for specialist fire stopping installers. The third-party accreditation scheme (e.g., Firas, IFC, LPCB or BM Trada) shall be independent and accredited by a UKAS approved certification body.

## SELECTION OF FIRE STOPPING PRODUCTS

### The Contractor shall undertake and detail all fire stopping and sleeving systems for the works where they pass through fire compartments.

### The Contractor shall

* + - * + provide fully dimensioned and annotated fire stopping drawings.
        + Detail and install fire barriers where a fire rated partition is penetrated.
        + Undertake and detail the weatherproofing of all services passing through external elements of the building.
        + Detail the final requirements for access to ceiling voids and builder's work ducts for maintenance and operation.

### Fire-stopping products, components and systems shall be selected and designed in strict accordance with the manufacturers direct test evidence and instructions; and in accordance with the guidance given in the latest edition of the ASFP Red Book or equivalent trade association guidance document.

### The Contractor shall ensure that all Fire Protection (fire stopping) Systems are designed to:

* + - * + allow for the effects of movement without compromising fire resisting properties.
        + Meet the requirements of Approved Document B.
        + Maintain or increase the level of fire compartmentation.
        + Be loadbearing where required.
        + Be compatible with the substrate, building construction, and service penetration materials.
        + be safely accessible for installation and maintenance.
        + Be water resistant where required.

### All fire-stopping products shall be CE Marked to shows that each product has an ETA and is third party approved with a Certificate of Conformity. In achieving CE marking, all product used in fire stopping products shall have achieved an Assessment and Verification of Performance (AVCP) equivalent to System 1 (product certification and continuous surveillance by third party) or System 1+ (product certification, continuous surveillance, and audit testing by third party).

### To ensure compatibility of fire stopping products used in combination, the Contractor shall supply and install fire stopping materials and products which have been sourced from a single manufacturer.

### The Contractor shall ensure that all fire protection (fire stopping) systems, products and materials hold third party certification (e.g., FM Global, IFC, LPCB or BM TRADA).

### The Third-Party certification Scheme shall be tailored to the specific product type and shall concentrate the characteristics important to the fire performance of the product, evaluating its fitness for purpose.

## MANUFACTURE OF FIRE STOPPING PRODUCTS

### The manufacturer of all Fire protection (fire stopping) systems, products and materials shall be a member of the Association of Specialist Fire Protection (ASFP) or the European Association for Passive Fire Protection (EAPFP) or similar specialist firestop trade organisation.

### As part of the third-party certification scheme the fire stopping product manufacturer will have had their factory product control comprehensively evaluated by an independent third-party certification body.

* + - * + Independent selection of samples for test.
        + Evaluation of manufacturer’s factory production control system.
        + Initial inspection of the factory.
        + Undertaking, or organising, the testing of the product at an independent laboratory.
        + An appraisal of all the test and assessment evidence to be able to define the certified field of application.
        + Undertaking audit testing/procedures including regular retesting or other regular quality checks.
        + Issuing a certificate.
        + Traceable labelling of product.

## FIRE STOPPING TEST EVIDENCE

### All fire-stopping installations shall be within the field of application determined by direct test evidence and as described in the Declaration of Performance (D o P).

### The Contractor shall demonstrate to the Council that selected Fire stopping system and materials have been shown by direct test evidence to be compatible with the proposed service penetration and existing building substrate and all other existing environmental conditions.

### All fire-stopping materials and systems shall:

* + - * + Be tested to BS EN 1363-1:2012 fire resistance tests: general requirements.
        + Be tested to BS EN 1366-3:2009 fire resistance tests for service installations; Penetration seals.
        + Be tested to BS EN 1366-4:2006 fire resistance tests for service installations; Linear joint seals.
        + Be tested to BS EN 1366-5:2010 fire resistance tests for service installations; Service ducts and shafts and.
        + Be classified to BS EN 13501-2:2016, Fire classification of construction products and building elements. Classification using data from fire resistance tests, excluding ventilation services.

## MARKING OF FIRE STOPPING INSTALLATIONS

### The Contractor shall affix a label to each fire-stopping installation (or adopt a similar identification system) so that each fire stopping installation shall readily display the following information:

* + - * + The Contractor’s Name
        + The Contractor’s company address
        + The Contractor ‘s contact details including telephone number and email address.
        + A unique reference number for the installation
        + Address of the fire-stopping installation
        + A short description of the location within the building.
        + The UKAS approved third-party accreditation scheme and membership number.
        + The date of installation.
        + WORKING IN TENANTED DWELLINGS.

# WORKING IN TENANTED DWELLINGS

## GENERAL

### The Contractor is advised that required installation requires works is to be carried out in occupied dwellings. The Contractor shall contact the tenant or leaseholder regarding access, and as required liaise with the Contracts Administrator.

### Leicester City Council requires the Contractor to maintain a high level of care and attention given to all members of the public such as to maintain a high level of trust and confidence between tenants, leaseholders, Contractors, and Leicester City Council.

### The Contractor is to allow for the moving around of any loose furniture or fittings, for the removing and re-fixing of any fixed fittings, equipment, floor coverings, floorboards, laminate floors etc. that may be necessary to satisfactorily carry out the works.

### The Contractor is to allow for the proper and efficient covering over of all floors, passages, stairs, work surfaces fittings, equipment, and furniture etc. to prevent such items becoming soiled or contaminated or otherwise damaged with dust and debris generated by the works. The Contractor shall carry out any necessary making good, reinstatement or replacement of any damaged items. The Contract shall settle any claim made for damaged items.

### Where necessary the Contractor shall use dust sheets to protect furniture and residents’ belongings. Dust sheets shall not be used on floors if they create a slip or trip hazard. The Contractor shall be required to use self-adhesive floor protection roll where appropriate.

### All dirt and debris arising from the work must be regularly removed from site.

## ACCESS TO DWELLINGS:

### In instances where contact with a resident has not been achieved the Contractor shall demonstrate to the Client that all reasonable efforts have been made. As a minimum the Contractor shall demonstrate in writing that the property has been visited and calling cards have been left at the property on at least three non-consecutive days. The Contractor will issue “no access” cards to resident, at no additional cost to the client. Each card will carry a unique reference number and the Contractor’s telephone number and email address with the instruction for the Customer to contact the Contractor to re-arrange an appointment.

### In instances when a resident refuses to provide access for works, the Contractor shall advise the Contract Administrator, in writing, that these works have been refused, giving the reason for refusal as communicated by the resident. The LCC shall not be liable for any Contractor costs because of any tenants’ failure to provide access.

### The Contractor shall make suitable allowance for all site visits required in connection with the delivery of this Contract. No additional payment shall be made to the Contractor for aborted works or aborted site visits whatsoever.

## PROTECTION OF SURFACES AND CLEANING

### The Contractor shall allow for the protection of all surfaces, furniture and fittings, the provision of dust sheets, roll & stroll type protector and the removal of items such as curtains etc., prior to commencing the works, together with the rehanging or reinstatement of the same. This will be a requirement for all rooms including those rooms where work is not taking place. Any defects/ damage should be noted prior to moving of any furniture, fittings, fixtures, furnishings, white goods, carpets etc. and brought to the attention of tenant, be signed, and agreed, it may be beneficial for the Contractor to take photos of any existing damage for reference purposes.

### When working in tenanted properties the Contractor shall ensure that at the end of each working day all debris, rubbish, materials, and other items associated with the works are cleared away (as far as is reasonably practicable) such that the tenant’s property is left in a tidy condition.

### Contractors are instructed to ensure that a full builder cleaning up operation takes place after each day's work. This is to include the complete vacuuming of all carpets and fixed furniture in the affected area. All cleaning equipment is to be provided by the Contractor.

### The Contractor shall remove and cart away all rubbish, debris and old materials not described as re-usable, this shall be done daily.

## DAMAGE TO RESIDENTS’ BELONGINGS

### Where residents’ home or articles are alleged to have been damaged by the Contractor and a claim for compensation is made against the Contractor, all such claims shall be resolved by the contactor within two weeks of completion of the works in the particular property, or within two weeks of the claim being made.

## WORKFORCE AND TENANTS

### All operatives shall be smart in appearance wearing suitable uniformed clothing with their company’s insignia clearly visible. No shorts are to be worn at any time during working hours without written permission from the Contract Administrator.

### It is not expected that operatives will answer tenant’s queries on general aspects of the works even less so other Authority matters, however the Contractor is to ensure that operatives:

* + - * + Always wear suitably approved ID badge,
        + are always polite and courteous,
        + identify themselves when challenged,
        + note tenant’s queries and to make referrals to their own supervisor.

### The Authority operates an enquiry, compliments & complaints service as well as conducting customer satisfaction surveys both of which assist in the monitoring of Customer Care. Contractors will be asked to investigate and compile reports relating to these within 10 days or less and where necessary satisfactorily deal with matter arising from said items.

## VISITING HOMES

### As a minimum requirement the Contractor will comply with the Authority’s standards

* + - 1. Standards
         * You will make appointments, in advance wherever possible.
         * Contractors will inform the tenant that they are employed by [name of Contractor] who is carrying out works for the Authority and he will also carry an identification badge.
         * When you arrive, you will explain who you are and the purpose of your visit.
         * You will be polite and friendly and conduct your business efficiently.
         * You will let the customer know what will happen next as a result of your visit.
      2. Out And About
         * The impression you create when visiting someone in their own home or business is very important.
         * If you are polite, friendly, and efficient in your work, you are more likely to gain the confidence and co-operation of the customer and present a good image of the Authority.
         * Creating a good impression is largely down to common sense, but there are a few points to remember:
         * Arrive on time. If you can’t, try to let them know you will be late.
         * When you arrive, explain courteously who you are and the purpose of your visit.
         * Don’t make personal remarks about the tenant’s home.
         * Don’t smoke.
         * Arrange for an interpreter to come with you if necessary. Avoid using neighbours or children to interpret, as the issues you discuss may be complex or confidential.
         * Be sensitive to, and try to observe, different customs.
         * If the customer asks a question that you can’t answer either give them the name of someone who will be able to help find the information on their behalf and get back to them.
         * If you promise to do something – do it!
         * If there is likely to be a delay, make sure the customer is kept informed.

## ID BADGES.

### All staff/operatives working for the Contractor (including sub-Contractors) who visit site shall always wear a suitably approved photograph identification badge. No staff/operatives will be allowed on site without an approved ID badge. Any person on site without an approved ID badge will be removed and not permitted back until one has been issued.

### The Contractor is to ensure that these are always worn and clearly visible upon their person when undertaking works for the Authority.

### Contractors must first submit a template to the Contract Administrator for approval. If the badge is not deemed suitable then the Contractor must make the necessary changes to show compliance at no cost to the Authority.

### Compliant ID badges will be credit card size with the following information.

* + - * + Company name
        + Photo (passport size)
        + Staff/operatives name
        + Job title

# SUPPLY OF INFORMATION:

### The Contract Administrator will provide supplementary information from time to time as may be necessary to enable the completion of the Works in accordance with the Contract conditions. Allow for such progressive release of further information by the Contract Administrator during executing the Works.

### To facilitate the orderly and timely production of all further information that shall be considered necessary, submit to the Contract Administrator for approval a programme indicating the progressive release of such information to enable the completion of the Works in accordance with the Contract conditions.

## INFORMATION PROVIDED BY OTHERS:

### Instructions, drawings, or other information required to be provided by the Contract Administrator will be provided in due time upon written request provided always that such information is not requested unreasonably distant from nor unreasonably close to the date upon which it is necessary.

### The Contractor shall provide written request to the Contract Administrator in good time for any information required.

## PROGRAMME:

### The Contractor shall provide the detailed programme within one month of the award of the Contract, clearly illustrating how the overall programme.

* + - * + Will be achieved within the Contract period.
        + Demonstrate compliance with the Main Contract programme.

