



## Internal Alterations - Phase 2

**Third Floor, Marine House, Blaikies Quay,  
Aberdeen, AB 11 5EZ**

August 2018

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## Appendices

Appendix I Tender Drawings

**Prepared By: Stuart Ferris, Dip BS, MRICS**

Status: Final, Rev 3

Date: August 2018

For and on behalf of GVA Grimley Limited

# 1. Important Note to Contractors

## 1.1 PRICING THE TENDER DOCUMENTS

### 1.1.1 INCLUSIVE RATES AND PRICES

1.1.1.1 The Contractor shall include in his rates and prices for all works and materials necessary to complete the scope of works as shown or inferred on the drawings, and as detailed within the description of works and specifications. The Contractor shall not be entitled to any claim for additional monies due to his non-compliance or inability to include all necessary items. Any queries must be raised with GVA prior to submitting.

1.1.1.2 The Contractor shall include for making good within each element to be priced.

1.1.1.3 Removals shall mean removal off site to an appropriate licensed tip where necessary, unless otherwise stated.

### 1.1.2 QUANTITIES

1.1.2.1 Quantities have not been measured in accordance with SMM7. Where quantities have been stated within item descriptions, these are solely intended as an indicative guide as to the extent of work and should not be regarded as exact quantities. Contractors shall be fully responsible for procuring their own dimensions and quantities on the basis of the supplied tender drawings, specifications and from information collected from their own site inspections of the premises.

## 2. Preliminaries



**Maritime & Coastguard Agency, Marine House, Blaikies Quay, Aberdeen, AB11 5EZ  
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Item	Preliminaries	Rate £	Quantity	Unit	£	p
ECC576A10	<b>PROJECT PARTICULARS</b>					
110	<b>THE PROJECT</b> Name: Internal Alterations. Nature: Alterations to the internal layout of the third floor of Marine House to form a new reception, examination rooms and office accommodation. Location: Third Floor, Marine House, Blaikies Quay, Aberdeen, AB11 5EZ. Length of contract: 8 weeks.					
120	<b>EMPLOYER (CLIENT)</b> Name: Maritime & Coastguard Agency. Address: Spring Place, 105 Commercial Road, Southampton, SO15 1EG. Contact: C/O GVA. Telephone: N/A. E-mail: N/A.					
130	<b>PRINCIPAL CONTRACTOR (CDM)</b> Name: Appointed contractor under this contract. Address: To be confirmed. Contact: To be confirmed. Telephone: To be confirmed. E-mail: To be confirmed.					
140	<b>CLIENT'S DELEGATE</b> Name: GVA. Address: Sutherland House, 149 St Vincent Street, Glasgow, G2 5NW. Contact: Stuart Ferris. Telephone: 0141 305 6345. Email: stuart.ferris@gva.co.uk.					
150	<b>PRINCIPAL DESIGNER</b> Name: EPC Associates. Address: 6 Lonmay Place, Glasgow, G33 4ER. Contact: William Bell. Telephone: 0141 771 1386. E-mail: william.bell.epca.co.uk.					
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Item	Preliminaries	Rate £	Quantity	Unit	£	p
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ECC576A11	<b>TENDER AND CONTRACT DOCUMENTS</b>					
120	<b>CONTRACT DRAWINGS</b> The Contract Drawings: The same as the tender drawings.					
160	<b>PRECONSTRUCTION INFORMATION</b> Format: The Preconstruction information is described in these preliminaries in Section A34. It refers to information given elsewhere in the preliminaries and other tender documents.					
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Item	Preliminaries	Rate £	Quantity	Unit	£	p
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<b>ECC576A12</b>	<b>THE SITE/ EXISTING BUILDINGS</b>					
110	<p><b>THE SITE</b> Description: Third Floor, Marine House, Blaikies Quay, Aberdeen, AB11 5EZ.</p>					
180	<p><b>HEALTH AND SAFETY FILE</b> Availability for inspection: The Health and Safety File for the site/ building may be seen by appointment during normal office hours at: Marine House. Other documents: None. Arrangements for inspection: Via client's delegate.</p>					
200	<p><b>ACCESS TO THE SITE</b> Description: Access to Blaikies Quay is from Market Street via Regent Road. Limitations: None.</p>					
210	<p><b>PARKING</b> Restrictions on parking of the Contractor's and employees' vehicles: Car parking within Aberdeen Harbour is restricted. Off street paid car parking is available nearby.</p>					
220	<p><b>USE OF THE SITE</b> General: Do not use the site for any purpose other than carrying out the Works. Limitations: N/A.</p>					
230	<p><b>SURROUNDING LAND/ BUILDING USES</b> General: Adjacent or nearby uses or activities are as follows:  Ferry terminal, fish processing, container storage and warehousing.</p>					
240	<p><b>HEALTH AND SAFETY HAZARDS</b> General: The nature and condition of the site/ building cannot be fully and certainly ascertained before it is opened up. However, the following hazards are or may be present: The works involve a) downtakings; b) working at height. Information: The accuracy and sufficiency of this information is not guaranteed. Ascertain if any additional information is required to ensure the safety of all persons and the Works.  Site staff: Draw to the attention of all personnel working on the site the nature of any possible contamination and the need to take appropriate precautionary measures.</p>					
250	<p><b>SITE VISIT</b> Assessment: Ascertain the nature of the site, access thereto and all local conditions and restrictions likely to affect the execution of the Works. Arrangements for visit: Via client's delegate.</p>					
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Item	Preliminaries	Rate £	Quantity	Unit	£	p
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ECC576A13	<b>DESCRIPTION OF THE WORK</b>					
120	<p><b>THE WORKS</b>                      Description: Alterations to the Maritime &amp; Coastguard Agency's existing office accommodation on the third floor of Marine House, Blaikies Quay, Aberdeen, AB11 9EZ. Works includes:- a) Downtaking of existing raised access floor, demountable partition walls and suspended ceilings; b) Installation of new partition walls and suspended ceilings; c) Installation of new floor coverings; d) Internal decoration; e) New electrical installation including new small power circuits &amp; equipment, modifications to existing lighting circuits and new LED recessed modular light fittings; f) New data/telecoms installation; g) Alterations to existing air conditioning; h) Installation of mechanical ventilation; i) Modifications to existing fire alarm system; j) New door access control system; k) Minor plumberworks.</p>					
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Item	Preliminaries	Rate £	Quantity	Unit	£	p
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ECC576A20	<p><b>NEC3 ENGINEERING AND CONSTRUCTION SHORT CONTRACT</b></p> <p><b>NEC4 ENGINEERING AND CONSTRUCTION SHORT CONTRACT</b></p> <p>The Conditions of Contract: The core clauses, conditions and secondary Options indicated, for the NEC3 Engineering and Construction Short Contract (April 2013).</p> <p>Housing Grants Construction and Regeneration Act 1996, as amended by the Local Democracy, Economic Development and Construction Act 2009: does not apply.</p> <p>Requirement: Allow for the obligations, liabilities and services described.</p> <p><b>CONTRACT DATA</b></p> <p><b>THE CLIENT</b> See clause A10/120.</p> <p><b>THE WORKS</b> The Works: Summarised in clause A13/120 and defined in the description, drawings and specifications.</p> <p><b>THE SITE</b> The site: Described in clause A12/110 and detailed in Site Information.</p> <p><b>STARTING DATE</b> The starting date is: To be agreed.</p> <p><b>COMPLETION DATE</b> The completion date is: 8 weeks after Starting Date.</p> <p><b>PERIOD FOR REPLY</b> The period for reply is: 1 week.</p> <p><b>DEFECTS DATE</b> The defects date is: 52 weeks after completion.</p> <p><b>DEFECTS CORRECTION PERIOD</b> The defects correction period is: four weeks.</p> <p><b>DELAY DAMAGES</b> Amount per day: 2% of contract value per week.</p> <p><b>ASSESSMENT DAY</b> The assessment day is the: 1st of each month.</p> <p><b>RETENTION</b> The retention is: 5 %.</p> <p><b>ADJUDICATOR</b> The Adjudicator is: Name: RICS Dispute Resolution Service. Address: 125 Princes Street, Edinburgh, EH2 4AD. Tel: 0131 240 0832. E mail: drsscotland@rics.org.</p>					
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	<p><b>LIMITATION OF LIABILITY</b> For any one event, the liability of the Contractor to the Client for loss or damage to the Client's property is limited to: £5,000,000.</p> <p><b>INSURANCE COVER</b> The minimum amount of cover for the third insurance stated in the Insurance Table is: £10,000,000. The minimum amount of cover for the fourth insurance stated in the Insurance Table is: £10,000,000.</p> <p><b>TRIBUNAL</b> The tribunal is: Arbitration.</p> <p><b>ARBITRATION</b> If the tribunal is arbitration, the arbitration procedure is: Scottish Arbitration Code (2007).</p> <p><b>SCOPE</b> <b>1 - DESCRIPTION OF THE WORKS</b> Description: see clause A13/120 <b>2 - DRAWINGS</b> Drawings applicable to this contract: Listed in clause A11/110. 06B710797/PH2/1-8 <b>3 - SPECIFICATIONS</b> The Specification documents: Preliminaries, NBS Specification, M&amp;E Specification, Description of Works. Preconstruction information see clause A11/160. As available. <b>4 - CONSTRAINTS ON HOW THE CONTRACTOR PROVIDES THE WORKS</b> Construction hazards: As clause A34/120. Material hazard: As clause A34/130. Choice of subcontractor for specific categories of work: Door access control to be subcontracted as follows:- a) Think Security Systems Limited, Unit 4, Posterngate Business Park, Harts Lane, Godstone, Surrey, RH9 8LZ, tel. 01342 477447; b) Security &amp; Control Scotland, Block 15 West Avenue, Blantyre Industrial Estate, Glasgow, G72 0UZ.  Considerate Constructors Scheme: As clause A32/115. Occupier's rules and regulations: As clause A34/190. Other constraints: None. <b>5 - REQUIREMENTS FOR THE PROGRAMME</b> Programme: Submission: As clause A32/210. Updating: As clause A32/250. <b>6 - SERVICES AND OTHER THINGS PROVIDED BY THE CLIENT</b>  Client to provide: Services: Water and power, subject to fair usage. Facilities: Third floor kitchen and toilet accommodation, subject to maintained clean and sanitary.  Plant, materials and equipment: None. Date to be supplied: At start date. Retain the following for use by the Client: Description: N/A. Storage: N/A.</p>					
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	<p><b>SITE INFORMATION</b>                      Information: Listed in section A12 of the Preliminaries.                      Publicly available information: None.                      Other: None.</p>					
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ECC576A30	<b>TENDERING/ SUBLETTING/ SUPPLY</b>					
	<b>MAIN CONTRACT TENDERING</b>					
110	<b>SCOPE</b> General: These conditions are supplementary to those stated in the Invitation to Tender and on the form of tender.					
145	<b>TENDERING PROCEDURE</b> General: In accordance with NBS Guide to Tendering for Construction Projects. Errors: Alternative 1 is to apply.					
160	<b>EXCLUSIONS</b> Inability to tender: Immediately inform if any parts of the work as defined in the tender documents cannot be tendered. Relevant parts of the work: Define those parts, stating reasons for the inability to tender.					
170	<b>ACCEPTANCE OF TENDER</b> Acceptance: No guarantee is offered that any tender will be recommended for acceptance or be accepted, or that reasons for non acceptance will be given. Costs: No liability is accepted for any cost incurred in the preparation of any tender.					
190	<b>PERIOD OF VALIDITY</b> Period: After submission or lodgement, keep tender open for consideration (unless previously withdrawn) for not less than 60 days. Date for possession/ commencement: See section A20.					
	<b>PRICING/ SUBMISSION OF DOCUMENTS</b>					
210	<b>PRELIMINARIES IN THE SPECIFICATION</b> The Preliminaries/ General conditions sections (A10-A56 inclusive) must not be relied on as complying with SMM7/ NRM2.					
220	<b>PRICING OF PRELIMINARIES</b> Charges: When pricing Preliminaries, identify separately for each item where, for the purpose of valuing the work, the charge for that item is considered to be: Fixed: (i.e. where the charge for the item does not depend on duration). Time related: (i.e. where the charge for the item is dependent on duration).					
250	<b>PRICED DOCUMENTS</b> Alterations: Do not alter or qualify the priced documents without written consent. Tenders containing unauthorised alterations or qualifications may be rejected.  Measurements: Where not stated, ascertain from the drawings. Deemed included: Costs relating to items, which are not priced, will be deemed to have been included elsewhere in the tender. Submit: With tender.					
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310	<p><b>TENDER</b> General: Tenders must include for all work shown or described in the tender documents as a whole or clearly apparent as being necessary for the complete and proper execution of the Works.</p>					
480	<p><b>PROGRAMME</b> Programme of work: Prepare a summary showing the sequence and timing of the principal parts of the Works and periods for planning and design. Itemize any work which is excluded. Submit: Within two weeks of request.</p>					
510	<p><b>ALTERNATIVE METHOD TENDERS</b> General: In addition to and at the same time as tendering for the Works as defined in the tender documents, alternative methods of construction/ installation may be submitted for consideration. Alternatives, which would involve significant changes to other work, may not be considered. Alternative tenders: Such alternatives will be deemed to be alternative tenders and each must include a complete and precise statement of the effects on cost and programme.  Safety method statement: Carry out a health and safety risk assessment for each alternative and where appropriate provide a safety method statement suitable for incorporation in the Health and Safety Plan. Full technical data: Submit for each alternative together with details of any consequential amendments to the design and/ or construction of other parts of the Works. Submit: With tender.</p>					
530	<p><b>SUBSTITUTE PRODUCTS</b> Details: If products of different manufacture to those specified are proposed, submit details with the tender giving reasons for each proposed substitution. Substitutions, which have not been notified at tender stage, may not be considered. Compliance: Substitutions accepted will be subject to the verification requirements of clause A31/200.</p>					
550	<p><b>HEALTH AND SAFETY INFORMATION</b> Content: Describe the organization and resources to safeguard the health and safety of operatives, including those of subcontractors, and of any person whom the Works may affect. Include:     A copy of the health and safety policy document, including risk assessment procedures.     Accident and sickness records for the past five years.      Records of previous Health and Safety Executive enforcement action.     Records of training and training policy.     The number and type of staff responsible for health and safety on this project with details of their qualifications and duties. Submit: Within two weeks of request.</p>					
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570	<p><b>OUTLINE CONSTRUCTION PHASE HEALTH AND SAFETY PLAN</b></p> <p>Content: Submit the following information within two weeks of request:</p> <ul style="list-style-type: none"> <li>Method statements on how risks from hazards identified in the pre-construction information and other hazards identified by the contractor will be addressed.</li> <li>Details of the management structure and responsibilities.</li> <li>Arrangements for issuing health and safety directions.</li> <li>Procedures for informing other contractors and employees of health and safety hazards.</li> <li>Selection procedures for ensuring competency of other contractors, the self-employed and designers.</li> <li>Procedures for communications between the project team, other contractors and site operatives.</li> <li>Arrangements for cooperation and coordination between contractors.</li> <li>Procedures for carrying out risk assessment and for managing and controlling the risk.</li> <li>Emergency procedures including those for fire prevention and escape.</li> <li>Arrangements for ensuring that all accidents, illness and dangerous occurrences are recorded.</li> <li>Arrangements for welfare facilities.</li> <li>Procedures for ensuring that all persons on site have received relevant health and safety information and training.</li> <li>Arrangements for consulting with and taking the views of people on site.</li> <li>Arrangements for preparing site rules and drawing them to the attention of those affected and ensuring their compliance.</li> <li>Monitoring procedures to ensure compliance with site rules, selection and management procedures, health and safety standards and statutory requirements.</li> <li>Review procedures to obtain feedback.</li> </ul>					