### Due allowance is to be made in the programme(s) for, but not limited to, the following:

* + - * + Statutory authority approvals including Building Regulations.
        + The latest dates for release of final information required from the Contract Administrator.
        + Required method statements.
        + Ordering dates and manufacturing periods. The proposed delivery to site for each item of major plant to be clearly defined.
        + The period required for the production, approval, and issue of:
        + builder's work information
        + co-ordinated working drawings
        + installation drawings
        + manufacturers drawings.
        + Allow adequate time for the examination and approval by the Contract Administrator. Actual activities of production, adjustment, resubmission, and review must be identified.
        + Installation periods for each system
        + Work resulting from instructions issued in respect to the expenditure of provisional sums.
        + Concurrent work by other trades.
        + Any temporary works necessary for the completion of the engineering services installations.
        + Period required for operating the systems, load simulation tests and final adjustment.
        + Environmental load testing.
        + Period for instructing the Employer training.
        + Pre-commissioning, commissioning, and performance testing of the engineering services installations.
        + The period required and latest dates for the production, approval and issue of record drawings and operating and maintenance instruction manuals.
        + Provide programme information as
        + simple bar chart type.
        + critical path network.
        + Provide a separate and detailed commissioning programme for agreement with the Contract Administrator. Make do allowance for the following.
        + Commissioning, demonstration, and instruction procedures.
        + Provision of written notice before each (or series of) test, inspection, commissioning, or demonstration procedures are to be carried out, not less than 10 working days.
        + Demonstration to the Contract Administrator that test instruments and equipment are accurate.

### Allowance is to be made in the programme(s) for, but not limited to, the following:

* + - * + Leaseholder, Tenant, and tenant association consultation
        + Leaseholder, Tenant, and tenant association liaison
        + Leaseholder, Tenant and tenant association disagreement, refusal, or non-co-operation.
        + Access not being granted by Leaseholder or tenant.
        + Specialist diamond drilling
        + Specialist fire stopping of sprinkler pipe penetrations.

## INSTRUCTIONS AND VARIATIONS:

### All instructions shall be issued in writing and confirmed in a similar manner.

### Submit the cost of each variation showing the quantities and rates applicable for all materials, etc. employed in accordance with the agreed Contract schedule of rates.

### Submit to the Contract Administrator

### Within 10 working days of the receipt of written instructions.

### No work will be certified for payment until all the necessary information is provided.

## Delegation of duties

### The Contract Administrator may delegate certain powers and duties. The Contract Administrator will indicate the duties and powers of the following:

* + - * + Clerk of Works
        + Building Services Engineer
        + Site staff.

## PROGRESS:

### The Contractor shall at regular intervals as agreed with the Contract Administrator provide progress reports during the execution of the Contract works in addition to any other similar information required by the Contract conditions.

### The reports shall include:

* + - * + particulars of materials and equipment on site or installed.
        + site labour employed.
        + progress of the works
        + Record progress of the Works weekly on a copy of the programme.
        + Mark up for inspection and record purposes a set of the latest drawings as the works progress. The progress drawings shall be available for inspection by the Contract Administrator at any time.

## PHOTOGRAPHS:

### The Contractor shall provide progress colour photographs of the Contract works. The frequency, location, and photograph size shall be agreed with the Contract Administrator. All photographs shall be dated, and location stated.

### The number of prints of all photographs to be submitted to the Contract Administrator shall be 1 digital copy or 2 printed copies.

### No unauthorised photographs of occupied dwellings or the works therein or any part thereof shall be taken except with the permission occupant.

### Photographs shall not be published or otherwise circulated without the permission of the Contract Administrator.

### The Contractor shall provide photographs of all areas in which the Works are to be installed prior to the commencement of the Contract works. All photographs are to be numerically identified and cross- referenced to marked up plans showing the position, direction and field of view for the respective photograph.

### Photographs shall record the condition of:

* + - * + Existing services
        + Ceilings
        + Carpets
        + Wall finishes
        + Fixed equipment

## NOTICE OF OPERATIONS:

### Work that requires interruption or interference with the operation of any existing services or buildings shall not be commenced without prior written permission of the Contract Administrator. 10 days’ notice of intention to proceed with such works shall be given to the Contract Administrator.

### No unauthorised photographs of the site or the Works or any part thereof shall be taken except with the permission in writing of the Contract Administrator.

# INSPECTION AND TESTING

## INSPECTION BEFORE CONCEALMENT:

### Whenever work requiring inspection or testing is subsequently to be concealed, the Contractor shall give 10 days’ notice to the Contract Administrator so that inspections may be made, or tests witnessed before concealment.

## SIGN OFF PROCEDURE

### It is a requirement that 100% of all works are inspected by a Council Clerk of works (or other officer authorised by the contract administrator) in the presence of the Contractor. The Contractor shall make all necessary access arrangements with the tenant/Leaseholder for this joint inspection. The Clerk of works inspection shall be made as soon after completion as is possible.

## EQUIPMENT GUARANTEES:

### Plant and equipment guarantee shall commence at the date of practical completion and run for a minimum of 12 months after this date. Any costs associated with this requirement shall be included in the Contract price.

## TEST CERTIFICATES AND RECORDS:

### Ensure that test certificates include:

* + - * + project title
        + details and date of test
        + instruments used, serial numbers, calibration dates.
        + signature of those witnessing test
        + installers name
        + specific location of the item in the Contract works.

### The number of copies of each test certificate to be issued to the Contract Administrator

* + - * + (no) 2

### Time scale

* + - * + within working days of the test (no) 5

# PRICING AND COSTS

## GENERAL:

### This section details requirements for the pricing of the tender documentation and cost procedures during the Contract.

## TENDER PRICING DOCUMENT:

### Alterations and qualifications to the specification must not be made without the written consent of the Contract Administrator. Tenders containing such alterations or qualifications may be rejected.

### Costs relating to items in the specification that are not priced will be deemed to have been included elsewhere in the tender.

### The Tenderer shall complete all sections of the tender pricing document in full.

### Items described in the pricing document are abbreviated for the purpose of the schedule. The Tenderer is to make full allowance for all works associated with the installation of a particular element.

### Items entered in the pricing document shall be deemed to include all costs involved in carrying out the Works.

### Where required the Tenderer must identify separately the cost of all items specifically described under preliminaries.

### Provisional items will be adjusted at the final agreed rates when information is issued in respect of these items.

## SUBMISSION OF PRICED CONTRACT SPECIFICATION:

### The priced Contract specification must be submitted with the Tender.

## PROVISIONAL SUMS:

### Include in the Contract price the provisional sums detailed in the Pricing Matrix of tender.

### Any part or the whole of these sums unexpended will be deducted from the final amount due.

## OVERTIME AND ALLOWANCES:

### The Contractor shall Include for all necessary overtime and other expenses in the Contract price that may be necessary to complete the Works in compliance with the Contract programme. Payment will be made for the extra cost of overtime only if a prior written Contract Administrator instruction to work such overtime has been issued together with agreement to accept the costs involved.

## SUBMISSION OF FINAL ACCOUNT:

### The Contractor shall submit a draft final account to the Contract Administrator using the Contract procedures for checking purposes together with all the necessary supporting documents.

### Immediately after the practical completion of the Contract Works.

### Prepare the valuation of variations, omissions and provisional work forming part of the Works and where appropriate in accordance with principles defined in this sub-clause.

### The basis for the determination of such valuation shall be the Quantified Schedule of Rates prepared and submitted at the time of tender and accepted by the Contract Administrator.

### All valuations as aforesaid prepared shall be submitted using the Contract procedures to the Contract Administrator for approval.

# DEFECTS:

### The Contractor shall agree with the Contract Administrator a system of recording defects that should include.

* + - * + A reference to identify the defect.
        + Description of the defect
        + Remedial works proposed.
        + Agreement to remedial works proposed.
        + Confirmation of defect clearance

## DEFECTS LIABILITY:

### Liability for making good defects in the Works shall be for a period of 12 months from the date of issue of the certificate of practical completion for the installations.

### If it is necessary to replace or renew any portion of the Contract works as part of liability for defects, the defects liability period in respect of that portion of the Contract Works shall be deemed to commence from the date of such replacement or renewal.

### The Contract Administrator may require that new tests be carried out to demonstrate that the plant is continuing to work satisfactorily if the replacement or renewal may affect the efficiency of the Works or any portions thereof.

### In the remedying of defects in the Contract work, The Contractor shall take all necessary precautions to minimise the risk of damage to the buildings, the decorations, the fittings, and the equipment.

### In the event of such damage occurring Contractor shall bear the cost of replacement or making good, subject to the proviso of being granted the benefit of any settlement in respect of such damage accepted by the insurers under the insurance policies taken out in accordance with the requirements of the Contract.

### The Contractor shall agree with the Contract Administrator a programme for the carrying out and the completion of any work not finally finished at the time of the Contract Works being offered for acceptance and which does not prejudice the issue of a practical completion certificate. This work may be requested to be executed out of normal hours and no additional costs will be accepted for this action.

### The Contractor shall prior to practical completion submit a method statement for the approval of the Contract Administrator outlining how the defects which arise during the defect’s liability period will be rectified to ensure that disruption to the use of the building is kept to a practical minimum.

### No additional costs will be accepted for undertaking works executed out of normal hours.

### The Contractor shall prepare and submit records of failures or malfunctions of any part of the Contract Works during the defects liability period, together with details of remedial action taken, subsequent re-testing and the results.

### The Contractor shall notify the Contract Administrator of damage, failures, or malfunctions to the Contract Works demonstrably caused by incorrect operation of the installations, vandalism or other actions by a third party.

### The Contractor shall Inform the Contract Administrator in writing when all defects are finally rectified so that an inspection may be carried out prior to the issue of a Final Certificate.

## RIGHT OF ACCESS DURING DEFECTS LIABILITY PERIOD:

### Right of access to communal areas and plant rooms will not be unreasonably withheld, at all reasonable working hours and at own risk and expense, to any part of the Contract works for the purpose of inspecting the working of the installations or to the records of the working and the performance thereof.

### Access to tenants’ and Leaseholder’s dwelling shall be arranged by the Contractor in line with the relevant tenancy and leaseholder agreements.

### Subject to Contract Administrator approval, which shall not be unreasonably withheld, the Contractor shall undertake any tests considered necessary at own risk and expense.

### The Contractor shall liaise closely with the Employer's staff during the defect’s liability period and all necessary remedial works and/or rectification of defective materials and equipment. All such work shall be carried out in such a manner as to avoid or minimise shut-down time and inconvenience to the Employer, tenants, and Leaseholders.

# FIRE PRECAUTIONS:

### The Contractor shall take all reasonable fire precautions in respect of stores, workshops, and other installations.

### Where it is necessary to use any naked flame or welding equipment in executing the Contract works and where combustible materials are in use, the contractor shall obtain a permit to work as issued by the contract administrator. The Contractor shall provide adequate protection to other adjacent materials and personnel. Suitable fire extinguishers shall be readily available at the position where such work is proceeding.

# METHOD STATEMENTS:

### The Contractor shall submit method statements to the Contract Administrator prior to commencement of the Contract works for the following work activities.

* + - * + Each item of work
        + Working in communal areas
        + Working in tenanted homes
        + Threading pipe
        + Diamond drilling of walls and slab
        + Transporting materials up into the building
        + Transporting waste out of the building

# SUBMITTALS AND APPROVALS

## SUBMITTALS:

### Prior to any orders being placed the Contract Administrator shall review all drawings and manufacturer's details.

### Submittals shall be in a clear, definable, and easily read format with the specified technical details, notes, performance data and calculations where applicable all in the English language.

### Where drawings are to be examined the manufacturer's details shown on the drawings must have been previously approved.

### The Contractor shall include all costs for attending meetings associated with the submittal review procedure. Meetings will be held at locations as detailed in the Main Contract Preliminaries.

### The Contractor shall agree with the Contract Administrator where samples of materials offered for review are to be sent.

### The Contractor shall issue progressively drawings, calculations and submittals as agreed in advance with the Contract Administrator for review.

### All correspondence related to the examination and review procedure shall be directed through the office of the Contract Administrator.