590	<p><b>SITE WASTE MANAGEMENT PLAN</b></p> <p>Person responsible for developing the Plan: The Contractor.</p> <p>Content: Include details of:</p> <ul style="list-style-type: none"> <li>Principal Contractor for the purposes of the plan</li> <li>Location of the site.</li> <li>Description of the project.</li> <li>Estimated project cost.</li> <li>Types and quantities of waste that will be generated.</li> <li>Resource management options for these wastes including proposals for minimization/ reuse/ recycling.</li> <li>The use of appropriate and licensed waste management contractors.</li> <li>Record keeping procedures.</li> <li>Waste auditing protocols.</li> </ul> <p>Additional requirements: None. Submit: Within two weeks of request.</p>					
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599	<p><b>FREEDOM OF INFORMATION</b></p> <ul style="list-style-type: none"> <li>· Records: Retain, make available for inspection and supply on request information reasonably required to allow response to requests made under the provisions of the Freedom of Information Act.</li> <li>· Determination: Submit requests received. Do not supply information to anyone other than the project participants without express written permission.</li> <li>· Confidentiality: Maintain at all times.</li> </ul> <p><b>SUBLETTING/ SUPPLY</b></p>					
640	<p><b>'LISTED' DOMESTIC SUBCONTRACTORS</b></p> <p>General: The work listed below and described in the Contract Documents must be carried out by persons identified in a list as provided for in clause A30/645:</p> <p>The work: Door Access Control System.</p> <p>Enter into a contract with one of the following:</p> <ul style="list-style-type: none"> <li>a) Think Security Systems Limited, Unit 4, Posterngate Business Park, Harts Lane, Godstone, Surrey, RH9 8LZ, tel. 01342 477447;</li> <li>b) Security &amp; Control Scotland, Block 15 West Avenue, Blantyre Industrial Estate, Glasgow, G72 0UZ.</li> </ul>					
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ECC576A31	<b>PROVISION, CONTENT AND USE OF DOCUMENTS</b>					
	<b>DEFINITIONS AND INTERPRETATIONS</b>					
110	<b>DEFINITIONS</b> Meaning: Terms, derived terms and synonyms used in the preliminaries/ general conditions and specification are as stated therein or in the appropriate British Standard or British Standard glossary.					
120	<b>COMMUNICATION</b> Definition: Includes advise, inform, submit, give notice, instruct, agree, confirm, seek or obtain information, consent or instructions, or make arrangements. Format: In writing to the person named in clause A10/140 unless specified otherwise. Response: Do not proceed until response has been received.					
130	<b>PRODUCTS</b> Definition: Materials, both manufactured and naturally occurring, and goods, including components, equipment and accessories, intended for the permanent incorporation in the Works. Includes: Goods, plant, materials, site materials and things for incorporation into the Works.					
135	<b>SITE EQUIPMENT</b> Definition: Apparatus, appliances, machinery, vehicles or things of whatsoever nature required in or about the construction for the execution and completion of the Works but not materials or other things intended to form or forming part of the Permanent Works. Includes: Construction appliances, vehicles, consumables, tools, temporary works, scaffolding, cabins and other site facilities. Excludes: Products and equipment or anything intended to form or forming part of the permanent works.					
140	<b>DRAWINGS</b> Definitions: To BSRIA BG 6 A design framework for building services. Design activities and drawing definitions.  CAD data: In accordance with BS 1192.					
145	<b>CONTRACTOR'S CHOICE</b> Meaning: Selection delegated to the Contractor, but liability to remain with the specifier.					
150	<b>CONTRACTOR'S DESIGN</b> Meaning: Design to be carried out or completed by the Contractor and supported by appropriate contractual arrangements, to correspond with specified requirements.					
155	<b>SUBMIT PROPOSALS</b> Meaning: Submit information in response to specified requirements.					
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160	<p><b>TERMS USED IN SPECIFICATION</b></p> <p>Remove: Disconnect, dismantle as necessary and take out the designated products or work and associated accessories, fixings, supports, linings and bedding materials. Dispose of unwanted materials. Excludes taking out and disposing of associated pipework, wiring, ductwork or other services.</p> <p>Fix: Receive, unload, handle, store, protect, place and fasten in position and disposal of waste and surplus packaging including all labour, materials and site equipment for that purpose.</p> <p>Supply and fix: As above, but including supply of products to be fixed. All products to be supplied and fixed unless stated otherwise.</p> <p>Keep for reuse: Do not damage designated products or work. Clean off bedding and jointing materials. Stack neatly, adequately protect and store until required by the Employer/ Purchaser or for use in the Works as instructed.</p> <p>Make good: Execute local remedial work to designated work. Make secure, sound and neat. Excludes redecoration and/ or replacement.</p> <p>Replace: Supply and fix new products matching those removed. Execute work to match original new state of that removed.</p> <p>Repair: Execute remedial work to designated products. Make secure, sound and neat. Excludes redecoration and/ or replacement.</p> <p>Refix: Fix removed products.</p> <p>Ease: Adjust moving parts of designated products or work to achieve free movement and good fit in open and closed positions.</p> <p>Match existing: Provide products and work of the same appearance and features as the original, excluding ageing and weathering. Make joints between existing and new work as inconspicuous as possible.</p> <p>System: Equipment, accessories, controls, supports and ancillary items, including installation, necessary for that section of the work to function.</p>					
170	<p><b>MANUFACTURER AND PRODUCT REFERENCE</b></p> <p>Definition: When used in this combination:</p> <p style="padding-left: 20px;">Manufacturer: the person or legal entity under whose name or trademark the particular product, component or system is marketed</p> <p style="padding-left: 20px;">Product reference: the proprietary brand name and/ or identifier by which the particular product, component or system is described.</p> <p>Currency: References are to the particular product as specified in the manufacturer's technical literature current on the date of the invitation to tender.</p>					
200	<p><b>SUBSTITUTION OF PRODUCTS</b></p> <p>Products: If an alternative product to that specified is proposed, obtain approval before ordering the product.</p> <p>Reasons: Submit reasons for the proposed substitution.</p>					
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	Documentation: Submit relevant information, including: manufacturer and product reference; cost; availability; relevant standards; performance; function; compatibility of accessories; proposed revisions to drawings and specification; compatibility with adjacent work; appearance; copy of warranty/ guarantee. Alterations to adjacent work: If needed, advise scope, nature and cost. Manufacturers' guarantees: If substitution is accepted, submit before ordering products.					
210	<b>CROSS REFERENCES</b> Accuracy: Check remainder of the annotation or item description against the terminology used in the section or clause referred to. Related terminology: Where a numerical cross-reference is not given the relevant sections and clauses of the specification will apply. Relevant clauses: Clauses in the referred to specification section dealing with general matters, ancillary products and execution also apply. Discrepancy or ambiguity: Before proceeding, obtain clarification or instructions.					
220	<b>REFERENCED DOCUMENTS</b> Conflicts: Specification prevails over referenced documents.					
230	<b>EQUIVALENT PRODUCTS</b> Inadvertent omission: Wherever products are specified by proprietary name the phrase 'or equivalent' is to be deemed included.					
240	<b>SUBSTITUTION OF STANDARDS</b> Specification to British Standard or European Standard: Substitution may be proposed complying with a grade or category within a national standard of another Member State of the European Community or an international standard recognised in the UK. Before ordering: Submit notification of all such substitutions.  Documentary evidence: Submit for verification when requested as detailed in clause A31/200. Any submitted foreign language documents must be accompanied by certified translations into English.					
250	<b>CURRENCY OF DOCUMENTS AND INFORMATION</b> Currency: References to published documents are to the editions, including amendments and revisions, current on the date of the Invitation to Tender.					
260	<b>SIZES</b> General dimensions: Products are specified by their co-ordinating sizes.					
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	<p>Timber: Cross section dimensions shown on drawings are:</p> <p>Target sizes as defined in BS EN 336 for structural softwood and hardwood sections. Finished sizes for non-structural softwood or hardwood sawn and further processed sections.</p> <p><b>DOCUMENTS PROVIDED ON BEHALF OF EMPLOYER</b></p>					
410	<p><b>ADDITIONAL COPIES OF DRAWINGS/ DOCUMENTS</b> Copies: Two of each contract drawing and contract document will be issued free of charge (not counting any certified copies). Additional copies: Issued on request and charged to the Contractor.</p>					
440	<p><b>DIMENSIONS</b> Scaled dimensions: Do not rely on.</p>					
460	<p><b>THE SPECIFICATION</b> Coordination: All sections must be read in conjunction with Main Contract Preliminaries/ General conditions.</p> <p><b>DOCUMENTS PROVIDED BY CONTRACTOR/ SUBCONTRACTORS/ SUPPLIERS</b></p>					
510	<p><b>DESIGN AND PRODUCTION INFORMATION</b> General: Complete the design and detailing of parts of the Works as specified. Provide: Production information based on the drawings, specification and other information. Liaison to ensure coordination of the work with related building elements and services. Master programme: Make reasonable allowance for completing design/ production information, submission (including information relevant to the CDM Regulations), comment, inspection, amendment, resubmission and reinspection. Design/ production information: Submit two copies, one can be returned with comments. Ensure that any necessary amendments are made without delay. Contractor's changes to Employer's Requirements: Support request for substitution or change with all relevant information. Employer's amendments to Employer's Requirements: If considered to involve a change, which has not already been acknowledged as a change, notify without delay (maximum period 7 days), and do not proceed until instructed. Claims for extra cost, if made after it has been carried out, may not be allowed. Final version of design/ production information: Submit one copy.</p>					
630	<p><b>TECHNICAL LITERATURE</b> Information: Keep on site for reference by all supervisory personnel: Manufacturers' current literature relating to all products to be used in the Works. Relevant British, EN or ISO Standards.</p>					
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640	<p><b>MAINTENANCE INSTRUCTIONS AND GUARANTEES</b>                      Components and equipment: Obtain or retain copies, register with manufacturer and hand over on or before completion of the Works.                      Information location: In Building Manual.                      Emergency call out services: Provide telephone numbers for use after completion. Extent of cover: twenty four hours seven days a week.</p>					
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ECC576A32	<b>MANAGEMENT OF THE WORKS</b>					
	<b>GENERALLY</b>					
110	<b>SUPERVISION</b> General: Accept responsibility for coordination, supervision and administration of the Works, including subcontracts.  Coordination: Arrange and monitor a programme with each subcontractor, supplier, local authority and statutory undertaker, and obtain and supply information as necessary for coordination of the work.					
115	<b>CONSIDERATE CONSTRUCTORS SCHEME</b> Registration: Before starting work, register the site and pay the appropriate fee: Contact: Address: Considerate Constructors Scheme Office, PO Box 75, Great Amwell, Ware, Hertfordshire, SG12 0YX.  Tel. 01920 485959. Fax. 01920 485958. Free phone 0800 7831423 Web. www.ccscheme.org.uk E mail. enquiries@ccscheme.org.uk Standard: Comply with the Scheme's Code of Considerate Practice. Minimum compliance level: Compliance.					
120	<b>INSURANCE</b> Documentary evidence: Before starting work on site submit details, and/ or policies and receipts for the insurances required by the Conditions of Contract.					
130	<b>INSURANCE CLAIMS</b> Notice: If any event occurs which may give rise to any claim or proceeding in respect of loss or damage to the Works or injury or damage to persons or property arising out of the Works, immediately give notice to the Employer, the person named in clause A10/140 and the Insurers.  Failure to notify: Indemnify the Employer against any loss, which may be caused by failure to give such notice.					
	<b>PROGRAMME/ PROGRESS</b>					
210	<b>PROGRAMME</b> Master programme: Immediately when requested and before starting work on site submit in an approved form a master programme for the Works, which must include details of:  Work stages or elements of the construction as appropriate for the Works. Design and production information provided by the Contractor/ Subcontractors/ Suppliers, including inspection and checking (see SectionA31). Planning and mobilisation by the Contractor. Earliest and latest start and finish dates for each activity and identify all critical activities. Running in, adjustment, commissioning and testing of all engineering services and installations.					
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	<p>Work by or on behalf of the Employer (see section A50) the nature and scope of which, the relationship with preceding and following work and any relevant limitations, are suitably defined in the Contract Documents.</p> <p>Exclusions: Where and to the extent that the programme implications for work which is not so defined are impossible to assess the Contractor should exclude it and confirm this when submitting the programme.</p> <p>Submit one copy.</p>					
240	<p><b>COMMENCEMENT OF WORK</b></p> <p>Notice: Before the proposed date for commencement of work on site give minimum notice of two weeks.</p>					
250	<p><b>MONITORING</b></p> <p>Progress: Record on a copy of the programme kept on site.</p> <p>Avoiding delays: If any circumstances arise which may affect the progress of the Works submit proposals or take other action as appropriate to minimize any delay and to recover any lost time.</p> <p>Weekly completion forecast: Submit on the last working day.</p> <p>Key Performance Indicators: Record progress against each of the KPIs. If performance against KPI falls short of target, submit proposals for remediation.</p>					
	<p><b>NOTIFICATION OF COMPENSATION EVENT</b></p> <p>Content: Notwithstanding the Contractor's obligations under the Contract written notice must also be given of all other causes which apply concurrently.</p>					
260	<p><b>SITE MEETINGS</b></p> <p>General: Site meetings will be held to review progress and other matters arising from administration of the Contract.</p> <p>Frequency: Every two weeks.</p> <p>Location: Site.</p> <p>Accommodation: Ensure availability at the time of such meetings.</p> <p>Attendees: Attend meetings and inform subcontractors and suppliers when their presence is required.</p> <p>Chairperson (who will also take and distribute minutes): Contract Administrator.</p>					
	<p><b>CONTROL OF COST</b></p>					
420	<p><b>REMOVAL/ REPLACEMENT OF EXISTING WORK</b></p> <p>Extent and location: Agree before commencement.</p> <p>Execution: Carry out in ways that minimize the extent of work.</p>					
430	<p><b>QUOTATIONS FOR PROPOSED INSTRUCTIONS OR COMPENSATION EVENTS</b></p> <p>Include:</p> <p>A detailed breakdown of the cost including any allowance for direct loss and expense.</p> <p>Details of any additional resources required.</p> <p>Details of any adjustments to be made to the programme for the Works.</p>					
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	<p style="text-align: center;"><i>Brought Forward from Previous Page</i></p> <p>Any other information as is reasonably necessary to fully assess the implications of issuing such an instruction.</p> <p>Inability to comply: Inform immediately if it is not possible to comply with any of the above requirements.</p> <p style="text-align: right;"><i>Carried forward to next page</i></p>					