### The timescale for review or comment or otherwise on all submittals shall be 10 working days.

## EQUIPMENT PERFORMANCE DETAILS:

### Details of the equipment selected for inclusion into the Works shall include the following information:

* + - * + Plant item description, reference identification and serial number.
        + Electrical input rating - kVA, Volts, Phase.
        + Operating mode - duty, standby, generator etc.
        + Starting characteristics - starter type, current, starts/hour and starting time.
        + Performance characteristics - (full load current and power factor).
        + Noise level.
        + Weight.

### The format of the information shall be as agreed with the Contract Administrator.

## REVIEW OF SUBMITTALS:

### Submittals will be examined for compliance in principle with the design intent.

### Such examination shall not relieve any responsibilities and obligations under the Contract.

### Examination of any submittal by the Contract Administrator shall not mean that the Contract Administrator is responsible for the correctness of the drawing or submittal or its suitability for purpose. These responsibilities shall remain as defined elsewhere and as the Contract.

### The Contractor shall allow adequate time in the programme for submittals with due allowance for incorporation of comments and resubmission in order not to cause delays.

### Each package shall contain all drawings, design calculations, support information, manufacturer's literature etc. necessary to facilitate examination by the Contract Administrator.

### Revised items on drawings shall be clearly indicated and annotated with a revision number/letter.

## MISTAKES IN SUBMITTALS:

### Examination and/or issue on a Contract Administrator instruction of submittals shall not be deemed to remove any duties, obligations, and responsibilities under the Contract.

### The Contractor shall be responsible for any error, discrepancy or omission in any submittal, presentation or drawing prepared or where others have prepared these for submittal.

## SAMPLES:

### The Contractor shall provide free of charge samples of material and workmanship proposed to be used in the Works. Samples shall include all alternative finishes available if required.

### In the case of articles of special construction, drawings may be temporarily substituted for the samples drawings when approved will be retained until the articles concerned are supplied, as a sample.

### The samples submitted and approved, shall remain the property of the Employer until the completion of the Contract.

### Approval of the Contract Administrator shall be obtained before equipment is placed on order.

### The Contract Administrator will undertake to approve samples within 2 weeks from receipt.

## Samples to be submitted:

* + - * + Pendock or similar approved pre—formed pipe boxing.
        + Plant room lighting
        + Fire stopping materials.
        + Labels
        + Flow sensor
        + Pressure sensor
        + Valves
        + Other pipe boxing including fixings, framing.
        + Concealed sprinkler head and cover
        + Threaded pipe
        + Sprinkler head
        + Maintenance valves, pipework, lock off and drain arrangements.

## FORM AND NUMBER OF SUBMITTALS TO BE PROVIDED:

### All submittals shall be issued to the Contract Administrator

### Provide drawn information in the following forms:

* + - * + Initial copies for comment
        + PDF format
        + CAD format
        + comply with BS EN ISO 13567-1
        + comply with BS EN ISO 13567-2

### Final copies for distribution

* + - * + print form.
        + PDF format
        + CAD format
        + comply with BS EN ISO 13567-1
        + comply with BS EN ISO 13567-2

### Provide copies of drawn information as follows:

* + - 1. Sketch drawings
         * Initial copies for comment (no) 2
         * Final copies for design team (no) 2
      2. Sketch Schematic drawings.
         * Initial copies for comment (no) 2
         * Final copies for design team (no) 2
      3. Detailed Schematic drawings.
         * Initial copies for comment (no) 2
         * Final copies for design team (no) 2
      4. Detailed design drawings
         * Initial copies for comment (no) 2
         * Final copies for design team (no) 2
      5. Co-ordination working drawings.
         * Initial copies for comment (no) 2
         * Final copies for design team (no) 2
      6. Installation drawings
         * Initial copies for comment (no) 2
         * Final copies for design team (no) 2
      7. Manufacturer's drawings
         * Initial copies for comment (no) 2
         * Final copies for design team (no) 2
      8. Builder's work information
         * Initial copies for comment (no) 2
         * Final copies for design team (no) 2
      9. Record drawings
         * Site record copy in print form (no) 2

## REVISIONS TO DRAWINGS:

### Where revisions take place either under the authority of a Contract Administrator instruction, or by written agreement with the Contract Administrator or when revised architectural, structural or services information is issued, all drawings shall be modified accordingly and shall be re-issued for construction purposes subject to examination by the Contract Administrator.

### The issue of revised drawings shall be in accordance with and about the agreed programme for construction and where time is available re-issues shall be grouped together, as agreed with the Contract Administrator.

# OBLIGATIONS AND RESPONSIBILITIES

## GENERAL:

### The Contractor shall

* + - * + Complete the design development.
        + Undertake the detailed design.
        + Undertake the responsibility for resolving final spatial co-ordination.
        + Undertake specific detailed design tasks as indicated elsewhere in the specification.
        + Prepare construction programmes for the Works as stated elsewhere and for design activities.
        + Co-ordination of the engineering services, with each other and with the building structure and fabric.
        + Undertake all on-site co-ordination with all other trades, disciplines, manufacturers, suppliers, tenants, and leaseholders.
        + Undertake the role of lead co-ordinator and agree principles of co-ordination with all parties concerned.

### The Contractor shall incorporate details provided by others into the

* + - * + Design development.
        + Installation information.

### The Contractor shall provide the following drawings as defined elsewhere.

* + - * + Detailed design
        + Co-ordinated working
        + Installation
        + Manufacturer's
        + Record
        + Carry out final detailed location and dimensioning of second fix equipment based on existing layout and site conditions.
        + Luminaires
        + Control devices
        + Electrical switches, outlets etc.
        + Grilles

### The Contractor shall prepare such reports, calculations and details as required for submission to any appropriate authority including the co-ordination of such information by suppliers, specialists, etc. needed to be included in any submission.

### The Contractor shall notify the necessary statutory Authorities (Building Control, Fire Officer, Environmental Health, building safety Regulator for high rise buildings etc.) in respect of all tests and demonstrations required.

### The Contractor shall arrange all necessary attendance, documentation to ensure full approval.

### The Contractor shall seek full statutory approval of the Works and arrange all necessary attendance, documentation to ensure full approval.

### The Contractor shall demonstrate that all plant and equipment incorporated into the works can be safely and easily maintained in compliance with current legislation.

### The Contractor shall provide compliance statements for all selected plant and equipment demonstrating full compliance with the specification prior to order and commencement of the Works. Highlight for review all non-compliances.

### The Contractor shall fully re-evaluate and take full responsibility for all parts of the design and building elements that may be affected by acceptance of alternative plant selections.

### The Contractor shall modify the final detailed spatial co-ordination for approved alternative equipment or materials.

### The Contractor shall supply, deliver to site, unload, store, protect and co-ordinate movement of all plant, equipment and materials required for the Works including lifting and hoisting.

### The Contractor shall fix and correctly install all plant, equipment and materials and ensuring that all associated works are correctly executed.

### The Contractor shall inspect all plant, equipment and materials as delivered or where specified at the manufacturer's works. Inspection and/or tests to be carried out at the manufacturers' works jointly with the Contract Administrator for equipment as stated elsewhere. Include for the travel and other expenses of the Contract Administrator for the inspection and/or tests to be carried out at the works.

### The Contractor shall prepare detailed electrical wiring diagrams of all equipment supplied showing all interconnections between equipment to enable all necessary wiring to be undertaken.

### The Contractor shall check software engineering and programming is completed so that systems function in the prescribed manner.

### The Contractor shall provide:

* + - * + Suitable welfare facilities.
        + Workshops.
        + Stores.
        + Removal of rubbish and redundant materials.
        + Clearance on completion.

### The Contractor shall seek utility company comments on the spatial requirements and builder's work associated with the provision of incoming services.

### The Contractor shall prepare supporting documentation, assist, and collaborate with others in liaison with Statutory Authorities with respect to Building Regulations approvals and compliance.

## BUILDER'S WORK OBLIGATIONS AND RESPONSIBILITIES:

### The Contractor shall check the spatial requirements and the adequacy of existing space restrictions.

### Where necessary, the Contractor shall provide builders work details based on the installation and manufacturer's drawings to facilitate the installation of the works. Provide fully dimensioned drawings showing both size and position of builder's work making do reference to the structural engineering and architectural final dimensioned detailed drawings.

### The Contractor shall detail all access requirements including access to false ceilings and ducts for maintenance.

### The Contractor shall provide fully dimensioned and annotated drawings.

* + - * + Undertake the redesign of the associated builder's work for approved alternative equipment or materials which subsequently varies the works in any way whatsoever.
        + Detailed design and locations of brackets and supports.
        + Submit details of all types of brackets and supports including fixing details.
        + Submit load and thrust calculations.
        + Design, supply, and installation of support for plant and services.
        + Steelwork.
        + Brackets.
        + Hangers and clips etc.
        + Plinths.
        + Inertia bases.
        + Detail and supply sleeve, inserts, frames, fixing anchors etc., and any other items required to be cast or built into the structures by others, including coordination of positions to such extent and accuracy to allow structural construction to proceed.
        + Detail design, supply, installation and co-ordination of all access platforms, access covers, gratings, ladders, stairs, rails and protecting elements required for future maintenance and operation of plant/equipment.

## MECHANICAL SERVICES OBLIGATIONS AND RESPONSIBILITIES:

### The Contractor shall be responsible for the design of sprinkler installations including provision of hydraulic calculations. To be undertaken by an approved designer and all in accordance with LPC Rules and legislative requirements.

* + - * + detailed design and final location of drain and vent points and pipework gradients.
        + Design of adequate provision for movement of services and systems due to thermal expansion and Contraction, hydraulic pressures and building movement.
        + Include cold draw calculations.
        + Proving of expansion loops in lieu of expansion equipment.
        + Detailed design and location of expansion anchors and guide locations including Fixing details.
        + Load and thrust calculations.
        + Calculate all final pump system resistances based on the final equipment selection and co-ordinated working and installation drawings.
        + Calculate system water capacities and quantities of chemical additives based on the final equipment selection and co-ordinated working and installation drawings.
        + Design and install all necessary temporary facilities for flushing, commissioning, etc.
        + Undertake the final sizing, selection, and determination of final locations of commissioning sets including any proportioning of mains losses, etc. based on the final equipment selection and co-ordinated working and installation drawings.
        + Final selection of system(s) pressurisation units and expansion vessels based on the final equipment selection and co-ordinated installation drawings.
        + Final selection and location of control valves, etc. to achieve the specified function and to suit the characteristics of items served and final system configurations based on the final equipment selection, co-ordinated working, and installation drawings. To include required access requirements.
        + Determining the extent and design of trace heating systems for frost protection of relevant services and temperature maintenance on domestic hot water systems.
        + Detail design of
        + Obtain all necessary statutory approvals.
        + Final detailing and confirmation of the location and sizes of pipe connections
        + Final selection of all anti-vibration mountings to suit the application of the mounts.

## PUBLIC HEALTH SERVICES OBLIGATIONS AND RESPONSIBILITIES:

### Where necessary the Contractor shall modify distribution systems and equipment capacities as may be required because of final detailed spatial co-ordination.

## AUTOMATIC CONTROLS/BMS OBLIGATIONS AND RESPONSIBILITIES:

### The Contractor shall provide a detailed design of automatic controls systems insofar as it is required to meet with the operational, functional, and spatial requirements of the specification.

### The Contractor shall check the full compatibility of the plant and equipment with the controls system and specified function.

### The Contractor shall prepare:

* + - 1. Detailed BMS point schedules.
      2. Wiring schematics.
      3. Control panel labelling details.
      4. Equipment schedules for the complete Works.
      5. Design and incorporation of all interfaces (including relays or other devices or modifications to hardware and/or software).
      6. Undertake the dimensioning and final installation details of automatic control panels to suit the detailed requirements of the agreed supplier of the control’s equipment including provision of safe operating and maintenance clearances and ensuring acceptable cable entries/exits in the final location.
      7. Final locations of

Test points.

Control sensors.

Detectors.

Thermostats.