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ECC576A33	<b>QUALITY STANDARDS/ CONTROL</b>					
	<b>STANDARDS OF PRODUCTS AND EXECUTIONS</b>					
110	<b>INCOMPLETE DOCUMENTATION</b> General: Where and to the extent that products or work are not fully documented, they are to be: Of a kind and standard appropriate to the nature and character of that part of the Works where they will be used. Suitable for the purposes stated or reasonably to be inferred from the project documents. Contract documents: Omissions or errors in description and/ or quantity shall not vitiate the Contract nor release the Contractor from any obligations or liabilities under the Contract.					
120	<b>WORKMANSHIP SKILLS</b> Operatives: Appropriately skilled and experienced for the type and quality of work. Registration: With Construction Skills Certification Scheme.  Evidence: Operatives must produce evidence of skills/ qualifications when requested.					
130	<b>QUALITY OF PRODUCTS</b> Generally: New. (Proposals for recycled products may be considered). Supply of each product: From the same source or manufacturer. Whole quantity of each product required to complete the Works: Consistent kind, size, quality and overall appearance.  Tolerances: Where critical, measure a sufficient quantity to determine compliance. Deterioration: Prevent. Order in suitable quantities to a programme and use in appropriate sequence.					
135	<b>QUALITY OF EXECUTION</b> Generally: Fix, apply, install or lay products securely, accurately, plumb, neatly and in alignment. Colour batching: Do not use different colour batches where they can be seen together. Dimensions: Check on-site dimensions. Finished work: Not defective, e.g. not damaged, disfigured, dirty, faulty, or out of tolerance. Location and fixing of products: Adjust joints open to view so they are even and regular.					
140	<b>COMPLIANCE</b> Compliance with proprietary specifications: Retain on site evidence that the proprietary product specified has been supplied. Compliance with performance specifications: Submit evidence of compliance, including test reports indicating:  Properties tested. Pass/ fail criteria. Test methods and procedures. Test results. Identity of testing agency. Test dates and times. Identities of witnesses. Analysis of results.					
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150	<p><b>INSPECTIONS</b>                      Products and executions: Inspection or any other action must not be taken as approval unless confirmed in writing referring to:                      Date of inspection.                      Part of the work inspected.                      Respects or characteristics which are approved.                      Extent and purpose of the approval.                      Any associated conditions.</p>					
160	<p><b>RELATED WORK</b>                      Details: Provide all trades with necessary details of related types of work. Before starting each new type or section of work ensure previous related work is:                      Appropriately complete.                      In accordance with the project documents.                      To a suitable standard.                      In a suitable condition to receive the new work.                      Preparatory work: Ensure all necessary preparatory work has been carried out.</p>					
170	<p><b>MANUFACTURER'S RECOMMENDATIONS/ INSTRUCTIONS</b>                      General: Comply with manufacturer's printed recommendations and instructions current on the date of the Invitation to tender.                      Changes to recommendations or instructions: Submit details.                        Ancillary products and accessories: Use those supplied or recommended by main product manufacturer.                      Agrément certified products: Comply with limitations, recommendations and requirements of relevant valid certificates.</p>					
180	<p><b>WATER FOR THE WORKS</b>                      Mains supply: Clean and uncontaminated.                      Other: Do not use until:                      Evidence of suitability is provided.                      Tested to BS EN 1008 if instructed.</p> <p><b>SAMPLES/ APPROVALS</b></p>					
210	<p><b>SAMPLES</b>                      Products or executions: Comply with all other specification requirements and in respect of the stated or implied characteristics either:                      To an express approval.                      To match a sample expressly approved as a standard for the purpose.</p>					
220	<p><b>APPROVAL OF PRODUCTS</b>                      Submissions, samples, inspections and tests: Undertake or arrange to suit the Works programme.                      Approval: Relates to a sample of the product and not to the product as used in the Works. Do not confirm orders or use the product until approval of the sample has been obtained.                      Complying sample: Retain in good, clean condition on site. Remove when no longer required.</p>					
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230	<p><b>APPROVAL OF EXECUTION</b>                      Submissions, samples, inspections and tests: Undertake or arrange to suit the Works programme.                      Approval: Relates to the stated characteristics of the sample. (If approval of the finished work as a whole is required this is specified separately). Do not conceal, or proceed with affected work until compliance with requirements is confirmed.                      Complying sample: Retain in good, clean condition on site. Remove when no longer required.</p>					
320	<p><b>SETTING OUT</b>                      General: Submit details of methods and equipment to be used in setting out the Works.                      Levels and dimensions: Check and record the results on a copy of drawings. Notify discrepancies and obtain instructions before proceeding.                      Inform: When complete and before commencing construction.</p>					
330	<p><b>APPEARANCE AND FIT</b>                      Tolerances and dimensions: If likely to be critical to execution or difficult to achieve, as early as possible either:                        Submit proposals; or                      Arrange for inspection of appearance of relevant aspects of partially finished work.                      General tolerances (maximum): To BS 5606, tables 1 and 2.</p>					
340	<p><b>CRITICAL DIMENSIONS</b>                      Critical dimensions: Set out and construct the Works to ensure compliance with the tolerances stated.                      Location: Detailed on drawings 06B710797/PH2/1.</p>					
410	<p><b>SERVICES REGULATIONS</b>                      New or existing services: Comply with the Byelaws or Regulations of the relevant Statutory Authority.</p>					
435	<p><b>ELECTRICAL INSTALLATION CERTIFICATE</b>                      Submit: When relevant electrical work is completed.                      Original certificate: To be lodged in the Building Manual.</p>					
445	<p><b>SERVICE RUNS</b>                      General: Provide adequate space and support for services, including unobstructed routes and fixings.                      Ducts, chases and holes: Form during construction rather than cut.                      Coordination with other works: Submit details of locations, types/ methods of fixing of services to fabric and identification of runs and fittings.</p>					
450	<p><b>MECHANICAL AND ELECTRICAL SERVICES</b>                      Final tests and commissioning: Carry out so that services are in full working order at completion of the Works.                      Building Regulations notice: Copy to be lodged in the Building Manual.</p>					
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510	<p><b>SUPERVISION</b>                      General: In addition to the constant management and supervision of the Works provided by the Contractor's person in charge, all significant types of work must be under the close control of competent trade supervisors to ensure maintenance of satisfactory quality and progress.</p> <p>Evidence: Submit, including details of the person proposed, their relevant skills training and knowledge; practical experience; qualifications; membership or registration with professional bodies; employment history, work related assessments and management structure.</p> <p>Submittal date: Within one week of request.                      Replacement: Give maximum possible notice before changing person in charge or site agent.</p>					
525	<p><b>ACCESS</b>                      Extent: Provide at all reasonable times access to the Works and to other places of the Contractor or subcontractors where work is being prepared for the Contract.</p> <p>Designate: Contract Administrator.</p>					
530	<p><b>OVERTIME WORKING</b>                      Notice: Prior to overtime being worked, submit details of times, types and locations of work to be done.                      Minimum period of notice: One day.                      Concealed work: If executed during overtime for which notice has not been given, it may be required to be opened up for inspection and reinstated at the Contractor's expense.</p>					
540	<p><b>DEFECTS IN EXISTING WORK</b>                      Undocumented defects: When discovered, immediately give notice. Do not proceed with affected related work until response has been received.                      Documented remedial work: Do not execute work which may:                          Hinder access to defective products or work; or                          Be rendered abortive by remedial work.</p>					
560	<p><b>TESTS AND INSPECTIONS</b>                      Timing: Agree and record dates and times of tests and inspections to enable all affected parties to be represented.</p> <p>Confirmation: One working day prior to each such test or inspection. If sample or test is not ready, agree a new date and time.                      Records: Submit a copy of test certificates and retain copies on site.</p>					
590	<p><b>RESISTANCE TO PASSAGE OF SOUND</b>                      Method: Specified constructions.                      Compliance: Submit results of testing ,                          Copies: Incorporate in the Building Manual.</p>					
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610	<p><b>PROPOSALS FOR RECTIFICATION OF DEFECTIVE PRODUCTS/ EXFCITIONS</b></p> <ul style="list-style-type: none"> <li>· Proposals: Immediately any execution or product is known, or appears, to be not in accordance with the Contract, submit proposals for opening up, inspection, testing, making good, adjustment of the Contract Sum, or removal and re-execution.</li> <li>· Acceptability: Such proposals may be unacceptable and contrary instructions may be issued.</li> </ul>					
710	<p><b>WORK BEFORE COMPLETION</b></p> <p>General: Make good all damage consequent upon the Works.</p> <p>Temporary markings, coverings and protective wrappings: Remove unless otherwise instructed.</p> <p>Cleaning: Clean the Works thoroughly inside and out, including all accessible ducts and voids. Remove all splashes, deposits, efflorescence, rubbish and surplus materials.</p> <p>Cleaning materials and methods: As recommended by manufacturers of products being cleaned, and must not damage or disfigure other materials or construction.</p> <p>COSHH dated data sheets: Obtain for all materials used for cleaning and ensure they are used only as recommended by their manufacturers.</p> <p>Minor faults: Touch up in newly painted work, carefully matching colour and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions.</p> <p>Moving parts of new work: Adjust, ease and lubricate as necessary to ensure easy and efficient operation, including doors, windows, drawers, ironmongery, appliances, valves and controls.</p>					
720	<p><b>SECURITY AT COMPLETION</b></p> <p>General: Leave the Works secure with, where appropriate, all accesses closed and locked.</p> <p>Keys: Account for and adequately label all keys and hand over together with an itemized schedule, retaining duplicate schedule signed as a receipt.</p>					
730	<p><b>MAKING GOOD DEFECTS</b></p> <p>Remedial work: Arrange access with Contract Administrator.</p> <p>Rectification: Give reasonable notice for access to the various parts of the Works.</p> <p>Completion: Notify when remedial works have been completed.</p>					
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ECC576A34	<b>SECURITY/ SAFETY/ PROTECTION</b>					
	<b>SECURITY, HEALTH AND SAFETY</b>					
110	<p><b>PRECONSTRUCTION INFORMATION</b>                      Location: Integral with the project Preliminaries, including but not restricted to the following sections:                      Description of project: Sections A10 and A11.                      Client's consideration and management requirements: Sections A12, A13 and A36.                      Environmental restrictions and on-site risks: Section A12, A35 and A34.                      Significant design and construction hazards: Section A34.                      The Health and Safety File: Section A37.</p>					
120	<p><b>EXECUTION HAZARDS</b>                      Common hazards: Not listed. Control by good management and site practice.                      Significant hazards: The design of the project includes the following:                      Hazard: N./A.                      Precautions assumed: N/A.                      Specification reference: N/A.                      Drawing reference: N/A.</p>					
130	<p><b>PRODUCT HAZARDS</b>                      Hazardous substances: Site personnel levels must not exceed occupational exposure standards and maximum exposure limits stated in the current version of HSE document EH40: Workplace Exposure Limits.                      Common hazards: Not listed. Control by good management and site practice.                      Significant hazards: Specified construction materials include the following:                      Hazard: N/A.                      Material: N/A.                      Specification reference: N/A.</p>					
140	<p><b>CONSTRUCTION PHASE HEALTH AND SAFETY PLAN</b>                      Submission: Present to the Employer/ Client no later than Two weeks prior to commencement.                      Confirmation: Do not start construction work until the Employer has confirmed in writing that the Construction Phase Health and Safety Plan includes the procedures and arrangements required by the CDM Regulations.                      Content: Develop the plan from and draw on the Outline Construction Phase Health and Safety Plan, clause A30/570, and the Pre-tender Health and Safety Plan/ Preconstruction information.</p>					
150	<p><b>SECURITY</b>                      Protection: Safeguard the site, the Works, products, materials, and any existing buildings affected by the Works from damage and theft.                      Access: Take all reasonable precautions to prevent unauthorized access to the site, the Works and adjoining property.                      Special requirements: None.</p>					
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160	<p><b>STABILITY</b>                      Responsibility: Maintain the stability and structural integrity of the Works and adjacent structures during the Contract.</p> <p>Design loads: Obtain details, support as necessary and prevent overloading.</p>					
170	<p><b>OCCUPIED PREMISES</b>                      Extent: Existing buildings will be occupied and/ or used during the Contract as follows: All floors excluding third floor.</p> <p>Works: Carry out without undue inconvenience and nuisance and without danger to occupants and users.                      Overtime: If compliance with this clause requires certain operations to be carried out during overtime, and such overtime is not required for any other reason, the extra cost will be allowed, provided that such overtime is authorized in advance.</p>					
180	<p><b>ACCESS CONTROL</b>                      Controlled areas: All access points to building, all access points to individual floors, access points to secure areas including switch room, plant room and comms room..                      Control type: Access card with reader.                      Authorised persons: Submit a list of the names of all persons requiring access together with any other related information reasonably required.                      Return of credentials: When requested or on completion of the work to which the controlled area relates.</p>					
190	<p><b>OCCUPIER'S RULES AND REGULATIONS</b>                      Compliance: Conform to the occupier's rules and regulations affecting the site.                      Copies:                      Location: 4th Floor Operations Room.                      Arrangements for inspection: MCA Watch Commander.</p>					
200	<p><b>MOBILE TELEPHONES AND PORTABLE ELECTRONIC EQUIPMENT</b>                      Restrictions on use:                      None.</p>					
210	<p><b>SAFETY PROVISIONS FOR SITE VISITS</b>                      Safety: Submit details in advance of safety provisions and procedures (including those relating to materials, which may be deleterious), which will require their compliance when visiting the site.                      Protective clothing and/ or equipment: Provide and maintain on site for visitors to the site.</p> <p><b>PROTECT AGAINST THE FOLLOWING</b></p>					
330	<p><b>NOISE AND VIBRATION</b>                      Standard: Comply with the recommendations of BS 5228-1, in particular clause 7.3, to minimize noise levels during the execution of the Works.                      Noise levels from the Works: Maximum level: 70 dB(A) when measured from work area.</p>					
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	Equipment: Fit compressors, percussion tools and vehicles with effective silencers of a type recommended by manufacturers of the compressors, tools or vehicles.					
	Restrictions: Do not use: Percussion tools and other noisy appliances without consent during the hours of 10.00am - 4.00pm. Radios or other audio equipment or permit employees to use in ways or at times that may cause nuisance.					
340	<b>POLLUTION</b> Prevention: Protect the site, the Works and the general environment including the atmosphere, land, streams and waterways against pollution. Contamination: If pollution occurs inform immediately, including to the appropriate Authorities and provide relevant information.					
350	<b>PESTICIDES</b> Use: Not permitted.					
360	<b>NUISANCE</b> Duty: Prevent nuisance from smoke, dust, rubbish, vermin and other causes. Surface water: Prevent hazardous build-up on site, in excavations and to surrounding areas and roads.					
370	<b>ASBESTOS CONTAINING MATERIALS</b> Duty: Report immediately any suspected materials discovered during execution of the Works. Do not disturb. Agree methods for safe removal or encapsulation.					
371	<b>DANGEROUS OR HAZARDOUS SUBSTANCES</b> Duty: Report immediately suspected materials discovered during execution of the Works. Do not disturb. Agree methods for safe removal or remediation.					
380	<b>FIRE PREVENTION</b> Duty: Prevent personal injury or death, and damage to the Works or other property from fire. Standard: Comply with Joint Code of Practice 'Fire Prevention on Construction Sites', published by Construction Industry Publications and The Fire Protection Association (The 'Joint Fire Code').					
390	<b>SMOKING ON SITE</b> Smoking on site: Not permitted.					
400	<b>BURNING ON SITE</b> Burning on site: Not permitted.					
410	<b>MOISTURE</b> Wetness or dampness: Prevent, where this may cause damage to the Works. Drying out: Control humidity and the application of heat to prevent: Blistering and failure of adhesion. Damage due to trapped moisture. Excessive movement.					
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420	<p><b>INFECTED TIMBER/ CONTAMINATED MATERIALS</b>                      Removal: Where instructed to remove material affected by fungal/ insect attack from the building, minimize the risk of infecting other parts of the building.                      Testing: carry out and keep records of appropriate tests to demonstrate that hazards presented by concentrations of airborne particles, toxins and other micro organisms are within acceptable levels.</p>					
430	<p><b>WASTE</b>                      Includes: Rubbish, debris, spoil, surplus material, containers and packaging.                      General: Minimize production. Prevent accumulations. Keep the site and Works clean and tidy.                      Handling: Collect and store in suitable containers. Remove frequently and dispose off site in a safe and competent manner:                          Non-hazardous material: In a manner approved by the Waste Regulation Authority.                          Hazardous material: As directed by the Waste Regulation Authority and in accordance with relevant regulations.                      Recyclable material: Sort and dispose at a Materials Recycling Facility approved by the Waste Regulation Authority.                      Voids and cavities in the construction: Remove rubbish, dirt and residues before closing in.                      Waste transfer documentation: Retain on site.</p>					
440	<p><b>ELECTROMAGNETIC INTERFERENCE</b>                      Duty: Prevent excessive electromagnetic disturbance to apparatus outside the site.</p>					
450	<p><b>LASER EQUIPMENT</b>                      Construction laser equipment: Install, use and store in accordance with BS EN 60825-1 and the manufacturer's instructions.                      Class 1 or Class 2 laser equipment: Ensure laser beam is not set at eye level and is terminated at the end of its useful path.                      Class 3A and Class 3B laser equipment: Do not use without approval and subject to submission of a method statement on its safe use.</p>					
460	<p><b>POWDER ACTUATED FIXING SYSTEMS</b>                      Use: Not permitted.</p>					
470	<p><b>INVASIVE SPECIES</b>                      General: Prevent the spread of species (e.g. plants or animals) that may adversely affect the site or Works economically, environmentally or ecologically.                      Special precautions: None.                      Duty: Report immediately any suspected invasive species discovered during execution of the Works.                          Do not disturb.                          Agree methods for safe eradication or removal.</p> <p><b>PROTECT THE FOLLOWING</b></p>					
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510	<p><b>EXISTING SERVICES</b></p> <p>Confirmation: Notify all service authorities, statutory undertakers and/ or adjacent owners of proposed works not less than one week before commencing site operations.</p> <p>Identification: Before starting work, check and mark positions of utilities/ services. Where positions are not shown on drawings obtain relevant details from service authorities, statutory undertakers or other owners.</p> <p>Work adjacent to services:                      Comply with service authority's/ statutory undertaker's recommendations.                      Adequately protect, and prevent damage to services: Do not interfere with their operation without consent of service authorities/ statutory undertakers or other owners.</p> <p>Identifying services:                      Below ground: Use signboards, giving type and depth;                       Overhead: Use headroom markers.</p> <p>Damage to services: If any results from execution of the Works:                      Immediately give notice and notify appropriate service authority/ statutory undertaker.                      Make arrangements for the work to be made good without delay to the satisfaction of service authority/ statutory undertaker or other owner as appropriate.                      Any measures taken to deal with an emergency will not affect the extent of the Contractor's liability.</p> <p>Marker tapes or protective covers: Replace, if disturbed during site operations, to service authority's/ statutory undertakers recommendations.</p>					
570	<p><b>EXISTING WORK</b></p> <p>Protection: Prevent damage to existing work, structures or other property during the course of the work.</p> <p>Removal: Minimum amount necessary.</p> <p>Replacement work: To match existing.</p>					
580	<p><b>BUILDING INTERIORS</b></p> <p>Protection: Prevent damage from exposure to the environment, including weather, flora, fauna, and other causes of material degradation during the course of the work.</p>					
600	<p><b>EXISTING FURNITURE, FITTINGS AND EQUIPMENT</b></p> <p>Protection: Prevent damage or move as necessary to enable the Works to be executed. Reinstate in original positions.</p> <p>Extent: Before work in each room starts, the following will be removed:                      To be confirmed.</p>					
610	<p><b>ESPECIALLY VALUABLE/ VULNERABLE ITEMS</b></p> <p>Protection: Ensure provision and maintenance of special protective measures to prevent damage to the following:                       Radio equipment.</p> <p>Method statement: Submit within one week of request describing special protection to be provided.</p>					
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Item	Preliminaries	Rate £	Quantity	Unit	£	p
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625	<p><b>ADJOINING PROPERTY RESTRICTIONS</b></p> <p>Precautions:</p> <ul style="list-style-type: none"> <li>Prevent trespass of workpeople and take precautions to prevent damage to adjoining property.</li> <li>Pay all charges.</li> <li>Remove and make good on completion or when directed.</li> </ul> <p>Damage: Bear cost of repairing damage arising from execution of the Works.</p>					
630	<p><b>EXISTING STRUCTURES</b></p> <p>Duty: Check proposed methods of work for effects on adjacent structures inside and outside the site boundary.</p> <p>Supports: During execution of the Works:</p> <ul style="list-style-type: none"> <li>Provide and maintain all incidental shoring, strutting, needling and other supports as may be necessary to preserve stability of existing structures on the site or adjoining, that may be endangered or affected by the Works.</li> <li>Do not remove until new work is strong enough to support existing structure.</li> <li>Prevent overstressing of completed work when removing supports.</li> </ul> <p>Adjacent structures: Monitor and immediately report excessive movement.</p> <ul style="list-style-type: none"> <li>Standard: Comply with BS 5975 and BS EN 12812.</li> </ul>					
640	<p><b>MATERIALS FOR RECYCLING/ REUSE</b></p> <ul style="list-style-type: none"> <li>Duty: Sort and prevent damage to stated products or materials, clean off bedding and jointing materials and other contaminants.</li> <li>Storage: Stack neatly and protect until required by the Employer or for use in the Works as instructed.</li> </ul>					
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ECC576A35	<b>SPECIFIC LIMITATIONS ON METHOD/ SEQUENCE/ TIMING</b>					
160	<b>USE OR DISPOSAL OF MATERIALS</b> Specific limitations: All materials are to be delivered/disposed to/from site via rear fire escape stairwell. materials should not be left in stairwell.					
170	<b>WORKING HOURS</b> Specific limitations: 08.00am to 5.00pm.					
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ECC576A36	<b>FACILITIES/ TEMPORARY WORK/ SERVICES</b>					
340	<b>NAME BOARDS/ ADVERTISEMENTS</b> Name boards/ advertisements: Not permitted.					
410	<b>LIGHTING</b> Finishing work and inspection: Provide temporary lighting, the intensity and direction of which closely resembles that delivered by the permanent installation.					
420	<b>LIGHTING AND POWER</b> Supply: Electricity from the existing mains may be used for the Works as follows: Metering: Free of charge. Point of supply: Third floor switchroom. Available capacity: 240V. Frequency: 50 Hz. Phase: 3. Current: Alternating. Continuity: No responsibility will be accepted for the consequences of failure or restriction in supply.					
430	<b>WATER</b> Supply: The existing mains may be used for the Works as follows: Metering: Free of charge. Source: Existing rising main. Location of supply point: Third floor riser cupboard. Conditions/ Restrictions: None. Continuity: No responsibility will be accepted for the consequences of failure or restriction in supply.					
440	<b>TELEPHONES</b> Direct communication: As soon as practicable after the Date of Possession provide the Contractor's person in charge with a mobile telephone.					
530	<b>BENEFICIAL USE OF INSTALLED SYSTEMS</b> The following permanent systems may be used for the Works: Heating. Details: Existing central heating system.					
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<b>ECC576A37</b>	<b>OPERATION/ MAINTENANCE OF THE FINISHED WORKS</b>					
110	<p><b>THE BUILDING MANUAL</b>                      Responsibility: The Employer                      Content: Obtain and provide comprehensive information for owners and users of the completed Works. Include an overview of the main design principles and describe key components and systems within the finished Works, so affording a complete understanding of the Works, including all buildings and their systems to enable efficient and safe operation and maintenance.</p> <p>Specific requirements: None.                      Format: To be confirmed.                      Number of copies: 1.                      Delivery to: To be confirmed. by (date) To be confirmed.</p>					
115	<p><b>HEALTH AND SAFETY INFORMATION</b>                      Content: Obtain and provide the following information:                      Product technical data and maintenance sheets.                      Format: Hard copy.                      Deliver to: Contract Administrator No later than: One week after Completion Date.</p>					
155	<p><b>CONTENT OF THE BUILDING MANUAL</b>                      General: Details of the property, the parties, fire safety strategy, operational requirements and constraints of a general nature.                      Building fabric: Design criteria, maintenance details, product details, and environmental and trafficking conditions.                      Building services: Description and operation of systems, diagrammatic drawings, record drawings, identification of services, product details, equipment settings, maintenance schedules, consumable items, spares and emergency procedures.                      Documentation: Guarantees, warranties, maintenance agreements, test certificates and reports.</p>					
160	<p><b>PRESENTATION OF BUILDING MANUAL</b>                      Format: A4 size, plastics covered, loose leaf, four ring binders with hard covers, each indexed, divided and appropriately cover titled.                      Selected drawings needed to illustrate or locate items mentioned in the Manual: Where larger than A4, to be folded and accommodated in the binders so that they may be unfolded without being detached from the rings.</p> <p>As-built drawings: The main sets may form annexes to the Manual.</p>					
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### 3. NBS Specification