Sizing of cable terminations on all items of equipment.

* + - 1. Prepare detailed electrical wiring diagrams of all equipment supplied showing all interconnections between equipment to enable all necessary wiring to be undertaken.
      2. Detailed sizing, capacity, location, routes, and design of electrical containment systems including supporting structures, brackets, fixings etc. associated with the automatic controls and BMS.

Conduit.

Trunking.

Tray.

* + - 1. Verify all cable sizes, voltage drops, discrimination and fault handling of cables based on the installation drawings, selected plant/equipment, and actual installed cable lengths.
      2. Ensure that software engineering and programming is completed and undertaken so that systems function in the prescribed manner.

# COMMISSIONING AND TESTING:

### The Contractor shall undertake the testing, commissioning, regulation and setting to work of the Works.

### The Contractor shall design all necessary facilities required for setting to work commissioning and testing of the completed installations.

### The Contractor shall appoint an independent specialist responsible for the testing and commissioning.

### The Contractor shall ensure that the commissioning requirements are compatible with any project restraints concerning sectional handover/ phasing.

### The Contractor shall review all designs to ensure that systems are commissionable and highlight for review by the Contract Administrator any considerations in respect of commissioning.

### The Contractor shall provide a statement.

On appointment.

Prior to commencement of the Works.

Provide a report signed, by a competent person confirming, prior to installation that all system designs can be commissioned.

### The Contractor shall incorporate into the systems design the essential components and features necessary to enable the proper preparation and commissioning of the building services.

### The Contractor shall prepare comprehensive commissioning method statements including procedures, logic diagrams and risk assessments for:

* + - * + Pre-commissioning checks.
        + Setting to work.
        + Commissioning and testing.
        + System proving.
        + Environmental testing of the Works.

### The Contractor shall prepare flushing, chemical cleaning and water treatment method statements, logic diagrams and programme.

* + - * + Submit with tender.
        + On appointment.
        + Prior to commencement of Works.
        + Produce a detailed commissioning programme.
        + Submit with tender.
        + On appointment.
        + Prior to commencement of Works.

### The Contractor shall establish procedures with all parties to allow the demonstration of normal, emergency, shutdown and standby mode operation of plant and systems.

* + - * + Prepare method statement.

### The Contractor shall provide all necessary facilities to enable tests to be witnessed and inspections carried out including all necessary instruments and recorders to monitor systems during the commissioning and environmental proving period.

### Produce record pro-forma documentation for review by the Contract Administrator relating to the commissioning and testing of plant and systems.

* + - * + On appointment.
        + Prior to commencement of the Works.

### The Contractor shall co-ordinate the activities of:

* + - * + Specialists.
        + Manufacturer's.
        + internal noise levels.

### The Contractor shall ensure all certification is attained and witnessed as necessary for inclusion in the record documentation.

### The Contractor shall maintain a log of all significant activities during the testing, commissioning and system proving process.

### The Contractor shall record all plant and system settings.

### The Contractor shall provide and submit a report for every test, demonstration, balance, or commissioning activity witnessed, together with an engineering appraisal on the performance, either on or off-site.

### The Contractor shall provide a final commissioning report, signed by a competent person, detailing the results of the commissioning, and commenting on the performance of systems. The report to confirm that each installation is correctly tested and commissioned, achieves the specified performance and in accordance with CIBSE Code M.

### The Contractor shall demonstrate that equipment is capable of the performance and method of operation specified.

### The Contractor shall demonstrate that the overall and complete systems perform correctly in the required manner and as intended by the specification.

## PROGRAMME:

### The Contractor shall prepare comprehensive programmes for the pre-commissioning checks, setting to work, testing, commissioning, system proving, and environmental testing of the Contract works.

* + - * + Timescale:   
          Within weeks of Contract appointment (no) 2

### Review and update the commissioning programme at agreed intervals and if necessary, revise and amend the programme to suit the progress of the Contract works.

### Due account shall be taken of any phasing requirements.

## COMMISSIONING SPECIALIST:

### Employ an independent company who specialises in testing and commissioning of building services to undertake the following:

### All commissioning and testing activities associated with the Contract works.

### Supervision of works testing.

### Submit with the tender details of the independent company to be employed.

### The commissioning specialist shall be a member of The Commissioning Specialists Association (CSA).

# COMMISSIONING AND TESTING:

### When the Contract works or parts thereof are ready for testing and commissioning, the contractor shall notify the Contract Administrator in writing.

### All necessary facilities shall be provided to enable tests to be witnessed and inspections carried out including all necessary instruments and recorders to monitor systems during commissioning system proving and environmental testing.

### The contractor shall provide information where access is required into ceiling voids, service risers etc. and ensure these points are not closed until the commissioning and testing is complete.

### Where commissioning, testing, balancing, adjustment, is undertaken in an area of the building taken over and occupied by the Employer, then take all necessary precautions against and be responsible for any damage caused whilst working in such areas for that purpose.

### Prior to witnessing and inspection by the Contract Administrator the Contract works shall be fully tested, commissioned and be fully operational.

### Where portions of the work are required to be commissioned and tested separately, then upon final completion, demonstrate to the Contract Administrator that all the several portions are capable of proper simultaneous operation in accordance with the requirements of the specification.

### If testing demonstrates that the plant and equipment is not properly installed and/or not functioning correctly carry out such remedial measures and adjustments as may be necessary and repeat the commissioning and testing procedure to the satisfaction of the Contract Administrator.

### The contractor shall complete all tests before any paint, cladding or similar materials are applied or before services are concealed.

### Ensure all requirements such as cleanliness, protection from harmful external and internal elements are provided prior to commencement of commissioning.

### The contractor shall undertake to: Commission, test, regulate and set to work the installations that form the Contract works.

### The contractor shall prepare comprehensive programmes, commissioning plans, schedules and method statements and procedures supported by risk assessments for the pre-commissioning checks, setting to work, commissioning, system proving, and environmental testing of the Contract works.

### The contractor shall provide reports detailing progress of testing and commissioning activities at intervals agreed with Contract Administrator.

### The contractor shall maintain a diary/log of significant commissioning and testing activities.

### The contractor shall submit to the Contract Administrator all certification documents prior to any system being offered for final acceptance.

### The contractor shall confirm in writing to the Contract Administrator that each installation has been correctly tested and commissioned and that the performance requirements can be achieved.

### The contractor shall ensure all certification is attained and witnessed as necessary for inclusion in the record documentation.

### The contractor shall submit a report for every test, demonstration, balance, or commissioning activity witnessed, together with an engineering appraisal on the performance, either on or off-site.

### The contractor shall co-ordinate and liaise with the Contract administrator and other Council representatives.

### The contractor shall maintain on site full records of all testing, commissioning, and performance testing.

### The extent and proportion of results to be witnessed by the Contract Administrator will be at the discretion of the Contract Administrator.

### The Contract Administrator will

### examine prior to setting to work and regulation of the Contract works the results of the commissioning and the documentary records thereof.

### only witness test proceedings to establish a level of confidence in the commissioning results being presented.

### confirm recorded results.

## STATIC TESTING:

### Progressive static testing shall include the following tests, but other tests may be required and witnessed:

* + - * + Insulation resistance
        + Earth fault loop impedance
        + Earth continuity
        + Pressure testing of hydraulic systems.
        + Air leakage testing of ductwork systems.

### The Contract Administrator shall be given the opportunity to witness all static tests.

### Advance notice of the tests shall be given to the Contract Administrator.

* + - * + Timescale:   
          days prior to test (no) 10

## PRE-COMMISSIONING CHECKS:

### The contractor shall ensure all pre-commissioning examinations and tests have been undertaken and that each system, including components, or item of equipment is complete and in a safe condition prior to start-up.

## INSPECTIONS AND TESTS:

### The contractor shall submit schedules indicating those parts of the Contract works for which inspections and tests are required to substantiate conformity with the specification.

### Should any alternative item be proposed that does not carry appropriate certification, ensure independent testing is carried out at no expense to the Contract works to confirm compliance.

### The contractor shall provide method statements supported by risk assessments detailing the procedures for carrying out on site tests.

### The contractor shall agree in advance with all parties’ procedures for inspections and tests including periods of notice.

### Where a test indicates non-compliance with the specification, the contractor shall submit immediately details of the non-compliance and details for corrective action.

### The contractor shall maintain records of all specified inspections and tests performed including third party and works testing.

### The contractor shall maintain all records on site for inspection.

# HANDOVER:

## LOGBOOK

### The contractor shall prepare logbook(s) in accordance with the requirements of the specification and Building Regulations

### The logbook(s) shall be completed giving details of:

* + - 1. The date of inspection.
      2. Details of all tests conducted and their results.
      3. Confirmation or otherwise of the sprinkler system’s operational status.
      4. Confirmation or otherwise of the alarm system’s operational status.
      5. The time, date and location of any actuation, and details of subsequent reinstatement of the system.
      6. Details of any recommendations or comments.

### Any serious system faults should be relayed to the occupants or owners as soon as possible and confirmed in writing within 24hrs.

### The contractor shall Use CIBSE TM 31 template.

### Appoint an independent specialist author to produce operating and maintenance manuals. Identify four specialists as part of the tender return.

### Prepare operation and maintenance manuals in accordance with the specified requirements.

### Ensure that information needed for inclusion in the operating and maintenance manuals is obtained as the works progress. Identify individual sources of information.

### Produce record drawings.

### Modify the record drawings as the works progress so that all alterations from the installation drawings are recorded as the work proceeds.

### Modify and update operating details to reflect commissioning results.

### Record all water, gas and electricity meters on completion of the works.

### Instruct the Employer's staff in the use, operation, and maintenance of the installations.

### Fully operate and maintain the installations in accordance with the Council’s normal occupational requirements prior to practical completion.

### Prepare a schedule of all spare parts require for the works including recommendations of any others not stated in the specification.

### Prepare a schedule of all tools require for the works including recommendations of any others not stated in the specification.

### Supply and handover over:

* + - * + All tools.
        + Spares
        + Keys

# ANNUAL INSPECTION

### In accordance with British Standards BS9251:2014 Section 7

### The Sprinkler system should be subject to an annual inspection and test by a competent person, as follows.

* + - 1. The system should be inspected to determine whether all components are functioning as designed.
      2. The system should be inspected for leaks.
      3. The system should be inspected to determine whether any or all modifications have been carried out in accordance with this standard (BS9251:2014).
      4. Where there has been a material alteration to the building, an increase in fire loading or a change to include vulnerable occupants, an assessment should be made as to whether the category of system is still appropriate.
      5. Valves should be exercised to ensure free movement and any locking mechanism should be checked and reinstated.
      6. The test valve should be operated to determine whether the system’s design flow rate and pressure, as hydraulically calculated, is achieved.
      7. Alarms should be tested to determine whether they function as designed.
      8. Backflow prevention devices should be maintained in accordance with the manufacturer’s recommendations or BS EN 806-5.
      9. Any remote monitoring arrangements should be tested to determine whether they are being transmitted and received correctly.
      10. Note: It is essential that any alarm receiving centre to which alarm signals are relayed is notified before, and immediately after completion of, any tests that could result in an alarm signal.
      11. Where trace heating is installed, its operation should be checked.

### (Note 2: Maintenance of the system might be a legal requirement in some circumstances. It might also be a requirement of the building fire strategy.) The person carrying out the inspection should complete and sign the logbook as recommended in 7.3.

## Reinstatement of the system

### Reinstatement of the system following maintenance or actuation should be undertaken by a competent person and the logbook (see 7.3) should be annotated to indicate the reason for reinstatement and any actions taken.

## Ongoing maintenance:

### The Contractor shall prepare planned preventative maintenance schedules for the duration of measured term maintenance contract.

### The installing Contractor shall

* + - * + provide pre-planned and responsive maintenance and defect callout provision under a separate measured term contract.
        + Record all plant and system settings following any fine-tuning activities.
        + Fine tuning activities
        + Assess the need for fine tuning of the Works and prepare statement.
        + Prepare programme in advance and agree with Contract Administrator.
        + Arrange for the relevant parties to be retained and appointed to provide input to fine tuning activities.
        + Planned about the health and safety of occupants and such that any disturbance to them is minimised.
        + Attended meetings to deal with issues arising from fine-tuning of the Works.
        + Carry out visits to undertake fine tuning of the Works.
        + For the whole of the 12-month period.
        + Can be readily accessed by the Contract Administrator.

# LOCAL AUTHORITY (LCC) REQUIREMENTS

### STATUTORY AUTHORITY APPROVALS:

### The Contractor shall

* + - * + Make full and formal submissions to Building Control/District Surveyor at the earliest opportunity to ensure the approval of the Statutory Authorities for the proposed installation works.
        + Notify the District Surveyor, Building Control Officer, and Fire Officer directly in respect of all tests and demonstrations relevant to life safety installations, and include for all necessary attendance, documentation, etc., to ensure full Statutory Authority approval of the installation.
        + Include for all fees and charges legally required under such Act of Parliament, Regulations or By-Laws in respect of the Works.

## AUTHORITY NOTICES:

### Documents requiring the Employer's signature shall be forwarded to the Contract Administrator in time to meet the Contract works programme for the necessary test and supply arrangements to be made.

### No additional costs or extension to programme shall be allowed due to reconnections, revisits etc. by supply authorities or failure to programme the works.

## BYE-LAWS, NOTICES, ETC.:

### The Contractor shall observe and comply with the requirements of all Statutes and Byelaws.

### The Contractor shall serve notices on the Authorities having control of the road surfaces before the same are broken up and likewise serve notices on the owners of sewers, drains, water, gas or other mains, electric cables, tramways, and other services which may in any way be affected by the execution of the Works.

### The Contractor shall inform all necessary parties when work necessitates such notices to be given.

# RISKS TO HEALTH AND SAFETY:

### The nature and condition of the site/building(s) cannot be fully and certainly ascertained before opening.

### The employer or the Contract Administrator do not guarantee the accuracy and sufficiency of this information:

### The Contractor shall undertake responsibility to obtain any information required to ensure the safety of all persons and the Works.

### The Contractor shall comply with the requirements of the CDM Regulations by

* + - 1. compiling risk assessments for the Contract works.
      2. providing information on the Contract works which might affect the health or safety of any person.
      3. Providing an appropriate Construction Phase Plan and health and safety file for the works.

# STANDARDS AND REGULATIONS:

### Unless stated otherwise the Works shall comply with the appropriate British Standard (BS) or Code of Practice (CP) and where no BS or CP is applicable comply with

* + - * + the Agreement Certificate for the supplied.
        + CIBSE recommendations and guides to current practice.
        + BS 7671 Requirements for Electrical Installations
        + Guidance published by IET.

### The Contractor shall ensure all equipment and systems are designed and installed in accordance with the relevant standards and that operational compatibility exists between the systems and any other system installed in the same location.

### All product and materials shall have product conformity certification (e.g., BSI Kitemark, BSI Safety Mark, or CARES scheme) or product approval (e.g., British Board or Agreement Certificate)

### All products must have the recognised 'CE' mark attached.

### The Contractor shall provide certificates of compliance with British Standards, BSI Certification Schemes, and/or other Quality Assurance Schemes when requested by the Contract Administrator.

### In the absence of specific design, performance or installation standards being stated seek the instructions of the Contract Administrator prior to commencement of the Works and with adequate time so as not to cause delay.

### When new editions, versions and amendments are published during the construction, seek the instructions of the Contract Administrator with respect to any modifications or changes necessary.

### References to BSI documents shall be to the versions and amendments listed in the British Standards Catalogue and in subsequent issues of BSI Update Standards up to one month prior to the tender issue date.

### The tender shall be based on the standards and regulations current one month prior to the issue date of the tender.

### As requested by the Contract Administrator keep copies on site, readily accessible for reference by all supervisory personnel relevant BS Codes of Practice

# PRESSURE DIRECTIVE:

### All pressure equipment and assemblies with a maximum allowable pressure greater than 0.5 bar shall comply with the European Community (EU) Pressure Equipment Directive (PED) 97/23/EC. Pressure equipment shall include vessels, piping, safety accessories and pressure accessories. Assemblies shall mean several pieces of pressure equipment assembled to form an integrated, functional whole.

### Pressure equipment shall be marked as a minimum with:

* + - 1. unique identification of the manufacturer
      2. unique identification of model and serial number
      3. the year of manufacture
      4. maximum/minimum allowable pressure limits
      5. CE marking

### The Contractor shall provide a declaration of conformity for all pressure equipment.

### The Contractor shall submit copies to the Contract Administrator prior to installation into the Works.

### The Contractor shall provide copies as part of the record documentation.

### Equipment must be:

* + - 1. Designed for adequate strength considering internal/external pressure, ambient and operational temperatures, static pressure and mass of contents in operating and test conditions, corrosion and erosion, fatigue, etc.
      2. Provided with means to ensure safe handling and operation and of examination, draining and venting.
      3. Provided with protection against exceeding the allowable limits of pressure.
      4. Where necessary, pressure equipment must be designed and fitted with suitable accessories to meet damage-limitation requirements in the event of external fire.

### The Contractor shall ensure all components or sub-assemblies in their finished assembly are used within their safe operating range and correctly installed and tested.

### The Contractor shall ensure that adequate instructions are provided by the manufacture for the safe installation, testing and operation.

### Instructions shall be provided to ensure for the safe maintenance and operation of the equipment when in operation.

### Pressure equipment and assemblies below the specified pressure / volume thresholds must:

* + - 1. be safe.
      2. be designed and manufactured according to sound engineering practice.

# FACILITIES FOR REMOVAL OF EQUIPMENT:

### De-coupling facilities shall be provided for all services connections to equipment and plant and be located adjacent to the equipment such that any removable section, cover or the complete unit can be readily removed or withdrawn without the removal or disturbance to large sections of adjacent services.

### The Contractor shall ensure isolation and drain down of any item of equipment can be achieved without isolating large sections of the remaining system.

# RECORD DOCUMENTATION

### The Contractor shall provide operating and maintenance manuals, system records and full documentation in accordance with the following standards.

* + - * + BS EN 50131-1 - Intruder alarm systems.
        + BS 5839 - Fire detection and alarms in buildings.
        + BS 6701 - Telecommunications equipment and telecommunications cabling.
        + BS 7671 - Requirements for electrical installations. (IET Wiring Regulations)
        + BS EN 12170 - Heating Systems with a trained operator
        + BS EN 12171 - Heating Systems not requiring a trained operator.
        + BS EN 62305 - Protection against lightning.
        + Building Regulations (Approved Document Part L2)

### The Contractor shall comply with the requirements of the CDM Regulations in providing the appropriate input to the Construction Phase Plan and health and safety file for the Contract works.

# RECORD DOCUMENTS:

## The Contractor shall provide:

* + - * + Record drawings and schedules.
        + Plant room and switch room drawings, schedules, and schematics.
        + Operating and maintenance manuals.
        + Blank maintenance logs.
        + Logbooks

in compliance with the Building Regulations.

in accordance with CIBSE TM 31.

* + - * + Ensure record documents clearly record the arrangements of the various sections of the Works as actually installed and identify and locate all component parts.
        + Ensure record documents make it possible to comprehend the extent and purpose of the Works and the method of operation thereof.
        + Ensure record documents set out the extent to which maintenance and servicing is required and how, in detail, it should be executed.
        + Ensure record documents provide sufficient, readily accessible, and proper information to enable spares and replacements to be ordered.
        + Correlate record documents so that the terminology and the references used are consistent with those used in the physical identification of the component parts of the installations.
        + Demonstrate as required throughout the execution of the Contract works that complete and accurate records are being maintained and that the record documents are being progressively compiled as the work on site proceeds.
        + Ensure that building logbooks contain all the information necessary to comply with the Building Regulations Approved Document Part L2.

### Provide Manufacturer's drawings of equipment indicating.

* + - * + general arrangement and assembly of component parts which may require servicing.
        + internal wiring diagrams together with sufficient physical arrangement details to locate and identify component parts.

### Provide Schedules as required to locate, reference, and provide details of ratings and duty of all items incorporated into the Works together with all fixed and variable equipment settings established during commissioning.

### For each programmable control item schedules indicating for each input and output point connected, provide.

* + - * + full data in respect of that point including reference.
        + type of input/output
        + connected equipment reference.
        + set values of temperature or pressure etc.
        + set values of start/stop/speed change times etc.
        + alarm priority
        + control specification reference
        + any other such applicable parameters
        + Each spare input and output point including reference, type of input/output and space for future entry of appropriate parameters as listed above.
        + Logic flow diagrams for each individual control or monitoring specification and for each building services engineering system to illustrate the logical basis of the software design.
        + Schedules setting out details of all initial values of user-defined variables, text statements for alarm messages etc.

# PRESENTATION OF THE OPERATING AND MAINTENANCE MANUALS:

### The Contractor shall agree format and contents with the Contract Administrator.

### The Contractor shall provide the operating and maintenance manuals in the following form:

* + - 1. The Contractor shall encase the manuals in A4 size, plastic-covered, loose leaf, four ring binders with hard covers, each indexed, divided and appropriately cover- titled. Fold drawings larger than A4 and include in the binder so that they may be unfolded without being detached from the rings.
      2. Electronic format stored on CD.

### The Contractor shall provide copies of the operating and maintenance manual as follows:

* + - 1. Draft copies for comment (no) 2
      2. Final copies for Client use (no) 2
      3. Provide a draft copy of the operating and maintenance manual to the Contract Administrator for comment.

## Timescale:

### Weeks before the Contract completion date (no) 2

### The draft copy of the manual shall conform to the final format required by the specification to enable all relevant comments to be made by the Contract Administrator.

# OPERATING AND MAINTENANCE MANUALS:

### The operating and maintenance manuals must include:

* + - * + A full description of each of the systems installed, written to ensure that the Employer's staff fully understand the scope and facilities provided.
        + A description of the mode of operation of all systems including services capacity and restrictions.
        + Diagrammatic drawings of each system indicating principal items of plant, equipment, valves etc.
        + A photo-reduction of all record drawings together with an index. Reduced size of drawings to be A3
        + Legend of all colour-coded services.
        + Schedules (system by system) of plant, equipment, valves, etc., stating their locations, duties, and performance figures. Each item must have a unique number cross-referenced to the record and diagrammatic drawings and schedules.
        + The name, address, and telephone number of the manufacturer of every item of plant and equipment together with catalogue list numbers.
        + Manufacturer's technical literature for all items of plant and equipment, assembled specifically for the project, excluding irrelevant matter, and including detailed drawings, electrical circuit details and operating and maintenance instructions.
        + A copy of all test certificates, inspection and test Records, commissioning and performance test records including, but not limited to, electrical circuit tests, corrosion tests, type tests, start and commissioning tests, for the installations and plant, equipment, valves, etc., used in the installations.
        + A copy of all manufacturer's guarantees or warranties, together with maintenance agreements offered by Sub-Contractors and manufacturers.
        + Copies of insurance and inspecting Authority certificates and reports.
        + Starting up, operating, and shutting down instructions for all equipment and systems installed.
        + Control sequences for all systems installed.
        + Schedules of all fixed and variable equipment settings established during commissioning.
        + Procedures for seasonal changeovers and/or precautions necessary for the care of apparatus subject to seasonal disuse.
        + Detailed recommendations for the preventative maintenance frequency and procedures which should be adopted by the Employer to ensure the most efficient operation of the systems.
        + Details of lubrication for lubricated items including schedules of lubricant type, frequency, etc.
        + Details of regular tests to be carried out (e.g., water analysis for pseudomonas).
        + Details of procedures to maintain plant in safe working conditions.
        + Details of the disposal requirements for all items in the works.
        + A list of normal consumable items.
        + A list of recommended spares to be kept in stock by the Employer, being those items subject to wear or deterioration and which may involve the Employer in extended deliveries when replacements are required at some future date.
        + A list of any special tools needed for maintenance cross-referenced to the item for which it is required.
        + Procedures for fault finding.
        + Emergency procedures, including telephone numbers for emergency services.
        + Hospital Operational Policy.
        + Back-up copies of any system software.
        + Documentation of the procedures for updating and/or modifying software operating systems and control programmes.
        + Instructions for the creation of control procedure routines and graphic diagrams.
        + Details of the software revision for all programs provided.
        + Two back-up copies of all software items, as commissioned.
        + Copies of relevant HSE/CIBSE/IET Guidance notes etc.
        + Contractual and legal information including but not limited to
        + details of local and public authority consents
        + details of design team, consultants, installation Contractors and associated Sub-Contractors
        + start date for installation, date of practical completion and expiry date for the defect’s liability period.
        + details of warranties for plant and systems including expiry dates, addresses and telephone numbers.
        + A provision for update and modification.