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Item	NBS Specification	Rate £	Quantity	Unit	£	p
K10	<p><b>Gypsum board dry linings/ partitions/ ceilings</b></p> <p>To be read with Preliminaries/ General conditions.</p> <p><b>TYPES OF DRY LINING</b></p>					
125	<p><b>METAL STUD PARTITION SYSTEM To new partition walls</b></p> <p>Manufacturer: British Gypsum. Product reference: Gypframe/Gyproc. Studs: Type: 70 AS 50 AcouStuds. Centres: 600mm. Head condition: 600 mm. Deflection allowance: 10 mm. Insulation: Isover Acoustic Partition Roll. Recycled content: 80% (minimum) to BS EN ISO 14021. Thickness: 50 mm.B22 Resilient layer: N/A. Linings: 12.5mm Gyproc Soundbloc. Finishing: Seamless jointing. Primer/ Sealer: Primer to painted areas. Accessories: None. Other requirements: Veneer timber facings &amp; skirtings.</p> <p><b>INSTALLATION</b></p>					
305	<p><b>GYPSUM BOARDS GENERALLY</b></p> <p>Standard: Gypsum plasterboard to BS EN 520. Fibre reinforced gypsum board to BS EN 15283-2. Evidence of compliance: All sheets to be CE marked. Submit Declaration of Performance (DoP).</p>					
335	<p><b>ADDITIONAL SUPPORTS</b></p> <p>Framing: Accurately position and securely fix to give full support to: Partition heads running parallel with, but offset from main structural supports. Fixtures, fittings and service outlets. Mark framing positions clearly and accurately on linings. Board edges and lining perimeters, as recommended by board manufacturer to suit type and performance of lining.</p>					
435	<p><b>DRY LININGS GENERALLY</b></p> <p>General: Use fixing, jointing, sealing and finishing materials, components and installation methods recommended by board manufacturer. Cutting gypsum boards: Neatly and accurately without damaging core or tearing paper facing. Cut edges: Minimize and position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners. Fixings boards: Securely and firmly to suitably prepared and accurately levelled backgrounds. Finishing: Neatly to give flush, smooth, flat surfaces free from bowing and abrupt changes of level.</p>					
445	<p><b>CEILINGS</b></p> <p>Sequence: Fix boards to ceilings before installing dry lined walls and partitions. Orientation of boards: Fix with bound edges at right angles to supports and with ends staggered in adjacent rows.</p>					
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	Two layer boarding: Stagger joints between layers.					
455	<p><b>METAL FRAMING FOR PARTITIONS/ WALL LININGS</b>                      Setting out: Accurately aligned and plumb.                      Frame/ Stud positions: Equal centres to suit specified linings, maintaining sequence across openings.                      Additional studs: To support vertical edges of boards.                      Fixing centres at perimeters (maximum): 600 mm.                      Openings: Form accurately.                      Doorsets: Use sleeved or boxed metal studs and/ or suitable timber framing to achieve strength grade requirements for framing assembly and adequately support weight of door.                      Services penetrations: Allow for associated fire stopping.</p>					
485	<p><b>SUSPENDED CEILING GRIDS</b>                      Setting out: Accurately aligned and level.                      Grid members and hangers: Centres to suit specified linings and imposed loads.                      Additional grid members: Provide bracing and stiffening at upstands, partition heads, access hatches, etc.                      Fixing: Securely at perimeters, grid joints, top and bottom hanger fixings.</p>					
505	<p><b>INSTALLING MINERAL WOOL INSULATION</b>                      Fitting insulation: Closely butted joints and no gaps. Use fasteners to prevent slumping or displacement.                      Services:                      Electrical cables overlaid by insulation: Sized accordingly.                      Ceilings: Cut insulation around electrical fittings, etc.</p>					
510	<p><b>SEALING GAPS AND AIR PATHS</b>                      Location of sealant: To perimeter abutments and around openings.                      Pressurized shafts and ducts: At board-to-board and board-to-metal frame junctions.                      Application: To clean, dry and dust free surfaces as a continuous bead with no gaps.                      Gaps greater than 6 mm between floor and underside of gypsum board: After sealing, fill with jointing compound.</p>					
560	<p><b>JOINTS BETWEEN BOARDS</b>                      Tapered edged gypsum boards:                      Bound edges: Lightly butted.                      Cut/ unbound edges: 3 mm gap.                      Square edged plasterboards: 3 mm gap.                      Square edged gypsum fibre boards: 5 mm gap.</p>					
565	<p><b>VERTICAL JOINTS</b>                      Joints: Centre on studs.                      Partitions: Stagger joints on opposite sides of studs.                      Two layer boarding: Stagger joints between layers.</p>					
570	<p><b>HORIZONTAL JOINTS</b>                      Surfaces exposed to view: Horizontal joints not permitted. Seek instructions where height of partition/ lining exceeds maximum available length of board.                      Two layer boarding: Stagger joints between layers by at least 600 mm.</p>					
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590	<p>Edges of boards: Support using additional framing. Two layer boarding: Support edges of outer layer.</p> <p><b>FIXING GYPSUM BOARD TO METAL FRAMING/ FURRINGS</b> Partitions/ Wall linings: Fix securely and firmly at the following centres (maximum): Single layer boarding: To all framing at 300 mm centres. Reduce to 200 mm centres at external angles.  Multi-layer boarding: Face layer at 300 mm centres, and previous layers around perimeters at 300 mm centres.  Ceilings: 230 mm. Reduce to 150 mm at board ends and at lining perimeters. Position of screws from edges of boards (minimum): 10 mm.  Screw heads: Set in a depression. Do not break paper or gypsum core.</p> <p><b>FINISHING</b></p>					
650	<p><b>LEVEL OF DRY LINING ACROSS JOINTS</b> Sudden irregularities: Not permitted. Joint deviations: Measure from faces of adjacent boards using methods and straightedges (450 mm long with feet/pads) to BS 8212, clause 3.3.5. Tapered edge joints: Permissible deviation (maximum) across joints when measured with feet resting on boards: 3 mm. External angles: Permissible deviation (maximum) for both faces: 4 mm. Internal angles: Permissible deviation (maximum) for both faces: 5 mm.</p>					
670	<p><b>SEAMLESS JOINTING TO GYPSUM BOARDS</b> Cut edges of boards: Lightly sand to remove paper burrs.  Filling and taping: Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of paper tape, fully bedded. Protection of edges/ corners: Reinforce external angles, stop ends, etc. with specified edge/ angle bead. Finishing: Apply jointing compound. Feather out each application beyond previous application to give a flush, smooth, seamless surface. Nail/ screw depressions: Fill with jointing compound to give a flush surface. Minor imperfections: Remove by light sanding.</p>					
725	<p><b>REPAIRS TO EXISTING GYPSUM BOARD</b> Filling small areas with broken cores: Cut away paper facing, remove loose core material and fill with jointing compound. Finish: Flush, smooth surface suitable for redecoration.</p>					
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	<p>Large patch repairs: Cut out damaged area and form neat hole with rectangular sides. Replace with matching gypsum board.</p> <p>Fixing: Use methods to suit type of dry lining, ensuring full support to all edges of existing and new gypsum board.</p> <p>Finishing: Fill joints, tape and apply jointing compound to give a flush, smooth surface suitable for redecoration.</p>					
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K40	<p><b>Demountable suspended ceilings</b></p> <p>To be read with Preliminaries/General conditions.</p> <p><b>TYPES OF CEILING SYSTEM</b></p>					
115	<p><b>UNIT/ MODULAR SUSPENDE CEILING SYSTEM To all areas</b></p> <p>Standard: To BS EN 13964. Evidence of compliance: All ceilings kits to be CE marked. Submit Declaration of Performance (DoP). Ceiling system manufacturer: Armstrong Ceiling Solutions.</p> <p>Product reference: Prelude 24 exposed 24mm grid system.</p> <p>Ceiling: Infill units: Dune eVo, tegular. Module: 600x600mm. Soffit height above finished floor level: 2700mm.</p> <p>Grid: Form: Interlocking. Exposure: Exposed. Spacings: 24mm.</p> <p>Access: None. Accessories: Manufacturer's standard, main runners, cross tees . Integrated services fittings: Hangers and housings for linear luminaires. Other requirements: None.</p> <p><b>COMPONENTS</b></p>					
245	<p><b>STANDARDS</b></p> <p>Steel panels: To BS EN 10346. Aluminium sheet, strip and plate: To BS EN 485-1 and -2. Aluminium bars, tubes and sections: To relevant parts of BS EN 515, BS EN 573, BS EN 755 and BS EN 12020.</p> <p><b>EXECUTION</b></p>					
305	<p><b>SETTING OUT</b></p> <p>General: Completed ceiling should present, over the whole of its surface exposed to the room below, a continuous and even surface, jointed (where applicable) at regular intervals. Infill and access units, integrated services: Fitted correctly and aligned. Edge/ perimeter infill units size (minimum): Half standard width or length. Corner infill units size (minimum): Half standard width and length. Grid: Position to suit infill unit sizes. Allow for permitted deviations from nominal sizes of infill units. Infill joints and exposed suspension members: Straight, aligned and parallel to walls, unless specified otherwise. Suitability of construction: Give notice where building elements and features to which the ceiling systems relate are not square, straight or level.</p>					
315	<p><b>PROTECTION</b></p> <p>Loading: Do not apply loads for which the suspension system is not designed.</p>					
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	<p>Ceiling materials: When necessary, remove and replace correctly using special tools and clean gloves, etc. as appropriate.</p>					
325	<p><b>INSTALLING HANGERS</b>                      Wire hangers: Straighten and tension before use.                      Installation: Install vertical or near vertical without bends or kinks. Do not allow hangers to press against fittings, services, or insulation covering ducts/ pipes.                      Obstructions: Where obstructions prevent vertical installation, either brace diagonal hangers against lateral movement, or hang ceiling system on an appropriate rigid sub-grid bridging across obstructions and supported to prevent lateral movement.                      Extra hangers: Provide as necessary to carry additional loads.                      Fixing:                      Wire hangers: Tie securely at top with tight bends to loops to prevent vertical movement.                      Angle/ Strap hangers: Do not use rivets for top fixing.                      Spacings: 1200mm.</p>					
335	<p><b>INSTALLING PERIMETER TRIMS</b>                      Jointing: Neat and accurate, without lipping or twisting.                      External and internal corners: Mitre joints generally. Overlap joints at internal corners are not acceptable.                      Intermediate butt joints: Minimize. Use longest available lengths of trim. Align adjacent lengths.                      Fixing: Fix firmly to perimeter wall, edge battens or other building structure.                      Fasteners: Dry wall screws.                      Fixing centres: 300mm.</p>					
390	<p><b>OPENINGS IN CEILING MATERIALS</b>                      General: Neat and accurate. To suit sizes and edge details of fittings. Do not distort ceiling system.</p>					
395	<p><b>INTEGRATED SERVICES</b>                      General: Position services accurately, support adequately. Align and level in relation to the ceiling and suspension system. Do not diminish performance of ceiling system.                      Small fittings: Support with rigid backing boards or other suitable means. Do not damage or distort the ceiling.                      Surface spread of flame rating of additional supporting material: Not less than ceiling material.                      Services outlets:                      Supported by ceiling system: Provide additional hangers.                      Independently supported: Provide flanges to support ceiling system.</p>					
401	<p><b>CEILING-MOUNTED LUMINAIRES</b>                      Support: By ceiling system.                      Independently supported luminaires: Suspension adjusted to line and level of ceiling.                      Ceiling supported luminaires: Modifications and/ or extra support required: To each luminaire.                      Surface mounted luminaires: Units installed so that in event of a fire the designed grid expansion provision is not affected.</p>					
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411	<p>Modular fluorescent recessed luminaires: Compatible with ceiling module. Extension boxes must not foul ceiling system.</p> <p>Recessed rows of luminaires: Provide flanges for support of grid and infill units, unless mounted above grid flanges. Retain in position with lateral restraint.</p> <p>Fire protecting/ resisting ceiling systems: Luminaires must not diminish protection integrity of ceiling system.</p> <p>Access: Provide access for maintenance of luminaires.</p> <p><b>MECHANICAL SERVICES</b></p> <p>Fan coil units:</p> <p style="padding-left: 20px;">Inlet and outlet grilles: Trim ceiling grid and infill units to suit.</p> <p style="padding-left: 20px;">Space beneath: Sufficient for ceiling system components.</p> <p style="padding-left: 20px;">Suspension and connections: Permit accurate setting out and levelling of fan coil units.</p> <p>Air grilles and diffusers:</p> <p style="padding-left: 20px;">Setting out: Accurate and level.</p> <p style="padding-left: 20px;">Linear air diffusers: Retain in place with lateral restraint. Provide flanges for support of grid and infill units.</p> <p style="padding-left: 20px;">Grille/ diffuser ceiling joints: Provide smudge rings and edge seals.</p> <p>Smoke detectors and PA speakers:</p> <p style="padding-left: 20px;">Ceiling infill units: Scribe and trim to suit.</p> <p style="padding-left: 20px;">Independent suspension: As required.</p> <p style="padding-left: 20px;">Flexible connections: Required.</p> <p>Sprinkler heads: Carefully set out and level.</p>					
415	<p><b>INSTALLING INSULATION</b></p> <p>Fitting: Fit accurately and firmly with butted joints and no gaps.</p> <p>Insulation within individual infill units: Fit closely. Secure to prevent displacement when infill units are installed or subsequently lifted.</p> <p style="padding-left: 20px;">Dustproof sleeving: Reseal, if cut.</p> <p>Width: Lay insulation in the widest practical widths to suit grid member spacings.</p> <p>Services: Do not cover electrical cables that have not been sized accordingly. Cut insulation carefully around electrical fittings, etc. Do not lay insulation over luminaires.</p> <p>Sloping and vertical areas of ceiling system: Fasten insulation to prevent displacement.</p>					
421	<p><b>CEILING SYSTEMS INTENDED FOR FIRE PROTECTION</b></p> <p>Junctions of ceiling systems with perimeter abutments and service penetrations: Seal gaps with tightly packed mineral wool or intumescent sealant to prevent penetration of smoke and flame.</p> <p>Ceiling system/ wall junctions: Maintain protective value of ceiling system.</p> <p style="padding-left: 20px;">Fixings and grounds: Non-combustible.</p> <p style="padding-left: 20px;">Metal trim: Provide for thermal expansion.</p> <p>Access and access panels: Maintain continuity of fire protection.</p> <p><b>COMPLETION</b></p>					
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530	<p><b>SPARES</b>                      General: At Practical Completion supply the following: 32 tiles for ceiling system K40/115.</p>					
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L10	<p><b>Windows/ Rooflights/ Screens/ Louvres</b></p> <p>To be read with Preliminaries/ General conditions.</p> <p><b>GENERAL</b></p>					
110	<p><b>EVIDENCE OF PERFORMANCE</b></p> <p>Certification: Provide independently certified evidence that all incorporated components comply with specified performance requirements.</p>					
115	<p><b>TIMBER PROCUREMENT</b></p> <p>Timber (including timber for wood based products): Obtained from well managed forests and/ or plantations in accordance with:</p> <ul style="list-style-type: none"> <li>The laws governing forest management in the producer country or countries.</li> <li>International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).</li> </ul> <p>Documentation: Provide either:</p> <ul style="list-style-type: none"> <li>Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.</li> <li>Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.</li> </ul> <p>Certification scheme: UK Timber Procurement Policy Category A evidence certification scheme. Other evidence: None.</p>					
120	<p><b>SITE DIMENSIONS</b></p> <p>Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication. Designated items: Counter Screen.</p> <p><b>PRODUCTS</b></p>					
510	<p><b>GLAZED WOOD SCREENS</b></p> <p>Location: Counter screen. Timber: Generally to BS EN 942. Species: To approval. Appearance class: J2. Moisture content on delivery: 13-19%. Panels: 12 mm MDF board, beech veneered both sides. Assembly adhesive: Synthetic resin to BS EN 301, type I. Joinery workmanship: As section Z10. Finish as delivered: None. Thermal performance: None. Fire performance: None. Glazing details: Site glazed as section L40. Special features/ Other requirements: None. Fixing: Screw fixed and pelleted as clause 780.</p> <p><b>EXECUTION</b></p>					
710	<p><b>PROTECTION OF COMPONENTS</b></p> <p>General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry floored and covered storage.</p>					
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	Stored components: Stack vertical or near vertical on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.					
765	<p><b>WINDOW INSTALLATION GENERALLY</b>                      Installation: Into prepared openings.                      Gap between frame edge and surrounding construction:</p> <p style="padding-left: 40px;">Minimum: 2mm.                      Maximum: 5mm.</p> <p>Distortion: Install windows without twist or diagonal racking.</p>					
780	<p><b>FIXING OF WOOD FRAMES</b>                      Standard: As section Z20.                      Fasteners: Stainless steel wood screws.                      Spacing: When not predrilled or specified otherwise, position fasteners not more than 150 mm from ends of each jamb, adjacent to each hanging point of opening lights, and at maximum 450 mm centres.</p>					
810	<p><b>SEALANT JOINTS</b>                      Sealant:                      Manufacturer: Contractor's choice.                      Product reference: Contractor's choice.                      Colour: White.                      Application: As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.</p>					
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L20	<p><b>Doors/ shutters/ hatches</b></p> <p>To be read with Preliminaries/ General conditions.</p> <p><b>GENERAL</b></p>					
110	<p><b>EVIDENCE OF PERFORMANCE</b></p> <p>Certification: Provide independently certified evidence that all incorporated components comply with specified performance requirements.</p>					
112	<p><b>TIMBER PROCUREMENT</b></p> <p>Timber (including timber for wood-based products): Obtained from well-managed forests and/ or plantations in accordance with:</p> <ul style="list-style-type: none"> <li>The laws governing forest management in the producer country or countries.</li> <li>International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).</li> </ul> <p>Documentation: Provide either:</p> <ul style="list-style-type: none"> <li>Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.</li> <li>Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.</li> </ul> <p>Certification scheme: UK Timber procurement policy Category A evidence certification scheme..</p> <p>Other evidence: None.</p>					