# PROVISION OF INFORMATION:

### The Contractor shall co-operate with the specialist firm in the compilation of the manuals and provide them with copies of the following:

* + - 1. Diagrammatic drawings of each system indicating principal items of plant, equipment, valves etc.
      2. Record drawings, together with an index.
      3. Plant room and switch room drawings, schedules, and schematics, together with an index.
      4. Legend for all colour-coded services.
      5. Schedules (system by system) of plant, equipment, valves etc., stating their locations within the building, duties, and performance figures.
      6. All Test Certificates, Inspection and Test Records, Commissioning and Performance Test Records (including, but not limited to, electrical circuit tests, corrosion tests, type tests, start and commissioning tests) for the installations and plant, equipment, valves, etc., used in the installations.
      7. All manufacturer's guarantees or warranties.
      8. Copies of insurance and inspecting Authority certificates and reports.
      9. Schedules of all fixed and variable equipment settings established during commissioning.
      10. Back-up copies of any system software.
      11. Two back-up copies of all software items, as commissioned.

# COMPLETION AND HANDOVER

## HANDOVER REQUIREMENTS:

### As a pre-requisite to Practical Completion in respect of the Contract works or part thereof, demonstrate to the satisfaction of the Contract Administrator that:

### All the Contract works are complete.

### Except for minor snags or limited defects as agreed with the Contract Administrator that could be reasonably completed within an agreed programme without causing disruption to the Employer's use of the building or part thereof.

### All spares, keys, tools, and other consumables as stated elsewhere have been supplied and handed over to the Employer.

### The instruction of the Employer's staff in the use and correct operation of the installation has been completed satisfactorily. Particularly safety devices and controls demonstration.

### All commissioning and testing completed.

### including the issue of a final commissioning report signed by an approved competent person.

### A complete demonstration of the Contract works with fully functional operational controls tested has been undertaken in the presence and to the satisfaction of the Contract Administrator.

### All necessary certification by the Employer's insurers has been completed.

### All approved record documentation including record drawings, operation, and maintenance manuals, etc. is issued.

### All information required for the health and safety file is issued to the satisfaction of the CDM Co-ordinator.

### The information shall include:

* + - 1. A written description of plant operation.
      2. Control strategy/logic diagrams recording the final version of configuration software installed at handover.
      3. Details of system application software configuration.
      4. A points list including hard and soft points (all points should have a unique mnemonic).
      5. A description of user adjustable points.
      6. Commissioning record details.
      7. Detailed data sheets for all control components and equipment.
      8. Wiring circuit details including origin, route, and destination of each cable.
      9. Basic security access to the system.
      10. Comprehensive instructions for switching on, operation, switching off, isolation, fault finding and procedures for dealing with emergency conditions.
      11. Instructions for any precautionary measures necessary.
      12. Instructions for the routine operation of the control system including simple day-to-day guidance for those with limited technical skill.
      13. Instructions for servicing and system upkeep.
      14. A provision for update and modification.
      15. All necessary Statutory Authority approvals have been undertaken and written confirmation established.
      16. Completion and issue of logbooks in accordance with Building Regulations.
      17. Air permeability test certificate in accordance with Building Regulations.

### Should adequately record documentation not be available Practical Completion will not be granted.

## RECOMMENDED SPARE PARTS:

### Before Practical Completion submit to the Contract Administrator a schedule of spare parts as stated elsewhere and recommend any that should be obtained and kept in stock by the Employer for maintenance of the installations included in the Works.

## Time scale

### Weeks before (no) 4

### State against each item the manufacturer's current price, including packaging and delivery to site. Identify those items that are additional to those specified for inclusion as stated elsewhere.

## INITIAL SUPPLY OF ADDITIONAL SPARE PARTS:

### The Contractor shall submit to the Contract Administrator a quotation, priced in detail, for the initial supply to the Employer of the additional spare parts identified elsewhere and including for:

* + - 1. Checking that each spare part is suitable for the replacement of the corresponding part supplied with the item of plant or equipment.
      2. Checking receipt, marking, and numbering in accordance with the schedule of spare parts.
      3. Referencing to the plant and equipment list in the operation and maintenance manual.
      4. Painting, greasing, etc. and packing to prevent deterioration during storage.

### Time scale: Within weeks of request (no) 4

## RECOMMENDED TOOLS:

### Prior to Practical Completion, the Contractor shall submit to the Contract Administrator a schedule of tools and portable instruments as stated elsewhere and recommend any that should be obtained and kept in stock by the Employer for maintenance of the installations included in the Works.

### Time scale: weeks before Practical Completion (no) 4

### The Contractor shall state against each item the manufacturer's current price, including packaging and delivery to site. Identify those items that are additional to those specified for inclusion as stated elsewhere.

### The Contractor shall submit to the Contract Administrator a quotation, priced in detail, for the initial supply to the Employer of the additional tools identified under the clause headed 'recommended tools'.

## SUPPLY OF TOOLS:

### The Contractor shall provide all tools, keys and portable instruments as detailed elsewhere prior to practical completion and additional items if so, instructed by the Contract Administrator.

### Time scale: Weeks before Practical Completion (no) 4

# TRAINING OF EMPLOYER'S STAFF:

### Prior to Practical Completion the Contractor shall explain and demonstrate the purpose, function and operation of the installations including all items and procedures listed in the operation and maintenance manual to the Employer's maintenance staff.

### The Contractor shall submit to the Contract Administrator for approval a detailed programme for the training of the Employer's staff.

### Time scale: Weeks before commencement of training (no) 4

### The Contractor shall employ the services of relevant specialists and suppliers for the purpose of training and instruction.

### The Contractor shall provide each person with a comprehensive set of teaching notes and diagrams.

### The Contractor shall be responsible for the correct operation and maintenance of the installation during such periods of instruction.

### All costs associated with the instruction of the Employer's personnel and required attendance following practical completion shall be included in the Contract price.

### Following practical completion and occupation be available for a period as agreed with the Contract Administrator to assist the Employer's personnel in the operation of the various systems together with the controls specialist.

### Training

### Number of persons to be included for training is to be agreed with the client.

### The Contractor shall Include for not less than indicated number of operating days for this purpose and demonstrate the safe day to day running and maintenance of all systems, plant, and equipment.

### The Contractor shall provide training for the operation of the controls, monitoring or BMS installations as follows.

### Carry out initial training at the works of the control’s supplier.

### The Contractor shall include hands on experience of equipment and software relating to the installation.

### The Contractor shall include instruction on the procedures for testing and routine inspection of sensors and actuators to enable the operator to assess the nature of faults and extent of remedial action required.

### The Contractor shall provide all appropriate reference and training manuals.

### The Contractor shall complete initial instruction prior to commissioning of the installed system.

### The Contractor shall provide site instruction on the installed system.

### The Contractor shall include for training operating staff (no) to be agreed with the client.

### The Contractor shall include for not less than indicated number of operating days for this purpose and demonstrate the safe day to day running and maintenance of all systems, plant, and equipment.

# MAINTENANCE

## MAINTENANCE OF EXISTING SERVICES:

### The Contractor shall include in the Contract price all costs to always maintain the existing services during the duration of the Contract works.

### The Contractor shall submit with the tender a method statement outlining how the maintenance works is to be undertaken including any necessary specialist maintenance.

### Prior to commencement of the Contract works the Contractor shall submit a method statement to the Contract Administrator outlining how the existing services are to be maintained including all planned and preventative maintenance measures.

### The Contractor shall provide any additional work and materials necessary to always maintain these services during the duration of the Contract works.

### The Contractor shall make all connections to existing services.

### Existing services disturbed or damaged during the Contract works are to be reinstated by the contractor.

### The Contractor shall submit to the Contract Administrator a method statement outlining the method and procedures for the remedial and reinstatement works.

### Any shut down of existing services to undertake remedial and reinstatement works shall be to an agreed procedure.

### The Contractor shall reinstate fully in accordance with the standards of quality as defined in the specification and to the satisfaction of the Contract Administrator.

# ANNUAL MAINTENANCE CONTRACT:

### The maintenance provision shall include.

* + - 1. Planned preventative maintenance to maintain the installations in efficient working order including routine checks, adjustments, lubrication, and replacement of consumable spares, etc.
      2. Responsive and reactive repairs.
      3. Re-setting of system following an activation

### The proposal should also include for

* + - 1. Preparation of work schedules and recording activities.
      2. Providing breakdown and emergency cover.
      3. Planning and undertaking shutdowns for maintenance works.
      4. Employing of all necessary specialist maintenance.
      5. Attendance on and supervision of specialist maintenance.
      6. Carrying out all necessary safety checks.
      7. Carrying out system proving of the works to include the measuring, recording, evaluating, and reporting on the seasonal performance of the systems against their design values.
      8. Water sampling including laboratory analysis and monitoring of heating, chilled, domestic water systems.
      9. Liaison with the employer.

## KEY PERFORMANCE INDICATORS:

### The Contractor will be subject to Key Performance Indicators scoring (KPI’s). The Contractor will co-operate fully with the Council to manage the KPI’s and shall assist the Council in any subsequent review/compliance with the set Indicators. The Council reserves all rights to amend, omit and/or add the KPI’s and scoring criteria over the duration of the contract with advance notification to the contractors.

### The nine KPIs are scored individually scoring 0-4 by the Council’s appointed person for each individual job upon completion. The average overall score for each individual job is then calculated and used for performance monitoring. Customer satisfaction surveys are also undertaken and may go towards the overall KPI’s.

### The Contractor will be notified of their average KPI score at regular intervals and at an annual KPI meeting (sooner if deemed necessary). These are held on an individual basis with the contractor.

### The Contractor shall also be notified of any individual score/s of 0 (Zero) as these are considered as failure to meet the contract requirements and be asked to attend a meeting.

### The Council is expecting contractors to consistently achieve a good standard (**average** score of 2.85 or above (all KPIs)) within our key performance indicators.

### For an initial period of 3 month from the contract signing the Council will work with the contractors to achieve our required standard 2.85 or greater (all KPIs).

### The Contractor will be expected to meet and be monitored against the following range of Contract management KPI’s;

### Installation KPI’s

* + - 1. Quality of customer care
      2. Quality of work
      3. Health and safety
      4. Quality of materials
      5. Effectiveness of Supervision
      6. Communication
      7. Environmental
      8. Duration of the works
      9. Administration

### Maintenance KPIs

* + - 1. Asset maintenance
      2. Work order management
      3. Communication
      4. Asset performance and uptime
      5. Inventory management

### Installation KPIs

|  |  |  |
| --- | --- | --- |
| **a)** | **QUALITY OF CUSTOMER CARE** | Meets contract requirements.   * Timeliness of service * Tenant contact * Tenants’ induction * Property protection * Continuity of services * Tenants’ handover pack * Programming |
| **b)** | **QUALITY OF WORK** | Meets contract requirements.  Where the Council’s nominated person/s identify unsatisfactory quality of work (snagging) at the job sign off stage, the following will be applied scoring will be applied: No snags - Score 3 or above.Up to 3 snags – Score 2 on quality of work, quality of customer care and effectiveness of supervision and Environmental Performance.  * 4 to 5 snags - Score 1 on quality of work, quality of customer care and effectiveness of supervision. Score 2 on Environmental Performances.  More than 5 snags - Score 0 on quality of work, quality of customer care and effectiveness of supervision. Score 2 on Environmental Performances. Materials installed as per manufacturer’s instructions.  Works to current standards and good practice guides. |
| **c)** | **HEALTH AND SAFETY** | Meets contract requirements.   * PPE * Site documentation * Signage * R&Ms * Plant * Plant maintenance * Tidiness of the site * Rubbish clearance. * Asbestos * Access/egress |
| **d)** | **QUALITY OF MATERIALS** | Meets contract requirements.   * Meets requirements and specification. * Specified brands installed. * Installed as per manufacturer’s instructions, * Compliant to relevant regulations |
| **e)** | **EFFECTIVENESS OF SUPERVISION** | Meets contract requirements.   * 100% zero defects linked to other KPIs environmental, customer care. * Tenant liaison * Council liaison * Programming * Site supervision * Site health and safety * Qualification current – non-compliance scores 0 |
| **f)** | **COMMUNICATION** | Meets contract requirements.   * Contact with tenant timely and professional. * Tenant keeps informed all stages. * Council kept informed all stages. * Council kept informed of Business changes. * Council notified of compliments, complaints, and claims. |
| **g)** | **ENVIRONMENTAL** | Meets contract requirements.   * Waste management * Travel * Site Cleared |
| **h)** | **DURATION OF WORKS** | Duration measured from starting of work on site until practical completion and Council sign-off of works.  Measured against programme submitted and contract requirements. |
| **i)** | **ADMINISTRATION** | Meets contract requirements.  Score 3, non-compliance score reduced accordingly.   * All documentation completed correctly. * Accuracy of the documentation * Timeliness of notifications   + Late Notification – Score 1   + No Notifications - Score 0 * Missing documents – Score 0 * Council notified of compliments, complaints, and claims. * Council notified of access issues. * Programming of works. * Council informed of sub-contractors and kept updated of any proposed changes. non-compliance scores 0 * Council advised of staff qualification and renewals (including sub-contractors) – non-compliance score 0. * Insurances valid to the contract and Council notified or changes/renewals. |

### Maintenance provision KPI’s

|  |  |  |
| --- | --- | --- |
| **j)** | **ASSET MAINTENANCE** | Planned Maintenance Percentage (PMP), Schedule Compliance,  Adherence to pre-planned maintenance schedule – Score 3  Minor maintenance backlog – score 2.  Significant maintenance backlog – 1  Maintenance backlog more than 6 months – score 0. |
| **k)** | **WORK ORDER MANAGEMENT** | (Callouts and responsive repairs) – Average Time to Complete Work Orders, measure against contract specification |
| **l)** | **COMMUNICATION** | Meets contract requirements.   * Contact with tenant timely and professional. * Tenant keeps informed all stages. * Council kept informed all stages. * Council kept informed of Business changes. * Council notified of compliments, complaints, and claims. |
| **m)** | **ASSET PERFORMANCE AND UPTIME** | Overall Equipment Effectiveness, Uptime/downtime and loss of water suppression and protection to dwellings.  100% uptime with no loss of service – score 4  Individual maintenance occurrence or callout with  Downtime not exceeding 12hrs – Score 3  More than 12 hr. downtime of more than 1 dwelling – score 2  More than 24 hr. downtime of more than 1 dwelling – score 1  More than 48 hr. downtime of more than 1 dwelling – score 0  More than 24 hr. downtime of single dwelling – score 2  More than 48 hr. downtime of single dwelling – score 1  More than 72 hr. downtime of single dwelling – score 0  More than 12 hr. downtime of whole system – score 1  More than 48 hr. downtime of whole system – Score 0 |
| **n)** | **INVENTORY MANAGEMENT** | Spare Parts and Stock availability.  All spare parts, physically available on-site and reserved solely for use by Leicester City Council – Score 4  Parts made available within a period ensuring downtime does not exceed 12 hrs. – Score 3  Parts made available within a period ensuring downtime does not exceed 24 hrs. – Score 2  Failure to pre-order parts on long lead-time resulting in single dwelling system downtime exceeding 24hrs – score 1.  Failure to pre-order parts on long lead-time resulting in whole system downtime exceeding 12hrs – score 0 |

## FAILING TO MEET THE REQUIRED KPI’s:

### Contractors failing to meet the required standard (average 2.85 or above (all Items)) or scoring 0 (zero) on any KPI per individual job may have their allocation reduced accordingly until such time as that the Contract Administrator is satisfied that they have improved sufficiently and meet the required standard.

### Any contractor whose average falls below the required standard or scores 0 (Zero) per individual job will be invited to a meeting for feedback on their KPI’s prior to any action being taken. This meeting will take place within 10 working days of the KPI’s being sent to the Contractor. Note: This meeting is for constructive feedback only (not a negotiation meeting) and aims to assist the contractor to understand and act accordingly to rectify the failing and achieve the required standard.

### Following the meeting the contractor will receive written confirmation explaining the reason for the meeting, restrictions imposed, action required and period (set by the Contract Administrator) for the required standard to be achieved.

### The Contractor must demonstrate to the Council that they have dealt with the failing and that they can again meet the required standard. This can be via future Council KPI scores alternatively the Contractor can demonstrate compliance by other means i.e., submitting evidence of improvements they have implemented, tried, and tested to overcome the failings of the KPI/s. In this instance the Council may choose to propose a trail period to confirm the improvements implemented meet the required standard.

### During the improvement period the Council may choose to carry out additional inspections during the works to ensure compliance with the contract requirements.

### If after the improvement the Contractor still fails to meet the required standard the Contract Administrator may choose to impose a further improvement period or the termination of the contract.

### Contractors who regularly fail to meet the required standard will have their works suspended.

### these are the minimum action that will be taken ultimately the contract may be terminated.

### To ensure the Council meets its targets the works may be issued to another contractor or withdrawn.

### Reduction in the works/jobs allocated to the Contractor. The Council may also recall works/jobs that have been issued but not started on site from the contractor. This is to minimise the risk to the Council.

# PROVISION MAINTENANCE:

### The Contractor shall submit with the tender a cost for the maintenance Contract from the date of Practical Completion for all installations forming the Contract works.

### The maintenance works shall be in accordance with the recommendations set out in the appropriate standard.

### The maintenance works shall include.

* + - 1. planned preventative maintenance to maintain the installations in efficient working order including routine checks, adjustments, lubrication, and replacement of consumable spares, etc.
      2. Preparation of work schedules and recording activities.
      3. Providing breakdown and emergency cover.
      4. Planning and undertaking shutdowns for maintenance works.
      5. Employing of all necessary specialist maintenance.
      6. Attendance on and supervision of specialist maintenance.
      7. Carrying out all necessary safety checks.
      8. Carrying out system proving of the works to include the measuring, recording, evaluating, and reporting on the seasonal performance of the systems against their design values.
      9. Water sampling including laboratory analysis where necessary.
      10. Liaison with the employer
      11. Emergency maintenance response times shall be maximum of 12 hours and immediate mobile phone/Contract advice.

### The Contractor shall ensure that the maintenance recommendations set out in the appropriate standard can be achieved and are appropriate for the installations. Advise with the tender submission.

### The Contractor shall submit with the tender a method statement outlining how the maintenance works is to be undertaken including any necessary specialist maintenance.

### The Contractor shall submit with the tender a detailed planned preventative maintenance programme for the works.

# HOLES/CHASES/COVERS/SUPPORTS FOR SERVICES

## PERFORMANCE OBJECTIVES

### The Contractor shall note that Leicester City Council have provided the performance design. The design intent only is shown in respect of this specification section, the Contractor shall be responsible for completing the detailed design and the design development.

## ANTI-CORROSION TREATMENT

### The Contractor shall select control components and equipment, suitable to meet system objective requirements. Ensure that system safety complies with BS EN ISO 13849 and where necessary comply with BS EN 61508.

# Accuracy of Information

### Detailed information on the layout of the existing systems is not available and the Contractor shall make themself fully familiar with the extent of these works prior to providing a tender price and undertaking the works. The Contractor shall therefore allow for the following as part of the works:

### The installation shall be surveyed. Isolation of services shall also be confirmed prior to cutting in.

### Care shall be taken when undertaking these works to ensure that services that do not form part of these alterations remain unaffected.

# Legionella Testing

### As part of the cleaning and testing of the new and modified water mains, the Contractor shall ensure that a legionella test is carried out to prove the suitability of the installation.

### The Contractor shall make himself aware of the timescales required to undertake this test and shall suitably programme these works to ensure that they do not affect the overall programme.

### The Contractor may, at his discretion, approach the client for permission to obtain water samples from a suitable position in the existing system to determine the cleanliness of the system prior to any works commencing.

### The costs and time constraints associated with these tests shall be accommodated into the tender sum and programme.

### The Contractor shall allow for the supply and installation of all necessary supplementary components, systems, and equipment to support a fully functioning system, whether specifically indicated or not.

# STANDARDS:

### The contractor shall Comply with:

* + - 1. BS9251:2014
      2. BS 7273-3.
      3. BS EN 12845.
      4. EN 12845 - includes current technical bulletins to Mar 04">LPC Rules for Automatic Sprinkler Installations.
      5. BS EN 12259-1 for components for automatic sprinkler and water spray systems - sprinklers.
      6. BS EN 12259-5 for components for automatic sprinkler and water spray systems - water flow detectors.
      7. BS 9999.

# FIRE AUTHORITY REQUIREMENTS:

### The Contractor shall ensure all system components are approved by local Fire Authority and bear Water Authority's stamp of approval and, where required, that of Fire Authority comply with fire insurers requirements.

# DOCUMENTATION:

### The Contractor shall

* + - 1. Provide design, installation, test, and maintenance documentation detailed within the standards.
      2. Provide completion certificates and documents as detailed in BS EN 12845.
      3. Provide documents as detailed in BS 9251.
      4. Provide a maintenance logbook as detailed in BS 9251.

# FIRE PROTECTION - PIPEWORK:

### The contractor shall provide and fit fire protection on all pipework where it leaves the riser shafts and passes through the fire lobbies and services shafts before entering the protected areas. The fire protection must have a minimum of 1 hour fire rating i.e., protection is to maintain pipe contents to less than 1000C when exposed to fire for 1 hour and considered.

### The Contractor shall maintain the fire compartmentation of the building, ensuring that all new service penetrations are fire stopped to achieve, as a minimum, the fire resistance as required by approved document B of Building Regulations.

## WORKMANSHIP

### The Contractor shall Install and test sprinkler system in accordance with BS EN 12845:2015+A1:2019 an all-subsequent amendment thereof.

### The Contractor shall install, test and commission all fire protection systems to the requirements of local Fire Authority.

# BS APPENDIX

### BS 5266-1:2011 Emergency lighting. Part 1 Code of practice for the emergency escape lighting of premises

### BS 6701:2010 Telecommunications equipment and telecommunications cabling. Specification for installation, operation, and maintenance

### BS 7649:1993 Guide to the design and preparation of documentation for users of application software

### BS 7671:2019 Requirements for electrical installations. IET Wiring Regulations. Eighteenth edition

### BS 8534:2011 Construction procurement policies, strategies, and procedures. Code of practice

### BS EN 12170:2002 Heating systems in buildings. Procedure for the preparation of documents for operation, maintenance, and use. Heating systems requiring a trained operator.

### BS EN 12171:2002 Heating systems in buildings. Procedure for the preparation of documents for operation, maintenance, and use. Heating systems not requiring a trained operator.

### BS EN 15221-4:2011

### Facility management. Part 4 Taxonomy, classification, and structures in facility management

### BS EN 15643-3:2012 Sustainability of construction works. Assessment of buildings. Part 3 Framework for the assessment of social performance

### BS EN 15643-4:2012 Sustainability of construction works. Assessment of buildings. Part 4 Framework for the assessment of economic performance

### BS EN 15978:2011 Sustainability of construction works. Assessment of environmental performance of buildings. Calculation.