115	<p><b>FIRE RESISTING DOORS/ DOOR ASSEMBLIES/ DOORSETS</b></p> <p>Door products: As defined in BS EN 12519.</p> <p>Evidence of fire performance: Provide certified evidence, in the form of a product conformity certificate, directly relevant fire test report or engineering assessment, that each door/ door assembly/ doorset supplied will comply with the specified requirements for fire or smoke resistance if tested to BS 476-22, BS EN 1634-1 or BS EN 1634-3. Such certification must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.</p> <p>Components and assemblies will be marked to the relevant product standard and/ or third party certification rating.</p>					
150	<p><b>SITE DIMENSIONS</b></p> <p>Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.</p> <p>Designated items: Door openings.</p> <p><b>PRODUCTS</b></p>					
410	<p><b>WOOD DOORSETS INTERNAL and FD30 FIRE RESISTING</b></p> <p>Manufacturer: Contractor's choice.</p> <p>Product reference: Contractor's choice.</p> <p>Door leaf:</p> <ul style="list-style-type: none"> <li>Facings: Quarter cut beech veneer.</li> <li>Lippings: Hardwood exposed lippings to long edges.</li> <li>Finish as delivered: Full factory finish.</li> </ul>					
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	Frame and architraves: Wood species: Beech. Finish as delivered: Full factory finish. Preservative treatment: Not required. Glazing/ Infill details: Site glazed as section L40. Manifestation: Not required. Beading: Internal. Ironmongery: As ironmongery schedule. Perimeter seals: Fire and smoke seal. Thermal performance (U-value maximum): Manufacturer's standard. Other requirements: None. Fixing: Plugged and screwed.					
	<b>EXECUTION</b>					
710	<b>PROTECTION OF COMPONENTS</b> General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry, floored and covered storage. Stored components: Stacked on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.					
760	<b>BUILDING IN</b> General: Not permitted unless indicated on drawings.					
790	<b>FIXING OF WOOD FRAMES</b> Spacing of fixings (frames not predrilled): Maximum 150 mm from ends of each jamb and at 600 mm maximum centres.					
809	<b>FIRE RESISTING/ SMOKE CONTROL DOORS/ DOORSETS/ ROUFR SHUITTERS/ CURTAINS</b> Installation: By a firm currently registered under a third party accredited fire door installer scheme in accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.					
810	<b>FIRE RESISTING/ SMOKE CONTROL DOORS/ DOORSETS/ ROUFR SHUITTERS/ CURTAINS</b> Gaps between frames and supporting construction: Filled as necessary in accordance with requirements for certification and/ or door/ doorset manufacturer's instructions.					
820	<b>SEALANT JOINTS</b> Sealant: Manufacturer: Contractor's choice . Product reference: Contractor's choice . Colour: White . Application: As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.					
830	<b>FIXING IRONMONGERY GENERALLY</b> Fasteners: Supplied by ironmongery manufacturer. Finish/ Corrosion resistance: To match ironmongery. Holes for components: No larger than required for satisfactory fit/ operation. Adjacent surfaces: Undamaged.					
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	Moving parts: Adjusted, lubricated and functioning correctly at completion.					
840	<b>FIXING IRONMONGERY TO FIRE RESISTING DOOR ASSEMBLIES</b>					
	General: All items fixed in accordance with door leaf manufacturer's recommendations ensuring that integrity of the assembly, as established by testing, is not compromised.					
	Holes for through fixings and components: Accurately cut.					
	Clearances: Not more than 8 mm unless protected by intumescent paste or similar.					
	Lock/ Latch cases for fire 60 doors requiring > 60 minutes integrity performance: Coated with intumescent paint or paste before installation.					
850	<b>LOCATION OF HINGES</b>					
	Primary hinges: Where not specified otherwise, positioned with centre lines 250 mm from top and bottom of door leaf.					
	Third hinge: Where specified, positioned on centre line of door leaf .					
	Hinges for fire resisting doors: Positioned in accordance with door leaf manufacturer's recommendations.					
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L40	<p><b>General glazing</b></p> <p>To be read with Preliminaries/ General conditions.</p> <p><b>GENERAL REQUIREMENTS</b></p>					
150	<p><b>WORKMANSHIP AND POSITIONING GENERALLY</b></p> <p>Glazing generally: In accordance with BS 6262 series.</p> <p>Integrity: Glazing must be wind and watertight under all conditions with full allowance made for deflections and other movements.</p> <p>Dimensional tolerances: Panes/ sheets to be within ± 2 mm of specified dimensions.</p> <p>Materials:</p> <p>Compatibility: Glass/ plastics, surround materials, sealers, primers and paints/ clear finishes to be used together to be compatible. Avoid contact between glazing panes/ units and alkaline materials such as cement and lime.</p> <p>Protection: Keep materials dry until fixed. Protect insulating glass units and plastics glazing sheets from the sun and other heat sources.</p>					
152	<p><b>PREPARATION</b></p> <p>Surrounds, rebates, grooves and beads: Clean and prepare before installing glazing; ensure compliance with any certified installation requirements.</p>					
155	<p><b>GLASS GENERALLY</b></p> <p>Standards: To BS 952 and relevant parts of:</p> <ul style="list-style-type: none"> <li>BS EN 572 for basic soda lime silicate glass.</li> <li>BS EN 1096 for coated glass.</li> <li>BS EN 1748-1 for borosilicate glass.</li> <li>BS EN 1748-2 for ceramic glass.</li> <li>BS EN 1863 for heat strengthened soda lime silicate glass.</li> <li>BS EN 12150 for thermally toughened soda lime silicate safety glass</li> <li>BS EN 12337 for chemically strengthened soda lime silicate glass.</li> <li>BS EN 13024 for thermally toughened borosilicate safety glass.</li> <li>BS EN ISO 12543 for laminated glass and laminated safety glass.</li> </ul> <p>Panes/ sheets: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.</p> <p>Edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.</p>					
181	<p><b>BEAD FIXING WITH SCREWS</b></p> <p>Screw spacing: Regular at maximum 225 mm centres, and within 75 mm of each corner.</p> <p><b>TYPES OF GLAZING</b></p>					
260	<p><b>BEAD FIXED SINGLE GLAZING Door vision panels</b></p> <p>Pane material: 13.5 mm laminated safety glass.</p> <p>Surround/ bead: Softwood.</p> <p>Bead location: Inside.</p> <p>Bead fixing: Countersunk brass screws.</p> <p>Glazing system: Extruded gaskets supplied with frame.</p>					
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	Thermal performance (U-value maximum): Unrated. Glazing installation: Glass: Located centrally in surround using setting and location blocks. Gaskets and beads: Installed as recommended by frame manufacturer. Gasket fit at corners: Tight, without gaps.					
260A	<b>BEAD FIXED SINGLE GLAZING Counter Screen</b> Pane material: 13.5 mm laminated safety glass. Surround/ bead: Softwood. Bead location: Inside. Bead fixing: Countersunk brass screws. Glazing system: Extruded gaskets supplied with frame. Thermal performance (U-value maximum): Unrated. Glazing installation: Glass: Located centrally in surround using setting and location blocks. Gaskets and beads: Installed as recommended by frame manufacturer. Gasket fit at corners: Tight, without gaps.					
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M20	<p><b>Plastered/ Rendered/ Roughcast coatings</b></p> <p>To be read with Preliminaries/ General conditions.</p> <p><b>TYPES OF COATING</b></p>					
240	<p><b>ONE COAT PROPRIETARY PLASTER to existing plaster wall finishes</b></p> <p>Substrate: Existing plaster wall finishes. Preparation: Bonding agent recommended by plaster manufacturer. Manufacturer: Contractor's choice. Product reference: Contractor's choice. Thickness (excluding dubbing out and keys): As manufacturer's recommendations. Finish: Smooth. Accessories: None.</p> <p><b>PREPARING SUBSTRATES</b></p>					
510	<p><b>SUITABILITY OF SUBSTRATES</b></p> <p>Soundness: Free from loose areas and significant cracks and gaps. Cutting, chasing, making good, fixing of conduits and services outlets and the like: Completed. Tolerances: Permitting specified flatness/ regularity of finished coatings. Cleanliness: Free from dirt, dust, efflorescence and mould, and other contaminants incompatible with coatings.</p>					
541	<p><b>BONDING AGENT APPLICATION</b></p> <p>General: Apply evenly to substrate to achieve effective bond of plaster/ render coat. Protect adjacent surfaces.</p>					
640	<p><b>BEADS/ STOPS GENERALLY</b></p> <p>Location: External angles and stop ends, except where specified otherwise. Corners: Neat mitres at return angles. Fixing: Secure, using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate. Beads/ stops for external render: Fix mechanically. Finishing: After coatings have been applied remove surplus material, while still wet, from surfaces of beads/ stops exposed to view.</p> <p><b>INTERNAL PLASTERING</b></p>					
710	<p><b>APPLICATION GENERALLY</b></p> <p>Application of coatings: Firmly and in one continuous operation between angles and joints. Achieve good adhesion. Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing. Accuracy: Finish to a true plane, to correct line and level, with angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square. Drying out: Prevent excessively rapid or localised drying out.</p>					
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715	<p><b>FLATNESS/ SURFACE REGULARITY</b> Sudden irregularities: Not permitted. Deviation of plaster surface: Measure from underside of a straight edge placed anywhere on surface. Permissible deviation (maximum) for plaster not less than 13 mm thick: 3 mm in any consecutive length of 1800 mm.</p>					
777	<p><b>SMOOTH FINISH</b> Appearance: A tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks. Avoid water brush, excessive trowelling and over polishing.</p>					
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M50	<p><b>Rubber/ plastics/ cork/ lino/ carpet tiling/ sheeting</b></p> <p>To be read with Preliminaries/ General conditions.</p> <p><b>TYPES OF COVERING</b></p>					
130	<p><b>CARPET TILING</b></p> <p>Location: All areas.</p> <p>Base: Existing concrete floor slab.</p> <p>Preparation: Remove existing floor coverings. Remove existing raised access floor system. Apply levelling compound..</p> <p>Fabricated underlay: None.</p> <p>Carpet tiles:</p> <p>    Manufacturer: Milliken &amp; Company.</p> <p>    Product reference: Light Trails Dusk.</p> <p>    Type: Tufted, Textured Loop pile.</p> <p>    BS EN 1307 classification:</p> <p>        Levels of use class: 33 (Heavy Commercial Use)</p> <p>        Additional performance properties to BS EN 1307: None.</p> <p>    Size: 500 x 500 mm.</p> <p>    Colour/ pattern: Titanium (DSK11)</p> <p>Method of laying: Fully adhere all tiles with release adhesive recommended by tile manufacturer..</p> <p>Accessories: None.</p> <p>Other requirements: None.</p> <p><b>GENERAL REQUIREMENTS</b></p>					
210	<p><b>WORKMANSHIP GENERALLY</b></p> <p>Base condition after preparation: Rigid, dry, sound, smooth and free from grease, dirt and other contaminants.</p> <p>Finished coverings: Accurately fitted, tightly jointed, securely bonded, smooth and free from air bubbles, rippling, adhesive marks and stains.</p>					
330	<p><b>COMMENCEMENT</b></p> <p>Required condition of works prior to laying materials:</p> <p>    Building is weathertight and well dried out.</p> <p>    Wet trades have finished work.</p> <p>    Paintwork is finished and dry.</p> <p>    Conflicting overhead work is complete.</p> <p>    Floor service outlets, duct covers and other fixtures around which materials are to be cut are fixed.</p> <p>Notification: Submit not less than 48 hours before commencing laying.</p>					
340	<p><b>CONDITIONING</b></p> <p>Prior to laying: Condition materials by unpacking and separating in spaces where they are to be laid. Maintain resilient flooring rolls in an upright position. Unroll carpet and keep flat on a supporting surface.</p> <p>Conditioning time and temperature (minimum): As recommended by manufacturer with time extended by a factor of two for materials stored or transported at a temperature of less than 10°C immediately prior to laying.</p>					
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350	<p><b>ENVIRONMENT</b>                      Temperature and humidity: Before, during and after laying, maintain approximately at levels which will prevail after building is occupied.                      Ventilation: Before during and after laying, maintain adequate provision.</p> <p><b>PREPARING BASES</b></p>					
420	<p><b>EXISTING BASES</b>                      Notification: Before commencing work, confirm that existing bases will, after preparation, be suitable to receive coverings.                      Suitability of bases and conditions within any area:                      Commencement of laying of coverings will be taken as acceptance of suitability.</p>					
460	<p><b>SMOOTHING/ LEVELLING UNDERLAYMENT COMPOUND</b>                      Type: Contractor's choice.                      Manufacturer: Contractor's choice.                      Product reference: Contractor's choice.</p>					
470	<p><b>BASES FROM WHICH EXISTING FLOOR COVERINGS HAVE BEEN REMOVED</b>                      Substrate: Clear of covering and as much adhesive as possible. Skim with smoothing underlayment compound to give smooth, even surface.</p> <p><b>LAYING COVERINGS</b></p>					
610	<p><b>SETTING OUT TILES</b>                      Method: Set out from centre of area/ room, so that wherever possible:                      Tiles along opposite edges are of equal size.                      Edge tiles are more than 50% of full tile width.</p>					
640	<p><b>ADHESIVE FIXING GENERALLY</b>                      Adhesive type: As specified, as recommended by covering/ underlay manufacturer or as approved.                      Primer: Type and usage as recommended by adhesive manufacturer.                      Application: As necessary to achieve good bond.                      Finished surface: Free from trowel ridges, high spots caused by particles on the substrate, and other irregularities.</p>					
720	<p><b>DOORWAYS</b>                      Joint location: On centre line of door leaf.</p>					
780	<p><b>TRAFFICKING AFTER LAYING</b>                      Covering types: Carpet Tiles.                      Traffic free period: 7 hours.</p> <p><b>COMPLETION</b></p>					
880	<p><b>WASTE</b>                      Spare covering material: Retain suitable material for patching. On completion submit pieces for selection. Hand over selected pieces to Employer.</p>					
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M60	<p><b>Painting/ clear finishing</b></p> <p>To be read with Preliminaries/ General conditions.</p> <p><b>COATING SYSTEMS</b></p>					
110	<p><b>EMULSION PAINT Plaster surfaces</b></p> <p>Manufacturer: Contractor's choice. Product reference: Contractor's choice. Surfaces: Plaster. Preparation: Wash down surfaces. Initial coats: As recommended by manufacturer. Number of coats 1. Undercoats: As recommended by manufacturer. Number of coats: 1. Finishing coats: Matt vinyl . Number of coats: 1.</p>					
110A	<p><b>EMULSION PAINT Plasterboard surfaces</b></p> <p>Manufacturer: Contractor's choice. Product reference: Contractor's choice. Surfaces: Plasterboard. Preparation: Tape and fill joints . Initial coats: As recommended by manufacturer. Number of coats 1. Undercoats: As recommended by manufacturer. Number of coats: 1. Finishing coats: Matt vinyl . Number of coats: 1.</p>					
130	<p><b>GLOSS PAINT Previously gloss painted woodwork</b></p> <p>Manufacturer: Contractor's choice. Product reference: Contractor's choice. Surfaces: Previously decorated. Preparation: Degrease and abrade to provide key. Initial coats: As recommended by manufacturer. Number of coats: 1. Undercoats: As recommended by manufacturer. Number of coats: 1. Finishing coats: Full gloss. Number of coats: 1.</p> <p><b>GENERAL</b></p>					
210	<p><b>COATING MATERIALS</b></p> <p>Manufacturer: Obtain materials from any of the following:</p> <p>Dulux Trade, Crown Trade, Johnstone Trade. Selected manufacturers: Submit names before commencement of any coating work.</p>					
215	<p><b>HANDLING AND STORAGE</b></p> <p>Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number. Materials from more than one batch: Store separately.</p>					
280	<p><b>PROTECTION</b></p> <p>'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public, and to prevent damage to freshly applied coatings.</p>					
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	<b>PREPARATION</b>					
400	<p><b>PREPARATION GENERALLY</b></p> <p>Standard: In accordance with BS 6150. Refer to any pre-existing CDM Health and Safety File. Refer to CDM Construction Phase Plan where applicable.</p> <p>Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.</p> <p>Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared. Substrates: Sufficiently dry in depth to suit coating. Efflorescence salts: Remove. Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred. Surface irregularities: Remove. Joints, cracks, holes and other depressions: Fill flush with surface, provide smooth finish. Dust, particles and residues from preparation: Remove and dispose of safely. Water based stoppers and fillers:     Apply before priming unless recommended otherwise by manufacturer.     If applied after priming: Patch prime. Oil based stoppers and fillers: Apply after priming. Doors, opening windows and other moving parts:     Ease, if necessary, before coating.     Prime resulting bare areas.</p>					
420	<p><b>FIXTURES AND FITTINGS</b></p> <p>Removal: Before commencing work remove: Coverplates, grilles, wall clocks, and other surface mounted fixtures .</p> <p>Replacement: Refurbishment as necessary, refit when coating is dry.</p>					
425	<p><b>IRONMONGERY</b></p> <p>Removal: Before commencing work remove ironmongery from surfaces to be coated. Hinges: Do not remove. Replacement: Refurbish as necessary; refit when coating is dry.</p>					
430	<p><b>EXISTING IRONMONGERY</b></p> <p>Refurbishment: Remove old coating marks. Clean and polish.</p>					
440	<p><b>PREVIOUSLY COATED SURFACES GENERALLY</b></p> <p>Preparation: In accordance with BS 6150, clause 11.5. Contaminated or hazardous surfaces: Give notice of:     Coatings suspected of containing lead.     Substrates suspected of containing asbestos or other hazardous materials. Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.</p>					
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	Significant rot, corrosion or other degradation of substrates.					
	Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.					
	Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.					
	Alkali affected coatings: Completely remove.					
	Retained coatings:					
	Thoroughly clean to remove dirt, grease and contaminants.					
	Gloss coated surfaces: Provide key.					
	Partly removed coatings:					
	Additional preparatory coats: Apply to restore original coating thicknesses.					
	Junctions: Provide flush surface.					
	Completely stripped surfaces: Prepare as for uncoated surfaces.					
461	<b>PREVIOUSLY COATED WOOD</b>					
	Degraded or weathered surface wood: Take back to provide suitable substrate.					
	Degraded substrate wood: Repair with sound material of same species.					
	Exposed resinous areas and knots: Apply two coats of knotting.					
481	<b>UNCOATED WOOD</b>					
	General: Provide smooth, even finish with arrises and moulding edges lightly rounded or eased.					
	Heads of fasteners: Countersink sufficient to hold stoppers/fillers.					
	Resinous areas and knots: Apply two coats of knotting.					