### BS EN 41003:2009 Particular safety requirements for equipment to be connected to telecommunications networks.

### BS EN 50131-1:2006 Alarm systems. Intrusion and hold-up systems. Part 1 System requirements

### BS EN 55011:2007 Industrial, scientific, and medical (ISM) radio-frequency equipment. Electromagnetic disturbance characteristics. Limits and methods of measurement

### BS EN 55013:2001 Sound and television broadcast receivers and associated equipment. Radio disturbance characteristics. Limits and methods of measurement

### BS EN 55014-2:1997+A2:2008 Electromagnetic compatibility. Requirements for household appliances, electric tools and similar apparatus. Immunity. Part 2 Product family standard

### BS EN 55015:2006+A2:2009 Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

### BS EN 55020:2007 Sound and television broadcast receivers and associated equipment. Immunity characteristics. Limits and methods of measurement

### BS EN 55022:2006+A1:2007 Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement

### BS EN 61000-2-4:2002 Electromagnetic compatibility (EMC). Part 2-4 Environment. Compatibility levels in industrial plants for low frequency conducted disturbances.

### BS EN 61000-6-1:2007 Electromagnetic compatibility (EMC). Generic standards. Part 6-1 Immunity for residential, commercial, and light-industrial environments

### BS EN 61000-6-3:2007+A1:2011 Electromagnetic compatibility (EMC). Generic standards. Part 6-3 Emission standard for residential, commercial, and light-industrial environments

### BS EN 61000-6-4:2007+A1:2011 Electromagnetic compatibility (EMC). Generic standards. Part 6-4 Emission standard for industrial environments

### BS EN 61082-1:2006 Preparation of documents used in electrotechnology. Part 1 Rules

### BS EN ISO 13567-1:2002 Technical product documentation. Organization and naming of layers for CAD. Part 1 Overview and principles

### BS EN ISO 13567-2:2002 Technical product documentation. Organization and naming of layers for CAD. Part 2 Concepts, format and codes used in construction documentation.

### BS EN ISO 50001:2011 Energy management systems. Requirements with guidance for use

### BS 7273-3:2008 Code of practice for the operation of fire protection measures. Part 3 Electrical actuation of pre-action watermist and sprinkler systems

### BS 9251:2014 Sprinkler systems for residential and domestic occupancies. Code of practice

### BS 9999:2008 Code of practice for fire safety in the design, management and use of buildings

### BS EN 12259-1:1999 Fixed firefighting systems. Components for sprinkler and water spray systems. Part 1 Sprinklers

### BS EN 12259-5:2002 Fixed firefighting systems. Components for sprinkler and water spray systems. Part 5 Water flow detectors

### BS EN 12845:2004 Fixed firefighting systems. Automatic sprinkler systems. Design, installation, and maintenance

### BS 5446-2:2003 Fire detection and fire alarm devices for dwellings. Part 2 Specification for heat alarms

### BS 5839-1:2013 Fire detection and fire alarm systems for buildings. Part 1 Code of practice for design, installation, commissioning, and maintenance of systems in non-domestic premises

### BS 5839-3:1988 Fire detection and alarm systems for buildings. Part 3 Specification for automatic release mechanisms for certain fire protection equipment

### BS 5839-6:2013 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

### BS 5839-8:2013 Fire detection and fire alarm systems for buildings. Part 8 Code of practice for the design, installation, commissioning, and maintenance of voice alarm systems

### BS 5839-9:2011 Fire detection and fire alarm systems for buildings. Part 9 Code of practice for the design, installation, commissioning, and maintenance of emergency voice communication systems

### BS 6266:2011 Code of practice for fire protection for electronic equipment installations

### BS 7671:2008+A2:2013 Requirements for electrical installations. IET Wiring Regulations. Seventeenth edition

### BS 8456:2005 Code of practice for design and installation of directional sounder evacuation systems

### BS EN 14604:2005 Smoke alarm devices

### BS EN 50130-4:2011 Alarm systems. Part 4 Electromagnetic compatibility. Product family standard: Immunity requirements for components of fire, intruder and social alarm systems

### BS EN 54-10:2002 Fire detection and fire alarm systems. Part 10 Flame detectors. Point detectors.

### BS EN 54-11:2001 Fire detection and fire alarm systems. Part 11 Manual call points

### BS EN 54-12:2002 Fire detection and fire alarm systems. Part 12 Smoke detectors. Line detectors using an optical light beam.

### BS EN 54-16:2008 Fire detection and fire alarm systems. Part 16 Voice alarm control and indicating equipment.

### BS EN 54-17:2005 Fire detection and fire alarm systems. Part 17 Short-circuit isolators.

### BS EN 54-18:2005 Fire detection and fire alarm systems. Part 18 Input/output devices

### BS EN 54-2:1997+A1:2006 Fire detection and fire alarm systems. Part 2 Control and indicating equipment.

### BS EN 54-20:2006 Fire detection and fire alarm systems. Part 20 Aspirating smoke detectors

### BS EN 54-21:2006 Fire detection and fire alarm systems. Part 21 Alarm transmission and fault warning routing equipment

### BS EN 54-23:2010 Fire detection and fire alarm systems. Part 23 Fire alarm devices. Visual alarm devices

### BS EN 54-24:2008 Fire detection and fire alarm systems. Part 24 Components of voice alarm systems. Loudspeakers

### BS EN 54-25:2008 Fire detection and fire alarm systems. Part 54-25 Components using radio links.

### BS EN 54-3:2001 Fire detection and fire alarm systems. Part 3 Fire alarm devices. Sounders

### BS EN 54-4:1998 Fire detection and fire alarm systems. Part 4 Power supply equipment

### BS EN 54-5:2001 Fire detection and fire alarm systems. Part 5 Heat detectors. Point detectors.

### BS EN 54-7:2001 Fire detection and fire alarm systems. Part 7 Smoke detectors. Point detectors using scattered light, transmitted light or ionization.

### BS EN 60268-16:2003 Sound system equipment. Part 16 Objective rating of speech intelligibility by speech transmission index

### BS EN 60524:1993 Direct-current resistive volt ratio boxes

### BS EN 60529:1992+A2:2013 Degrees of protection provided by enclosures (IP code)

# FIRE DETECTION AND ALARM

## PERFORMANCE OBJECTIVES

### The Contractor is to provide an extension to the existing fire alarm system to provide connections to the flow switches of the sprinklers along with a mimic panel located at ground floor to identify floor of operation of flow valves. The Contractor shall note that the employer has provided a performance design. The design intent only is shown in respect of this specification section, the Contractor shall be responsible in for completing the detailed design and the design development.

## DESIGN PARAMETERS

### The fire alarm system shall be design, supplied, installed, commissioned, and set to work in accordance with all appropriate standards, including but not limited to the following:

### BS 7671 Requirements for Electrical Installations, the IEE Wiring Regulations.

### BS EN 61439 Low-voltage switchgear and control gear assemblies.

### The Electricity at Work Regulations.

### Electrical Supply Regulations.

### Local Supply Authority Requirements.

### The Building Regulations.

### Acts of Parliament and Local Byelaws.

### British Standards and Codes of Practice.

### CIBSE Guides and Codes.

### Building Control Officers Requirements.

### Fire Officers Requirements.

### Insurance company requirements.

### Health and Safety at Work Act.

### Construction, Design and Management Regulations.

### Loss prevention council standards.

### BS 5839 Fire Detection and Fire Alarm Systems for Buildings.

### ISO 14001 and Sustainability Development Policies.

### The Contractor shall be responsible for the detailed design, procurement, supply, installation, testing, commissioning, demonstration, handover, and the production of detailed record documentation, including operating and maintenance manuals for the complete fire alarm installation. The Contractor shall update all existing fire alarm schematics and O&M information to provide up to date info including the modifications made under this Contract.

### SYSTEM DESCRIPTION

### The Contractor shall include for the carrying out of the following duties, which shall include the design, supply, installation, testing, commissioning, and setting to work of all plant, services and equipment as necessary to produce a suitable and fully operational system.

### The Contractor shall install provide interface units compatible with the existing fire alarm system to provide connection points to all flow switches on the sprinkler system.

### The Contractor shall extend the existing fire alarm loops to pick up all new fire alarm interfaces.

### The Contractor shall include for connection of the fire alarm cabling to the flow switches and interfaces.

### A new mimic panel shall be installed to identify the flow switch activation of sprinkler system. The Mimic panel shall easily identify the location of the activated flow switch. The mimic panel shall match the manufacturer of the existing system and all front-end programming shall be updated to cater for the installation.

### The Contractor shall engage the incumbent fire alarm specialist to undertake all the above works.

### The fire alarm system shall include all materials, equipment and wiring required to install the complete Fire Detection and Alarm System as specified. The system shall include but not be limited to control panels, repeater panels, and sensors, call points, audible and visual alarm indicating devices and relays.

### The installation shall include the laying of all cables required for connection of the detection, alarm indicating and other devices along with connections to the power supply as appropriate to the design. All cabling shall conform to the requirements and recommendations of the Fire Alarm Control Panel manufacturer. Any openings /chasings in walls, ceilings or floors shall be made good.

### The specialist fire system Contractor must be able to demonstrate competence by means of a valid manufacturer endorsed certificate relating to the products associated with this project.

### The specialist fire system Contractor must also be able to demonstrate competence by the below means of valid certification for technical accreditation:

* + - 1. BAFE SP203
      2. LPS 1014

### The accreditation must be specifically relevant to the specialist fire system Contractor being positioned to certify their work in the following modules:

* + - 1. Design
      2. Installation
      3. Commissioning
      4. Maintenance
      5. Verification
      6. Standards

### The fire detection system shall be installed and commissioned in accordance with, and all elements shall meet the requirements of BS5839-1: 2016 Code of Practice and EN54-Part 2: 1998. The responsible company should be able to demonstrate their competence to design, install and commission the system, e.g., by certification to BAFE SP203.

### The equipment manufacturer shall operate a quality management system in accordance with ISO 9001:2000. In addition, the equipment shall be manufactured under a recognised factory control procedure such as the BSI Kitemark scheme.

### All detection devices shall be independently certified as complying with the relevant EN54 standard.

# BMS functionality

### The Contractor shall ensure suitable provision for the future connection of Schneider Structure-ware.

# INDICATING EQUIPMENT - SYSTEM SOFTWARE:

## INDICATING EQUIPMENT - DESIGN FOR COMMISSIONABILITY:

### The Contractor shall ensure that the details required for commissioning are made available to the Fire Alarm commissioning engineer.

### The Contractor shall ensure that all sensors and controlled devices are easily accessible and can be removed for testing and future maintenance.

### The Contractor shall ensure that the requirements of the following documents are met:

* + - 1. Space and Weight Allowances for Building Services Plant - Inception Stage Design. BSRIA. TN 9/92.
      2. Space Allowances for Building Services Distribution Systems - Detailed Design Stage. BSRIA. TN 10/92.

### The Contractor shall ensure that sensors are installed correctly in order to give representative readings.

### The Contractor shall ensure that reference labels are attached to each control device.

## INDICATING EQUIPMENT - DESIGN FOR MAINTAINABILITY:

### The Contractor shall ensure that a full O&M manual is prepared which reflects any system changes made during the installation and commissioning stages.

### The Contractor shall ensure that adequate access to system equipment and components is provided.

### The Contractor shall ensure that all components and wiring are identified by a consistent numbering system.

# Employment Skills Plan (ESP)

### As part of this contract, we will expect the successful supplier / contractor to deliver an Employment Skills Plan (ESP), which includes the following targets to be met over the duration of the project:

* + - * + 3 Work placements
        + 1 Construction Curriculum Support Activity e.g., classroom talk.

### A member of the Leicester Employment Hub will contact the successful supplier / contractor to develop the ESP and work with them to deliver the targets and encourage the take-up of these opportunities by individuals from disadvantaged backgrounds.