552	<b>UNCOATED PVC-U</b>					
	Dirt and grease: Remove. Do not abrade surface.					
580	<b>UNCOATED PLASTER</b>					
	Nibs, trowel marks and plaster splashes: Scrape off.					
	Over trowelled 'polished' areas: Key lightly.					
590	<b>UNCOATED PLASTERBOARD</b>					
	Depressions around fixings: Fill with stoppers/ fillers.					
	<b>APPLICATION</b>					
711	<b>COATING GENERALLY</b>					
	Application standard: In accordance with BS 6150, clause 9.					
	Conditions: Maintain suitable temperature, humidity and air quality during application and drying.					
	Surfaces: Clean and dry at time of application.					
	Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.					
	Overpainting: Do not paint over intumescent strips or silicone mastics.					
	Priming coats:					
	Thickness: To suit surface porosity.					
	Application: As soon as possible on same day as preparation is completed.					
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	Finish: Even, smooth and of uniform colour. Free from brush marks, sags, runs and other defects. Cut in neatly. Doors, opening windows and other moving parts: Ease before coating and between coats.					
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N10	<p><b>General fixtures/ furnishings/ equipment</b></p> <p>To be read with Preliminaries/General conditions.</p> <p><b>PRODUCTS</b></p>					
240	<p><b>BLINDS All windows</b></p> <p>Standard: To BS EN 13120.                      Manufacturer: Contractor's choice.                      Product reference: Contractor's choice.                      Type: Vertical louvre.                      Dimensions: To be site measured.                      Material: Fabric.                      Finish/ Colour: Pale blue                      Operation: Manual, plastic ball chain.                      Operating effort: Class 1.                      Testing: Not required.                      Mechanism endurance: Class 1.                      Accessories/ Other requirements: None.</p> <p><b>EXECUTION</b></p>					
720	<p><b>INSTALLATION GENERALLY</b></p> <p>General: As Preliminaries section A33.                      Fixing and fasteners: As section Z20.                      Services: Not applicable.</p>					
770	<p><b>TRIMS</b></p> <p>Lengths: Wherever possible, unjointed between angles or ends of runs.                      Running joints: Where unavoidable, obtain approval of location and method of jointing.                      Angle joints: Mitred.</p>					
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N15	<p><b>Internal fire and safety signage systems</b></p> <p>To be read with Preliminaries/ General Conditions.</p> <p><b>GENERAL</b></p>					
110	<p><b>110 FIRE AND SAFETY SIGNAGE SYSTEMS FOR ESCAPE ROUTE</b></p> <p>System manufacturer: Contractor's choice. System reference: Contractor's choice. Location and layout: As drawing 06B710797/PH2/3. Language: English. Material: Plastic sheet. Other properties: Fixing holes.</p>					
110A	<p><b>110A FIRE AND SAFETY SIGNAGE SYSTEMS FOR FIRE EQUIPMENT</b></p> <p>System manufacturer: Contractor's choice. System reference: Contractor's choice. Location and layout: As drawing 06B710797/PH2/1. Language: English. Material: Plastic sheet. Other properties: Fixing holes.</p> <p><b>SYSTEM PERFORMANCE</b></p>					
210	<p><b>GENERAL REQUIREMENTS</b></p> <p>Signage and way guiding system design: FOR ALL SIGNAGE.</p> <p>For fire escape and evacuation signage: In accordance with: BS 5499-4 or BS ISO 16069. For way guiding systems: In accordance with BS ISO 16069. For safety signs other than escape route signage: In accordance with: BS 5499-10. Comply with the requirements of: Signage Schedule.</p>					
220	<p><b>SIGN DESIGN AND FORMAT FOR ALL SIGNAGE</b></p> <p>Format: In accordance with BS EN ISO 7010. Geometric shapes, colours and layout: In accordance with BS ISO 3864-1. Design principles for graphical symbols: In accordance with BS ISO 3864-3. Colorimetric and photometric properties of safety sign materials: In accordance with BS ISO 3864-4. Water safety: In accordance with BS ISO 20712-1.</p> <p><b>PRODUCTS</b></p>					
330	<p><b>PLASTICS SHEET FOR ESCAPE ROUTE SIGNS</b></p> <p>Material: Acrylic. Manufacturer: Contractor's choice. Product reference: Contractor's choice. Component thickness: 2 mm. Finish: Manufacturer's standard. Perimeters: Manufacturer's standard. Supports/ Fixings: Screw fixed. Accessories: Not required.</p>					
330A	<p><b>PLASTICS SHEET FOR WARNING SIGNS</b></p> <p>Material: Acrylic. Manufacturer: Contractor's choice. Product reference: Contractor's choice.</p>					
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.	Component thickness: 2 mm.					
.	Finish: Manufacturer's standard.					
.	Perimeters: Manufacturer's standard.					
.	Supports/ Fixings: Screw fixed.					
.	Accessories: Not required.					
	<b>EXECUTION</b>					
610	<b>FIXING SIGNS GENERALLY</b>					
.	Installation:					
.	Secure, plumb and level.					
.	Fasteners and adhesives: As section Z20.					
.	Strength of fasteners: Sufficient to support live and dead loads.					
.	Fixings showing on surface of sign: Must not detract from the message being displayed.					
	<b>COMPLETION</b>					
910	<b>DOCUMENTATION</b>					
.	Submit:					
.	Manufacturer's maintenance instructions.					
.	Guarantees, warranties, test certificates, record schedules and logbooks.					
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P20	<p><b>Unframed isolated trims/ skirtings/ sundry items</b></p> <p>To be read with Preliminaries/General conditions</p>					
260	<p><b>WOOD VENEERED Skirtings</b></p> <p>Manufacturer: Contractor's choice. Product reference: Contractor's choice. Fire rating: Class 0 as defined in Building Regulations. Veneer species: European beech Finished thickness: 15 mm. Edges: Hardwood lipping to match veneer. Support/ Fixing: Pinned and glued to softwood grounds.</p>					
260A	<p><b>WOOD VENEERED Window cills</b></p> <p>Manufacturer: Contractor's choice. Product reference: Contractor's choice. Fire rating: Class 0 as defined in Building Regulations. Veneer species: European beech Finished thickness: 22 mm. Edges: Hardwood lipping to match veneer. Support/ Fixing: Pinned and glued to softwood grounds.</p>					
510	<p><b>INSTALLATION GENERALLY</b></p> <p>Joinery workmanship: As section Z10. Metal workmanship: As section Z11. Methods of fixing and fasteners: As section Z20 where not specified. Straight runs: To be in one piece, or in long lengths with as few joints as possible. Running joints: Location and method of forming to be agreed where not detailed. Joints at angles: Mitre, unless shown otherwise. Position and level: To be agreed where not detailed.</p>					
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P21	<p><b>Door/ window ironmongery</b></p> <p>To be read with Preliminaries/ General conditions.</p> <p><b>PRE-TENDER</b></p>					
10	<p><b>QUANTITIES AND LOCATIONS</b></p> <p>Quantities and locations of ironmongery are in the door schedule .</p> <p>Fixing: As sections L10 and L20.</p> <p>GENERAL</p>					
120	<p><b>IRONMONGERY RANGE SELECTED BY CONTRACTOR</b></p> <p>Source: Single coordinated range.</p> <p>Notification: Submit details of selected range, manufacturer and/ or supplier.</p> <p>Principal material/ finish: Polished stainless steel, grade 1.4401 (316).</p> <p>Items unavailable within selected range: Submit proposals.</p>					
121	<p><b>IRONMONGERY FROM SINGLE PROPRIETARY RANGE</b></p> <p>Manufacturer: Union Assa Abloy .</p> <p>Product reference: Stainless Steel Door Furniture .</p> <p>Principal material/ finish: Satin Stainless Steel .</p> <p>Items unavailable within selected range: Submit proposals.</p>					
170	<p><b>IRONMONGERY FOR FIRE DOORS</b></p> <p>Relevant products: Ironmongery fixed to, or morticed into, the component parts of a fire resisting door assembly.</p> <p>Compliance: Ironmongery included in successful tests to BS 476-22 or BS EN 1634-1 on door assemblies similar to those proposed.</p> <p>Certification: Submit CERTIFIRE certificates .</p> <p>Melting point of components (except decorative non functional parts): 800°C minimum.</p>					
180	<p><b>STRENGTH CLASS OR CATEGORY OF DUTY FOR DOOR IRONMONGERY</b></p> <p>Requirement: Unrated.</p> <p>General: Durability of ironmongery components to be compatible with stated category of duty of each door leaf.</p> <p>Exclusions: Ironmongery with specific duty or 'category of use' defined elsewhere.</p> <p>Documentation: Before placing orders with suppliers submit documentation showing product compliance with stated category of duty.</p>					
320	<p><b>DOOR HANGING DEVICES</b></p> <p><b>DOOR HINGES As per door schedule</b></p> <p>Manufacturer: Union Assay Abblo .</p> <p>Product reference: PowerLOAD Hinges, ref. 605 SSF .</p> <p>Type: Lift-off Hinge .</p> <p>Size: 100x88x3mm .</p> <p>Material/ finish: Satin Stainless Steel .</p> <p>Other requirements: None .</p>					
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	<b>DOOR OPERATING DEVICES</b>					
510	<p><b>OVERHEAD DOOR CLOSERS As per door schedule</b>                      Standard: To BS EN 1154.                      Door closing devices to fire/ smoke control doors: CE marked.                      Manufacturer: Union Assa Abloy .                      Product reference: Door Closers, Medium Duty, ref. N8824 SS .                      Type: Face fixed .                      Power size: 1-3 .                      Other functions: None .                      Casing finish: Satin Stainless Steel (SS304) .                      Operational adjustment:                      Variable power: Matched to size, weight and location of doors.                      Latched doors: Override latches and/ or door seals when fitted.                      Unlatched doors: Hold shut under normal working conditions.                      Closing against smoke seals of fire doors: Positive. No gaps.</p>					
	<b>DOOR SECURING DEVICES</b>					
515	<p><b>DOOR LOCKS As per door schedule</b>                      Standard: To BS EN 12209.                      Manufacturer: Union Assa Abloy .                      Product reference: Euro Profile Escape Mortice Deadlock, ref. L21492 .                      Type: Escape Mortice Deadlock .                      Backset: 57 mm .                      Material/ finish: Stainless steel faceplate .                      Keying: Not master keyed .</p>					
515A	<p><b>DOOR LOCKS As per door schedule</b>                      Standard: To BS EN 12209.                      Manufacturer: Union Assa Abloy .                      Product reference: Euro Profile Single Cylinder, ref. 2x20 SC .                      Type: Euro profile single cylinder .                      Backset: N/A .                      Material/ finish: SSatin Chrome .                      Keying: Not master keyed .</p>					
	<b>DOOR FURNITURE</b>					
610	<p><b>610 LEVER HANDLES As per door schedule</b>                      Standard: To BS EN 1906.                      Manufacturer: Union Assa Abloy .                      Product reference: Tubular Stainless Steel Door Furniture, 1000 Series Furniture, ref. 1000RRS01 SS .                      Style: Tubular .                      Size: 19 mm diameter .                      Material/ finish: Satin Stainless Steel .                      Mounting: Push-on Rose with bolt-through fixings .                      Additional requirements: None .</p>					
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641	<p><b>PULL HANDLES As per door schedule</b>                      Manufacturer: Union Assa Abloy.                      Product reference: Stainless Steel Pull Handles, Single Pull Handle with Rose, ref. PH01RX SS.                      Standard: To BS 8424.                      Shape: D handle .                      Diameter: 19 mm .                      Distance between centres: 300mm .                      Material/ finish: Satin Stainless Steel .                      Mounting: Concealed face fixing .                      Additional requirements: None .</p>					
670	<p><b>PUSH PLATES As per door schedule</b>                      Manufacturer: Contractor's choice .                      Product reference: Contractor's choice .                      Size: 300x71.5x1.2mm .                      Material/ finish: Satin stainless steel .                      Mounting: Face fix .                      Additional requirements: Screw heads colour matched to plate .</p>					
690	<p><b>KICK PLATES As per door schedule</b>                      Manufacturer: Contractor's choice .                      Product reference: Contractor's choice .                      Size: 838x150-x1.5mm .                      Material/ finish: Satin stainless steel .                      Mounting: Face fix .                      Additional requirements: Screw heads colour matched to plate .</p>					
710	<p><b>ESCUTCHEONS As per door schedule</b>                      Manufacturer: Union Assa Abloy .                      Product reference: Stainless Steel Euro Profile Escutcheon, 1000EE SS .                      Material/ finish: Satin stainless steel .                      Keyhole type: Euro profile cylinder .                      Usage: As schedule .</p>					
710A	<p><b>ESCUTCHEONS As per door schedule</b>                      Manufacturer: Union Assa Abloy .                      Product reference: Stainless Steel Blind Rose, 1000BR SS .                      Material/ finish: Satin stainless steel .                      Keyhole type: None .                      Usage: As schedule .</p>					
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Z10	<p><b>Purpose made joinery</b></p> <p>To be read with Preliminaries/ General conditions.</p>					
110	<p><b>FABRICATION</b></p> <p>Standard: To BS 1186-2.</p> <p>Sections: Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.</p> <p>Machined surfaces: Smooth and free from tearing, wooliness, chip bruising and other machining defects.</p> <p>Joints: Tight and close fitting.</p> <p>Assembled components: Rigid. Free from distortion.</p> <p>Screws: Provide pilot holes.</p> <p>Screws of 8 gauge (4 mm diameter) or more and screws into hardwood: Provide clearance holes.</p> <p>Countersink screws: Heads sunk at least 2 mm below surfaces visible in completed work.</p> <p>Adhesives: Compatible with wood preservatives applied and end uses of timber.</p>					
120	<p><b>CROSS SECTION DIMENSIONS OF TIMBER</b></p> <p>General: Dimensions on drawings are finished sizes.</p> <p>Maximum permitted deviations from finished sizes:</p> <p>Softwood sections: To BS EN 1313-1:- Clause 6 for sawn sections.</p> <p>Hardwood sections: To BS EN 1313-2:- Clause 6 for sawn sections. Clause NA.3 for further processed sections.</p>					
140	<p><b>MOISTURE CONTENT</b></p> <p>Wood and wood based products: Maintained within range specified for the component during manufacture and storage.</p>					
250	<p><b>FINISHING</b></p> <p>Surfaces: Smooth, even and suitable to receive finishes.</p> <p>Arrises: Eased unless shown otherwise on drawings.</p> <p>End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.</p>					
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Z20	<p><b>Fixings and adhesives</b></p> <p>To be read with Preliminaries/ General conditions.</p> <p><b>PRODUCTS</b></p>					
310	<p><b>FASTENERS GENERALLY</b></p> <p>Materials: To have:</p> <ul style="list-style-type: none"> <li>Bimetallic corrosion resistance appropriate to items being fixed.</li> <li>Atmospheric corrosion resistance appropriate to fixing location.</li> </ul> <p>Appearance: Submit samples on request.</p>					
320	<p><b>PACKINGS</b></p> <p>Materials: Noncompressible, corrosion proof.</p> <p>Area of packings: Sufficient to transfer loads.</p>					
340	<p><b>MASONRY FIXINGS</b></p> <p>Light duty: Plugs and screws.</p> <p>Heavy duty: Expansion anchors or chemical anchors.</p>					
350	<p><b>PLUGS</b></p> <p>Type: Proprietary types to suit substrate, loads to be supported and conditions expected in use.</p>					
390	<p><b>ADHESIVES GENERALLY</b></p> <p>Standards:</p> <ul style="list-style-type: none"> <li>Hot-setting phenolic and aminoplastic: To BS 1203.</li> <li>Thermosetting wood adhesives: To BS EN 12765.</li> <li>Thermoplastic adhesives: To BS EN 204.</li> </ul>					
410	<p><b>POWDER ACTUATED FIXING SYSTEMS</b></p> <p>Types of fastener, accessories and consumables: As recommended by tool manufacturer.</p> <p><b>EXECUTION</b></p>					
610	<p><b>FIXING GENERALLY</b></p> <p>Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.</p> <p>Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.</p> <p>Appearance: Fixings to be in straight lines at regular centres.</p>					
620	<p><b>FIXING THROUGH FINISHES</b></p> <p>Penetration of fasteners and plugs into substrate: To achieve a secure fixing.</p>					
630	<p><b>FIXING PACKINGS</b></p> <p>Function: To take up tolerances and prevent distortion of materials and components.</p> <p>Limits: Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.</p> <p>Locations: Not within zones to be filled with sealant.</p>					
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640	<p><b>FIXING CRAMPS</b> Cramp positions: Maximum 150 mm from each end of frame sections and at 600 mm maximum centres. Fasteners: Fix cramps to frames with screws of same material as cramps. Fixings in masonry work: Fully bed in mortar.</p>					
670	<p><b>PELLETED COUNTERSUNK SCREW FIXING</b> Finished level of countersunk screw heads: Minimum 6 mm below timber surface. Pellets: Cut from matching timber, match grain and glue in to full depth of hole. Finished level of pellets: Flush with surface.</p>					
680	<p><b>PLUGGED COUNTERSUNK SCREW FIXING</b> Finished level of countersunk screw heads: Minimum 6 mm below timber surface. Plugs: Glue in to full depth of hole. Finished level of plugs: Projecting above surface.</p>					
690	<p><b>USING POWDER ACTUATED FIXING SYSTEMS</b> Powder actuated fixing tools: To BS 4078-2 and Kitemark certified. Operatives: Trained and certified as competent by tool manufacturer.</p>					
700	<p><b>APPLYING ADHESIVES</b> Surfaces: Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive. Support and clamping during setting: Provide as necessary. Do not mark surfaces of or distort components being fixed.  Finished adhesive joints: Fully bonded. Free of surplus adhesive.</p>					
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Z22	<p><b>Sealants</b></p> <p>To be read with Preliminaries/General conditions.</p> <p><b>PRODUCTS</b></p>					
310	<p><b>JOINTS Generally</b></p> <p>Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.</p> <p><b>EXECUTION</b></p>					
610	<p><b>SUITABILITY OF JOINTS</b></p> <p>Presealing checks:</p> <p style="padding-left: 20px;">Joint dimensions: Within limits specified for the sealant.</p> <p style="padding-left: 20px;">Substrate quality: Surfaces regular, undamaged and stable.</p> <p>Joint not fit to receive sealant: Submit proposals for rectification.</p>					
620	<p><b>PREPARING JOINTS</b></p> <p>Surfaces to which sealant must adhere:</p> <p style="padding-left: 20px;">Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.</p> <p style="padding-left: 20px;">Clean using materials and methods recommended by sealant manufacturer.</p> <p>Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.</p> <p>Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.</p> <p>Protection: Keep joints clean and protect from damage until sealant is applied.</p>					
630	<p><b>APPLYING SEALANTS</b></p> <p>Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.</p> <p>Environmental conditions: Do not dry or raise temperature of joints by heating.</p> <p>Sealant application: Fill joints completely and neatly, ensuring firm adhesion to substrates.</p> <p>Sealant profiles:</p> <p style="padding-left: 20px;">Butt and lap joints: Slightly concave.</p> <p style="padding-left: 20px;">Fillet joints: Flat or slightly convex.</p> <p>Protection: Protect finished joints from contamination or damage until sealant has cured.</p>					
	<i>Carried to Tender Summary</i>					

## 4. M&E Specification



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1.0.0	<b>Scope of Works</b>					
1.1.0	<b>General</b>					
1.1.1	This contract covers the design, supply, delivery to site, connection, erection, commissioning and user training of the electrical, mechanical, fire alarm and plumbing services as outlined in this Specification, and all in accordance with the sub-contract documentation. It is the contractors responsibility to provide a complete functioning installation to the standards end descriptions in this end other of works documents.					
1.1.2	The requirements for each system shall include as necessary; all hardware, software and services required to perform the functions and pre-conditions of this sub-contract document to facilitate progressive (and phased) commissioning and setting to work. This specification shall be deemed as the technical standards pertaining to the works described in the following pricing documents as provided.					
1.2.0	<b>Electrical Installation</b>					
1.2.1	Refer to drawing re. PH2/2 Proposed Small Power Distribution.					
1.2.2	Existing floor box installations to raised access floor with associated equipment, circuits, containment and accessories to be removed					
1.2.3	Existing perimeter skirting trunking installations with associated equipment, circuits and containment to be removed.					
1.2.4	Existing electrical switchgear and distribution to be located in Electrical Cupboard adjcent to Femal Toilet Accommodation.					
1.2.5	New electrical installation consisting of small power and data equipment installed in 3 compartment pvc skirting trunking with all necessary equipment, circuits, containment and accessories.					
1.2.6	New electrical installation to be separated into three areas as follows:- 1) Open Plan Office. 2) Reception, Locker Room, Examination Room 1, Examination Room 2. 3) Conference Room 1, Conference Room.					
1.2.7	Existing electrical switchgear and distribution to be upgraded as necessary.					
1.2.8	New small power provision to be installed as follows:- a) 45no 13amp 2 gang double switched sockets. b) 4no power supplies for wireless access points. c) 4no power supplies for door access control system.					
1.2.9	No alterations to be carried out to electrical installation serving the Capita Comms office.					
1.3.0	<b>Lighting Installation</b>					
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1.3.1	Refer to drawing re. PH2/2 Proposed Lighting Distribution.					
1.3.2	Existing recessed modular luminaires to be temporarily taken down and removed (71no luminaires).					
1.3.3	Existing lighting circuits to be modified as necessary. New lighting circuits to be provided where necessary. Lighting circuits to be laid out in an efficient manner. Existing equipment, containment and accessories to be replaced/amended as necessary.					
1.3.4	New Whitecroft lighting Tegan Office LED recessed modular luminaires to be installed into existing lighting circuits.					
1.3.5	Recessed modular luminaires to be controlled via ceiling mounted PIR sensors.					
1.3.6	New maintained emergency exit luminaires to be provided (3no luminaires) to escape routes.					
1.4.0	<b>Data Installations</b>					
1.4.1	Refer to drawing ref. PH2/2 Proposed Small Power Distribution.					
1.4.2	Existing data installations with associated equipment, cabling and accessories to be removed.					
1.4.3	Existing server cabinets located in Radio Room.					
1.4.4	Existing server cabinets will be relocated by others to the Capita Comms office.					
1.4.5	New data installation to be provided as follows:- 1) CAT6 cabling to data sockets fully tested and labelled following installation. 2) New patch panels compatible with existing server cabinets. 3) 46no data sockets. 4) 4no wireless access points. 802.11b/g/n compatible.					
1.5.0	<b>Heating Works</b>					
1.5.1	Existing central heating radiators to be temporarily removed from external walls to allow application of new plaster skim coat finish to walls. Radiators to be reinstated on completion.					
1.5.2	Existing timber boxing to central heating pipework to be removed and replace with new proprietary melamine coated plywood boxing.					
1.6.0	<b>Fire Alarm Installation</b>					
1.6.1	Refer to drawing ref. PH2/3 Proposed Fire Alarm System					
1.6.2	Existing fire alarm control panel located in ground floor entrance lobby.					
1.6.3	Existing fire alarm equipment to be removed.					
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1.6.4	New fire alarm equipment to be installed with all necessary equipment, circuits, containment and accessories.					
1.6.5	Unless specified otherwise all amendments and renewals to include the installation of new sounders, call points, smoke/heat detectors and other equipment deemed necessary to comply with current standards.					
1.7.0	<b>Mechanical Ventilation/ Air Conditioning</b>					
1.7.1	All mechanical ventilation and air conditioning works to be designed in accordance with CIBSE Guide B:2001 Installation and Equipment Data, Section B2, Ventilation and Air-Conditioning.					
1.7.2	New mechanical ventilation system to be provided to proposed Reception. System to be capable of 8 air changes per hour.					
1.7.3	Existing 2no Daikin ceiling cassettes in Office 8 to be relocated to new locations to be confirmed.					
1.7.4	Existing 2no Daikin under ceiling cassettes in Radio Room to be relocated to new locations to be confirmed.					
1.8.0	<b>Door Access Control System</b>					
1.8.1	Refer to drawing ref. PH2/4 Door Access Control System.					
1.8.2	The new access control system should replicated and interface with the existing Paxton Net 2 system installed in Ground Floor Data Centre and 4th Floor Control Room.					
1.8.3	The existing 3rd floor door access control system to be removed.					
1.8.4	External access to be provided by human video/audio verification and token access.					
1.8.5	Internal access to be provided by token access.					
1.8.6	All doors to be secured using electronic card reader lever latch which are released on:- 1) Authorisation signal from door access control system.  2) Fire alarm activation. 3) Adjacent green box door release. 4) Integral manual single action override.					
1.8.7	Access door control system to be installed by the following nominasted sub-contractor:- Think Security Systems Limited, Unit 4, Posterngate Business Park, Harts Lane, Godstone, Surrey, RH9 8LZ, tel. 01342 477447.					
1.9.0	<b>Plumberworks</b>					
1.9.1	Removal of tap and water source in main corridor.					
2.0.0	<b>General</b>					
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2.1.0	<b>Approvals and Compliance</b>					
2.1.1	Where applicable, the Sub-Contractor shall obtain and ensure approvals and compliance with the following:- Water Authority Planning Officer Building Control Officer Environmental Health Officer Fire Officer Loco I Bylaws / Acts British Standards and Codes of Practice Building Standards European Directives					
2.1.2	The provision of fabrication and workshop drawings having co-operated fully with all SubContractors to ensure that co-ordination of all services and the building has been fully executed.					
2.1.3	The Principal Contractor's approval shall not relieve the Sub-Contractor of his contractual responsibilities and obligations. The Sub-Contractor shall be responsible for discrepancies, errors or omissions on drawings and/or where they have been approved by the Principal Contractor, provided such discrepancies, errors or omissions are not due to incorrect information given in writing by the Principal Contractor.					
2.1.4	The Sub-Contractor shall be responsible for ensuring that all proposed equipment complies with the specified requirements identified herein.					
2.2.0	<b>Condition and Quality of Materials</b>					
2.2.1	All plant and materials shall be new and the Sub-Contractor shall ensure no materials or equipment is fitted showing any sign of corrosion, or faults or damage in any way.					
2.2.2	The Sub-Contractor shall take delivery, off-load, handle and provide adequate and safe storage and protection for all materials, plant, equipment and tools.					
2.2.3	All materials and equipment shall be sorted under proper cover to the satisfaction of the Principal Contractor, and in such a manner that deterioration or damage does not occur.					
2.2.4	Where materials cannot be stored in suitable buildings they shall be raised clear of the ground and protected by means of waterproof covers.					
2.2.5	Materials subject to a maximum storage period, such as paints, shall be logged so as to ensure shelf life is not exceeded.					
2.2.6	Machined and bright surfaces shall be protected by paint, tallow or grease. On completion, surfaces so protected shall be cleaned and where appropriate, polished.					
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2.2.7	All plant and equipment is to be left in a condition ready for painting, where painting is specified either as part of the Sub-Contract or by others. Parts liable to corrode are to be painted immediately after removal of the temporary protection					
2.2.8	Fittings and other components shall be stored in bins or on shelves in such a way that the Principal Contractor may conveniently check such items for adherence to the Specification, and for any interim valuation.					
2.2.9	All bright and polished parts of all material and equipment shall, if liable to corrode or tarnish, be protected by a suitable film or adhesive tape which shall be removed immediately prior to Practical Completion of the Works.					
2.2.10	Material subject to damage or deterioration due to excess exposure to ultra violet light shall be suitably protected.					
2.3.0	<b>Protection of the Works</b>					
2.3.1	All equipment, materials and components shall be in perfect condition when handed over.					
2.3.2	The Sub-Contractor shall frequently check that adequate protection is provided against rough treatment, dust, grit, frost and other like hazards.					
2.3.3	The Sub-Contractor shall be responsible for leaving uncompleted sections of the sub-contract works in a safe condition and shall include for any temporary works necessary to give reasonable protection from unauthorised interference.					
2.4.0	<b>Statutory and Other Regulations</b>					
2.4.1	The materials components and completed installations shall conform to the appropriate British Standard or European Standard, including all amendments current at the time of tendering. Construction products should comply with European Standards and Technical Specifications (ESTS). Wherever reference is made to a British Standard, a corresponding ESTS (generally ISO Series) shall be equally acceptable.					
2.4.2	Where available, all materials, equipment etc. forming part, or whole, of the services specified in the Contract, should be obtained from 150.9000 "Quality Assurance" certified manufacturers and preferably "kite marked" or EEC equivalent. All equipment shall be 'CE' marked.					
2.4.3	The dates of Standard references are given in good faith. The Sub-Contractor is obliged to ensure compliance with latest issue.					
2.4.4	The Sub-Contractor shall comply fully with the following Standards as amended to date:- All Statutory Regulations and Requirements BS7671, the IEE Regulations for the Electrical Equipment of Buildings (current edition including amendments and Guidance Notes). CDM Regulations 2015					
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	Confined Spaces Regulations 1997 Control of Asbestos at Regulations 2011 Control of Substances Hazardous to Health Regulations 1999 Disability Discrimination Act 1995 Electricity at Work Regulations 1989 Fire Precautions (Workplace) Regulations 1999 Fire Precautions Act 1971 Health and Safety at Work Act 1974 Manual Handling Operations Regulations 1992 Noise at work Regulations 1989 Personal Protective Equipment at Work Regulations 1992					
2.5.0	<b>Electricity Supply</b>					
2.5.1	Unless otherwise indicated, all apparatus and wiring shall be suitable for use with a 3 phase, 4 wire, 400 volt or 230 volt, single phase, 50Hz TNS. Electrical supplies to plant and equipment shall be as detailed in this Specification. All electronic equipment shall have the ability to float for a minimum of 200ms at 50% nominal voltage.					
2.6.0	<b>Metricated Products</b>					
2.6.1	All products supplied and fitted shall be metric.					
2.7.0	<b>Definitions</b>					
2.7.1	For the purpose of this specification the following definitions apply: 1. Commissioning: The advancement of an installation from the stage of physical completion to full working order to specified requirements. Commissioning includes the setting to work and regulations of an installation. (a) Setting to Work. The process of setting a physically completed system into a fully operational state. (b) Regulation. The process of adjusting the output of apparatus or plant in distribution systems within specified tolerances. 2. Performance Testing: The evaluation of the performance of a commissioned installation. 3. Approved: (and words derived therefrom) means approval in writing by the Contract Administrator unless otherwise stated. All systems or equipment designs shall have operated successfully for not less than two years under conditions generally similar to those required by this Sub-Contract. Facilities shall be given at the tender stage, if required by the Principal Contractor to enable him to evaluate the features and performance of equipment offered in the tender. The approval of a design or piece of equipment shall be without prejudice to the site tests required after installation.					
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	<p>4. Size: When related to cables, conduit, cable tray and cable trunking means nominal size in accordance with the recognised methods of sizing these components.</p> <p>5. Complete Installation: The words "complete installation" shall mean not only the major items of plant and equipment conveyed by this specification, but all the incidental sundry components necessary for the complete execution of the works and for the proper operation of the installation, with their labour charges, whether or not these sundry components are mentioned in detail in the tender documents issued in connection with the contract.</p>					
2.8.0	<b>Deviations</b>					
2.8.1	Unless deviations are fully detailed all things offered in the tender shall be deemed to comply with the Specification(s) and/or Drawing(s).					
2.8.2	The Sub-Contractors attention is drawn to the Appendices to be completed in respect both of the materials included in the tender which must comply, in all respects with the Specification and the Schedules of Alternative materials which are offered as an alternative in place of those specified.					
2.9.0	<b>Builderworks and Drawings</b>					
2.9.1	The suitability of the proposed equipment shall be checked by the Sub-Contractor to ensure that all equipment offered is designed to be accommodated within the spatial area constraints identified on the Tender drawings allowing for maintainability access. Under no circumstances shall equipment be ordered by the Sub-Contractor that does not fit into the space available.					
2.9.2	The builderswork and painting requirements of this Sub-Contract shall be as follows.					
2.9.3	Drilling of all holes for all fixings and supports and other items where fixing is by means of screws, plugs and expanding type fixings.					
3.9.4	Foundation bolts, stays, brackets and other fixings shall be supplied by the Sub-Contractor. The Sub-Contractor shall provide for the Principal Contractor proper and sufficient Drawings or Templates of all items requiring foundation bolts or other fixtures and all plant required to be built into or otherwise affecting the building structure.					
2.10.0	<b>Working Drawings</b>					
2.10.1	The Sub-Contractor shall provide 3 copies of all plant manufacturing, arrangement and wiring drawings for approval prior to manufacture.					
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2.10.2	The Sub-Contractor shall, in addition, prepare all necessary installation drawings, diagrams and schedules as may be required for the following purposes:- (i) To illustrate in detail the arrangements of the various services and sections of the works and to identify and describe the various components. (ii) To illustrate that detailed designs of the various services and sections of the works have been properly integrated by the Sub-Contractor with the detail of the building and with the work of other Trades.					
2.10.3	Such drawings and documents shall be made available as requested and in good time to comply with the requirements and the Principal Contractor's Construction Programme and to enable other interested parties to make full use of the information and discharge their own responsibilities.					
2.10.4	Wiring diagrams shall be fully comprehensive and shall co-ordinate the SubContractor's data in respect of individual items of equipment, so far as to present as a whole, the complete information for any interconnected groups of such items. The Sub-Contractor shall be responsible for the accuracy of such diagrams.					
2.10.5	All drawings, diagrams and schedules called for in this Clause shall be submitted to the Principal Contractor for approval prior to issue for construction and installation purposes.					
2.11.0	<b>Provision of Electrical Diagrams</b>					
2.11.1	Wiring diagrams shall be provided in respect of the complete cable distribution network which form part of the works.					
2.11.2	Such diagrams shall be fully comprehensive and shall co-ordinate the Sub-Contractor's data in respect of individual items of equipment so as to present, as a whole, the complete information for any inter-connected group or groups of such items.					
2.11.3	They shall include:- (a) Co-ordinated wiring/connection details between equipment and cables showing coding, cable core size and identification. (b) Schematic layouts presented in "ladder" or similar format such that it is possible to comprehend the operation of a particular system, the inter-connections between the various systems and to identify the components and wiring connections shown on the co-ordinated wiring/ connection diagrams.					
2.11.4	Wiring diagrams shall be prepared by Technicians having the necessary knowledge to do so competently. The Sub-Contractor shall be responsible for the accuracy of such diagrams and shall be liable for all costs arising from any errors in them.					
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2.11.5	Deviations from the requirements of the specification may be considered, but only if they are fully detailed in a letter accompanying the tender and the difference in price between the specified requirement and that offered is stated in the accompanying letter. Unless deviations are fully detailed, the price given in the tender document shall be deemed to include for all items required by the tender documents.					
2.12.0	<b>Instruction and Training of Client Personnel</b>					
2.12.1	The Sub-Contractor shall, in collaboration with the other Work Package SubContractors and the Principal Contractor be responsible for arranging a scheme for "Instruction and Training of Client Personnel".					
2.12.2	Draft proposals of the scheme content shall be submitted to the Principal Contractor for his comment in writing not less than 8 weeks before the Handover date for any portion of the works. Thereafter the proposals will be finalised and a timetable shall be provided for the scheme.					
2.12.3	It is envisaged that the scheme shall comprise a minimum of a 1 day period for up to 5 persons. During these periods formal classroom instruction on the systems and their operation, including controls operations, under normal and fault conditions shall be given. This will occupy approximately 50% of the session with the remaining period consisting of field demonstration.					
2.12.4	The Sub-Contractor shall provide each person with a comprehensive set of teaching notes and diagrams based on the documents to be supplied under the various sections of this document.					
2.13.0	<b>Provision of Record Documents</b>					
2.13.1	The Sub-Contractor shall supply as a prerequisite to Practical Completion of Works and compliance with the Health and Safety at Work Act 197 4, comprehensive record documents in uniform indexed bound sets. The Indexing System shall be in accordance with requirements (to be advised in due course).					
2.13.2	The Sub-Contractor is advised that great importance will be placed upon the quality, accuracy, clarity and completeness of the record documents and upon their being made available promptly. The Sub-Contractor's attention is drawn to the fact that the provision of the Record Drawings is an intricate part of the handover procedure as defined in the CDM Regulations and that handover will not be achievable until the Record Drawings are made available.					
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2.13.3	The Sub-Contractor shall demonstrate from time to time, as required by the Principal Contractor throughout the execution of the works, that adequate and accurate records are being kept such as will ensure the completeness and accuracy of the record documents and that the record documents are themselves being progressively compiled as the work on site proceeds. Records shall be compiled by site based Personnel.					
2.14.0	<b>Record Documents</b>					
2.14.1	Record documents shall comprise the following:- (a) Record Documents and Schedules (b) Operating and Maintenance Instructions					
2.14.2	Record drawings shall be issued in the following sequence:-					
2.14.3	Preliminary (3 Weeks before Handover) - 3 Paper copies of each Drawing and Preliminary Schematic Diagram.					
2.14.4	Final (1 Weeks prior to Handover) - 4 Paper prints of each "As-Installed" Drawing. 1 Plastic film copy of each "As-Installed" Drawing. 1 Complete set of "As-Installed" Drawings on AutoCAD 2008 (compatible format) on CD or DVD.					
2.14.5	The record documents shall be adequate for the following purposes:- (a) To record clearly the arrangements of the various sections of the works as actually installed, and to identify and locate all components parts thereof. (b) To make it possible to comprehend the extent and purpose of the works and the method of operation thereof. (c) To set out clearly the extent to which maintenance and servicing is required and how, in detail, it should be executed. (d) To provide sufficient and readily accessible information properly to facilitate the ordering of spares and replacements.					
2.14.6	The record documents shall be correlated so that the terminology and the numerical and/or references used therein are consistent with and similar to those used in the physical identification of component part of the works.					
2.15.0	<b>"As Installed" Drawings</b>					
2.15.1	The "As Installed" Drawings provided by the Sub-Contractor shall comprise the documents listed in the following paragraphs, as applicable.					
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2.15.2	These "As Installed" Drawings shall be produced in AutoCAD formation compatible with AutoCAD 14 (or later releases should these become available), the release version to be at the Principal Contractor's option to suit existing working methods. The AutoCAD masters shall be produced in a competent professional manner using best practice in the use of colours, layering and file creation methods. Unsatisfactory AutoCAD masters will be rejected.					
2.15.3	All such documents shall clearly be endorsed "As Installed" near to the title block. Drawings or sets of drawings to a scale consistent with that used for the Sub-Contract Drawings which shall show the "As Installed" location of the following:- (a) The location, including level, if buried, of service connections incorporated in the works, whether carried out by the Sub-Contractor or by the appropriate Authority, illustrating points of origin and termination, size and material of cables and/or other relevant information. (b) The layout, location and extent of all cables and associated containment showing sizes of all cables together with containment type, mounting heights, fixing details etc. (c) Location, identity, size and details of all apparatus served by or associated with each of the services. The information with respect to size and detail may be presented in schedule form subject to prior arrangement of the Principal Contractor.					
2.15.4	Manufacturer's drawings or sets of drawings which shall show:- (a) The general arrangement and assembly of component parts of all machines and equipment which may require servicing. (b) The internal wiring of each piece of electrical equipment incorporated in the works, together with physical arrangement drawings, where necessary, to locate and identify the component parts.					
2.15.5	Comprehensive diagrams or sets of diagrams which shall show:- (a) The principles of the arrangement and operation of each of the various services as related to the primary distribution point, other principal components and zoning of distribution etc. (b) All power and control wiring and including size, type of conductor or pipes used and identifying the termination points of each.					
2.15.6	Comprehensive schedules illustrating procedures for fault finding and for action in the event of equipment or system failure.					
2.15.7	Comprehensive schedules of spare parts, lubricants, etc., including itemised specifications, identification numbers and sources of supply.					
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2.16.0	<b>Operating and Maintenance Instructions</b>					
2.16.1	Operating and Maintenance Instructions shall be provided by the Sub-Contractor and shall comprise the following, as applicable (all contained in volumes strongly bound in flexible covers and suitable for heavy usage over a long period) written to be read in conjunction with the record drawings and shall comply with the undernoted requirements.					
2.16.2	The Operating and Maintenance Manuals shall be assembled throughout the contract period and a record copy of the Manuals shall be maintained on site for the reference of all parties.					
2.16.3	The standard of presentation shall be at least equal to that provided by Specialist Technical Writers.					
2.16.4	Provisional copies of the Operating and Maintenance Manuals (2No.) shall be submitted for comment and information prior to commencement of dynamic commissioning.					
2.16.5	After revision to incorporate any comments and to include "Commissioning Results", 2 copies of the "Final Draft" of the Operating and Maintenance Manuals shall be provided prior to Handover.					
2.16.6	The Sub-Contractor shall allow for final modifications to the "Final Draft" copies of the Operating and Maintenance Manuals to incorporate user feedback during the initial 6 month post Practical Completion period.					
2.16.7	These Operating and Maintenance Manuals shall be produced on a Word Processing/Database System (such as MS Word or ASKSAM).					
2.16.8	The format of the Operating and Maintenance Manuals shall include:- (a) A general description of the scope, purpose and manner of working of each system or apparatus forming part of the works. (b) A detailed description of the scope, purpose and manner of working of each system of automatic controls and/or monitoring instruments. (c) Data or general design parameters (and associated normal operating temperatures, pressures, etc. based on the commissioning activity). (d) Clear and comprehensive instructions for the starting up, running and shut down of each system or apparatus. (e) Clear and comprehensive instructions for dealing with emergency conditions for each system or apparatus. (f) Instructions in respect of any precautionary measures from time to time necessary (e.g. against corrosion or freezing). Instructions in respect of the care of apparatus normally subject to seasonal disuse.					
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	<p>(g) Instructions as to the nature, extent and frequency of servicing necessary properly to maintain the works in good condition and as to the materials to be used for the purpose. This information may be supported in detail, but no replaced by, maintenance instructions provided by the suppliers of particular component apparatus.</p> <p>(h) The names and addressed of suppliers of all major components of the works as may potentially be required to obtain spare parts or replacements.</p> <p>(i) List of all recommended spares, complete with manufacturer's references, addresses, telephone numbers and fax numbers. The list shall cover all spares required for the normal life of the plant and equipment supplied as part of this package. Directory listing manufacturer's references, names, addresses, fax and telephone numbers for all items of plant and equipment supplied under this package.</p> <p>(j) Clear and precise information so as to allow safe decommissioning of systems and disposal of materials, including, but not limited to, items of controlled waste.</p> <p>(k) Clear and practical Health and Safety Advise, including guidance on the Electricity at Work Regulations 1989.</p> <p>(l) Pro-Forma Sheets for use in future system modifications.</p> <p>(m) A full recommended five year programme of planned preventative maintenance.</p> <p>(n) Information on site disposal of lamps.</p> <p>(o) Fault finding procedures for each system and item of equipment.</p>					
2.16.9	Copies of manufacturer's fixed drawings data shall be supplied with respect to the nature, type and method of operation of individual pieces of equipment, together with their detailed maintenance instructions. Such data, in the form of individual booklets and the like, shall be indexed and cross-referenced to the Operating and Maintenance Instructions and presented suitably protected in box files or folders.					
2.16.10	This information should also be provided in electronic format (wherever possible).					
2.16.11	The Sub-Contractor's attention is drawing to the fact that the Operating and Maintenance Instructions form an integral part of the handover procedure as defined by the CDM Regulations and that until such time as these documents are made available handover will not be possible.					
2.17.0	<b>Concealed Work</b>					
2.17.1	In all cases where work is to be covered or concealed, a minimum of 7 days notice shall be given to the Principal Contractor before such work is covered. Failure to comply may result in the works being uncovered at the Sub-Contractor's cost.					
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2.18.0	<b>Interference Suppression and CE Marking</b>					
2.18.1	All equipment used by the Sub-Contractor shall be suppressed to comply with BS.800 so as to cause no interference with radio, television or electronic apparatus in use at the works. All equipment shall be CE marked where required to demonstrate compliance with the EMC, low voltage and machinery directives.					
2.19.0	<b>Dimensions</b>					
2.19.1	The Sub-Contractor shall take his own dimensions from the site for the setting out of all plant and equipment, and shall be responsible for the accuracy of those dimensions.					
2.20.0	<b>Method Statements</b>					
2.20.1	The Sub-Contractor shall submit to the Principal Contractor, Method Statements for all activities which may have an associated element or risk, and for any other element of work as requested. Approval of these Method Statements must be obtained from the Principal Contractor prior to commencement of the works.					
2.21.0	<b>Scaffolding and Access Equipment</b>					
2.21.1	The Sub-Contractor shall provide all scaffolding and access equipment required to undertake this Work Package.					
2.22.0	<b>Design Life</b>					
2.22.1	All components used in this specification shall be designed for a minimum 15 year life cycle under operating conditions detailed. Where this cannot be achieved, the Sub-Contractor shall guarantee a replacement life span of 15 years for all components and spare parts.					
2.23.0	<b>Samples</b>					
2.23.1	Samples shall be manufactured to allow for approval aesthetically of all items of equipment forming part of this sub-contract. Samples may also be required, as back up, in order to establish final approval for any Engineering/Installation proposals, which may be made during development of the Project. Allowance for these shall be built into the Tender price. Upon approval, samples shall be logged and delivered to a 'samples store', location to be advised for retention as Control Samples, in case of requirements for later quality comparison.					
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2.24.0	<b>Quality of Workmanship</b>					
2.24.1	The following technical specification outlines the minimum requirements in terms of equipment to be provided and level of installation quality expected by the Sub-Contractor. It shall not relieve the Sub-Contractor for his responsibility to ensure that the quality of workmanship provided is in accordance with all relevant standards, including BS.7671, together with the requirements of good working practice. This shall include elements such as the method of laying cables into trunking and on to cable trays, etc.					
3.0.0	<b>Technical Specification</b>					
3.1.0	<b>General Characteristics</b>					
3.1.1	Electricity Supply: Electricity shall be supplied from the low voltage distribution network at 400V, 3 phase, 4 wire, 50Hz. The LV systems shall be 400/230V, 50Hz, and shall be TN-S having separate neutral and protective conductors throughout the system.					
3.2.0	<b>LV Distribution</b>					
3.2.1	Nature and Extent of Works: The work to be undertaken in this section covers the design, supply, off loading, storing, erection and installation of all electrical and control systems to allow a complete working installation.					
3.2.2	Description of Equipment: Equipment shall be suitable for operation on a 400V 3 phase, TN-S system.					
3.2.3	Segregation of Services: Independent cable tray, trunking and conduit systems shall be provided as required.					
3.2.4	Operating Environment: The distribution equipment shall be suitable for operation indoors in a switchroom environment or similar, within an ambient temperature range of -5°C to +35°C and maximum relative humidity not exceeding 50% at 40°C or 90% at 20°C. The switchgear shall be designed for a service life of at least 15 years in the environment and for the duty specified.					
3.2.5	MCB Distribution Boards: Not in scope- utilise existing, changing and adding protective devices to suit 17 <sup>th</sup> edition IEE wiring regulations, existing devices are Siemens type 5SX					
3.2.6	Miniature Circuit Breakers:					
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	<p>All miniature circuit breakers shall be capable of interrupting a short circuit current of 1 OkA, unless otherwise indicated on the tender drawings, at 400V AC, furthermore they shall have been fully type tested to BS EN 60898 and BS EN 60947-2. The manufacturer shall produce test reports or independent certificates as proof of compliance herewith.</p> <p>All miniature circuit breakers shall additionally fully meet the requirements of Section 537 of BS.7671 "IEE Wiring Regulations" for isolation and switching. All miniature circuit breakers shall be capable of accepting a full range of electrical accessories to allow their adaptation where specified or at a later date to have earth leakage protection, remote tripping facilities or electrical contacts which will signal the position of the main contacts and/or MCB mechanism (whether tripped or not). All miniature circuit breakers shall be capable of accepting a complete range of mechanical accessories, as a minimum this range shall include terminal shields, padlocking facility and an identification system.</p>					
3.2.7	<p>Electrical Contactors:</p> <p>Contactors shall comply with BS.5224, Part 1, rated in accordance with "Uninterrupted Duty" and "Utilisation Category AC 3".</p> <p>Contactors shall be electro-magnetic, suitable for the control arrangement indicated on the tender drawings. Operating coils shall be suitable for de with a rectifier incorporated for ac control circuits, protected by low current cartridge fuses. Unless otherwise indicated, latch-in contactors shall not be utilised.</p> <p>Contactors controlling lighting circuits shall be suitable rated for inductive loadings and shall have control and indication mounted on the front. Control facilities will be by key switch operation.</p> <p style="padding-left: 40px;">On/Off/Auto - Control Switch On/Off/Auto - Indication Lights</p> <p>Contactors shall be provided with facilities for remote indication and control via the BMS as appropriate</p> <p>Contactors shall be capable of accepting different coils, timers, auxiliaries, etc to build up to a single operational unit.</p> <p>Contactors with no interchangeable coils are not acceptable.</p>					
3.2.8	<p>Marking and Notices:</p> <p>All diagrams, charts, tables and the wording for labels and notices shall be submitted for the approval of the Principal Contractor before they are installed.</p> <p>Characters for labels fixed on the means of isolation at the origin of each installation shall be at least 1 Ohm high and 1 .5mm thick. On all other labels characters shall be at least 4mm high and 0.5m thick.</p>					
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3.3.0	<p>Where there are two or more incoming supplies this shall be clearly indicated at each point of isolation. In installations having a three phase supply, labels on single phase equipment shall indicate the phase to which they are connected.</p> <p><b>Cable Construction and Installation</b></p>					
3.3.1	<p>Nature and Extent of Work: The work to be undertaken in this section covers the design supply, off-loading, storage installation, connection, testing and certification of the following cables:-</p> <ol style="list-style-type: none"> <li>1. LV Sub-Main: Not in Scope</li> <li>2. LV Sub-Circuit: All final sub-circuit lighting and power cables from distribution boards All emergency lighting cables</li> <li>3. All main earthing, bonding and equipotential bonding cables for each system provided and as defined in this specification and required under BS.7671 and BS.7430.</li> <li>4. All other ancillary cabling associated with this sub-contract including structured cabling and fire alarms.</li> </ol> <p>All testing, connection (unless identified otherwise) and setting to work with all necessary fixings, brackets and cable notation shall also be included. The Sub-Contractor shall allow for provision of cable acceptance test in conjunction with other Work Package Sub-Contractors. The Sub-Contractor shall, where necessary, issue written confirmation of acceptance of all cabling as satisfactory for the commencement of final connections by others.</p>					
3.3.2	<p>LV Cable Construction: All cables shall be sized and rated in accordance with the current edition of the IEE Regulations ALL CABLING SHALL BE LSF INSULATED AND SHEATHED- USE OF 6242Y SHEATHED CABLING IS PROHIBITED. XLPE LSF SWA LSF Power and Control Cables: XLPE LSF SWA LSF cables shall:-</p> <ol style="list-style-type: none"> <li>(a) be in accordance with BS.5467.</li> <li>(b) be XLPE insulated, with a LSF inner sheath, single wire armoured and with a LSF outer sheath.</li> <li>(c) have a voltage rating of 600/1 000 Volts.</li> <li>(d) have stranded Class 2 copper conductors to BS.6360.</li> <li>(e) have a XLPE insulation Type GPS to</li> <li>(f) have a LSF inner sheath to BS.6724 and mild galvanised steel wires to BS.1442.</li> <li>(g) have a LSF outer sheath to BS.6724 and flame retardant to BS.4066 : Part 3 NMV 1 .5 as a minimum (IEC 332 Part 3 Category C).</li> <li>(h) be manufactured by only one maker.</li> </ol> <p>LSF Cables (Single Core) shall:-</p> <ol style="list-style-type: none"> <li>(a) be in accordance with BS. 7211.</li> <li>(b) be low smoke zero halogen insulated.</li> <li>(c) have a voltage rating of 450/750 Volts.</li> </ol>					
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	<p>(d) have standard Class 2 copper conductors to BS.6360.</p> <p>(e) be flame retardant to BS.4066 Part 1.</p> <p>(f) coloured in accordance with the current edition of IEE Regulations.</p> <p>(g) be insulated to BS. 7 655.</p> <p>(h) be manufactured by only one maker.</p> <p>Mineral Insulated Copper Sheathed Cables: Mineral insulated copper sheathed cable shall be:</p> <p>(a) Sheathed with solid drawn copper and complying with BS.6207, Part 1.</p> <p>(b) 1 OOOV grade mains lighting and power distribution. 600V grade ELY control circuits, fire alarms and emergency lighting.</p> <p>(c) Shall have low smoke (emission) zero halogen (LSF) sheath overall coloured orange for all LV circuits, red for fire alarm, white for emergency lighting and black for</p> <p>(d) Have copper conductors.</p> <p>(e) Be manufactured by only one maker.</p>					
3.3.3	<p>Cable Installation: General: All cables shall be installed:-</p> <p>(a) With each length of cable marked at each end and at access points by a label indicating the cable size and circuit.</p> <p>(b) In such a manner that the cable and the cleats do not come into contact with gas, oil, steam, hot or cold water or any other service.</p> <p>(c) In ducts and on the walls of buildings using Silicone aluminium claw type cleat supports as necessary and in accordance with the spacing requirements of the IEE Regulations, current edition, or other purpose made supports as approved by the Principal Contractor.</p> <p>(d) Using cleats of the correct type and size to suit the overall diameter of the cable. The cleats or other specified supports shall be installed in accordance with the IEE Regulations as regards radius of bends and to manufacturer's recommendations as to spacing between supports, and in a manner that no undue strain is put on the cables or the gland.</p> <p>(e) With fire resisting infill where passing through floors or walls, to comply with the requirements of the IEE Wiring Regulations, current edition (including amendments) and Building Regulations.</p> <p>(f) Protected from mechanical damage to a minimum height of 2m (6ft.) above floor level, where run on the surface of walls, or concealed in walls.</p>					
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	<p>(g) In short lengths of glazed earthenware, pitch fibre, or glazed fibre cable conduit, so designed and installed, where cable access to buildings is required, that the cable is not damaged when drawn into the conduit and the entry point is sealed to prevent the ingress of moisture and vermin.</p> <p>(h) Buried in trenches where run externally, in accordance with the following requirements detailed in paragraph for "Excavation".</p> <p>(i) Cables installed on the surface shall be parallel with the lines of the building and properly aligned.</p> <p>(j) Cables buried below ground shall, as far as practicable, follow the features of the site, such as roadways and building lines. Ducts at road crossings shall normally be at right angles to the line of the road.</p> <p>(k) Spacing of supports for LV cables shall comply with the cable manufacturer's recommendations.</p> <p>(l) Cables shall be supported within 300mm of their termination at equipment; the weight of the cable shall not be carried by the terminal box or gland.</p> <p>(m) Where cables cross expansion and settlement joints in the building structure they shall be fixed 300mm each side of the joint and sufficient slack left between to allow for movement. Where the cables are buried in the building fabric, suitable provision shall be made to allow for movement of the structure. The Sub-Contractor shall submit his proposals for the approval of the Principal</p> <p>(n) Installation of cables shall be carried out only when the ambient temperature is 0 degrees c unless a written statement from the cable manufacturer confirms that no damage to the cable will result, and the approval of the Principal Contractor is given. The temperature of the cable shall have been above 0°C, or above the minimum temperature recommended by the manufacturer, for at least 24 hours immediately prior to installation; any special measures to achieve this shall be subject to approval by the Principal Contractor.</p> <p>(o) Cables shall be handled with care and every effort made to avoid damage to cables, to other services and to building fabric. Recommendations or instruction available from the cable manufacturers concerning the installation of cables shall be taken into account; in particular co-axial cables shall not be bent in a radius less than six times the overall diameter. Any damage shall be reported immediately to the Principal Contractor.</p>					
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	<p>(p) Cable drums shall be unloaded carefully by means of either a crane or ramp and impact with the ground shall be avoided. They shall be supported on axles and axle stands while the cable is being pulled; twisting and abrasion of the cable serving or oversheath shall be avoided.</p> <p>(q) Cables shall be pulled over cable rollers adequately spaced to prevent the cable being dragged over ground or other surface. For cables pulled into thrust bearings or cable ducts and for all cables exceeding 10m length, cable stockings shall be used for hauling. Precautions shall be taken to ensure that strain is taken on the cable cores as well as the sheath and excessive strain shall be avoided.</p> <p>(r) Cables laid in trenches shall cross other cables only at junctions; clearances between the cables shall be maintained at cross overs. Cables shall not be laid one above the other except where indicated.</p> <p>(s) Only one cable shall be pulled into each duct except for the following, which may be bunched, subject to the requirement of Table I and a maximum space factor of 20%. Single-core cables forming one circuit Alarm, control, communications and monitoring cables</p> <p>Cables that are to be installed in the same duct shall be bunched together and pulled in one operation; additional cables shall not be drawn-in subsequently.</p> <p>(t) The ends of all cables shall be sealed during laying unless jointing or termination is carried out immediately. The sealed ends of power cables shall be marked with the letter 'A' or 'Z' to indicate the core sequence, 'A' at the end where the sequence is clockwise and 'Z' when it is anti-clockwise.</p> <p>(u) Cable guards shall be fitted where cables are mounted at low level on walls, poles, towers or other locations as indicated.</p> <p>(v) Cable guards shall be constructed from 1.6mm thick galvanised steel sheet and formed into a casing with external flanges for fixing to the fabric.</p> <p>(w) Guards shall extend to a height of 1500mm above ground or floor level for LV cables. In external locations, the guards shall extend 300mm below finished ground level; they shall be protected inside and out with bitumastic paint extending from the bottom up to 150mm above finished ground level.</p> <p>LV Cable Installation: XLPE LSF SWA LSF: XLPE LSF SWA LSF Cables shall be:- (a) Supported as necessary either by cleats to the structure or on cable tray to meet the requirements of the current edition of the IEE Regulations.</p>					
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	<p>(b) Terminated in suitable compression glands of the type which provide an anchorage and a crass joint bonding of the armouring. The glands shall then be fitted with LSF and PVC shrouds respectively which completely encase them, (single core wire armours shall terminate in a non-metallic plate to totally eliminate eddy currents).</p> <p>(c) Run on routes indicated on the drawings. Any deviation shall be approved by the Principal Contractor before laying commences. The routes shall be measured on site by the Sub-Contractor and he shall be responsible for ensuring that the correct lengths are ordered. Any length found to be measured too short will be replaced with cable of the correct length. Cables shall be delivered to site in one continuous length on a drum ready for laying. No "through" or "T" joints shall be permitted. Cable ends shall be kept sealed before installation by means of wiped joint end caps.</p> <p>(d) No "Tywrap" type cables straps shall be LSF Cables (Single Core) shall be:</p> <p>(a) Delivered to site with each coil having seal intact.</p> <p>(b) Installed without joints.</p> <p>(c) Fitted with shake-proof or spring washers on all bolted connections.</p> <p>(d) Terminated with compression type lugs.</p> <p>(e) Terminated in boxes.</p> <p>(f) Cables shall not pass through light fittings, or be coupled directly to lampholders.</p>					
3.3.4	<p>All Fire Performance Cables shall be:</p> <p>(a) Mineral Insulated Copper Clad, fixed by means of copper or saddles to match the sheath of the cable. Saddles shall be fixed to the structure as detailed for conduit work.</p> <p>(b) Saddles shall be spaced as given below:-                      Not more than 9mm dia. - 600mm maximum horizontal, 800mm maximum vertical                      Above 9mm not more than 15mm - 900mm maximum horizontal, 1200mm maximum vertical                      Above 15mm not more than 20mm - 1500mm maximum horizontal, 2000mm maximum vertical</p> <p>Where several cables are run together, multiple saddles shall be used. Fixings shall be as detailed for conduit work.</p> <p>(c) Run on cable trays where multiple runs occur. Saddles shall be fixed using brass round head screws and nuts. No "Tyrap" fixings shall be used.</p> <p>(d) Delivered to the site on cable drums having manufacturers seals and identification labels intact.</p> <p>(e) Tested in the presence of the Principal Contractor or his representative not less than 24 hours after installation and completion of seals. Any cables not giving 200 megohm reading when tested with a 500 volt insulation resistance tester shall be resealed.</p> <p>(f) Tested before and immediately after covering by concrete, plaster, or being buried in the ground, for continuity and insulation resistance to verify that mechanical damage has not occurred.</p>					
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3.3.5	<p>(g) Protected as detailed for conduit installations where the final finish of floor screed, plaster, etc., is not carried out immediately after installation.</p> <p>(h) Protected by fibre sleeves where passing through floors, walls, ducts or trenches.</p> <p>(i) Protected by means of cable trunking or conduit to a height of 1 m on walls after passing through floors and arranged to provide a neat finish.</p> <p>(j) Terminated with brass locknuts and female bushes in equipment where clearance holes are provided and clearance is available.</p> <p>(k) LSEZH sheathed with LSEZH hoods and shrouds provided at all terminations.</p> <p>(l) Installed by tradesmen who have had a course of instruction in the handling and terminating of this cable.</p> <p>(m) Installed using only the bending, stripping and sealing tools recommended by the manufacturer.</p> <p>(n) Straight through jointed only where prior written approval of the Principal Contractor is obtained. Joints shall be of a type supplied by or approved by the Cable Manufacturer.</p> <p>(o) No plastic wrap/tie type fixings shall be used.</p> <p>Joints and Terminations:                      XLPE LSF SWA LSF and XLPE PVC SWA PVC Cables:                      Cable Joints and Tee Joint Boxes:                      "Through" and "T" joints shall not be made without the written authority of the Principal Contractor.                      Terminations of Cable Conductors:                      Cables shall be:                      (a) Terminated by glands, deemed suitable for the purpose by the cable manufacturers.                      (b) Identified at each termination by cable markers for the push-on or heat</p>					
3.3.6	<p>Conductors shall be:</p> <p>(a) Terminated by one of the following methods unless otherwise stated:-                      (i) Sweated lugs of the appropriate size for the cable used.                      (ii) Compression type lugs.                      (iii) Pinch screw type terminals of a type that do not spread the conductors.                      (iv) Clamp type terminals.</p> <p>(b) Doubled back on themselves for all single connections of conductors size up to and including 4mm<sup>2</sup></p> <p>(c) Terminated in a box or within the lighting fittings or other appliance to be connected.</p> <p>(d) Identified at each termination by cable markers of the push on or heat shrink type. The information conveyed by such marking shall be sufficient to allow the installation to be maintained easily and safely. Proposed format to be submitted for Principal Contractor approval.</p>					
3.3.7	<p>Cable Cleats:                      Cable cleats shall be made from materials which are resistant to corrosion without the need for treatment or special finish.</p>					
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	<p>Cable cleats shall be of a size such that they can be tightened down to grip the cables without exerting undue pressure or strain on them. For vertical cables, two-bolt cable cleats shall be used which shall grip the cables firmly enough to prevent them slipping.</p> <p>The spacing of cable cleats shall comply with the IEE Wiring Regulations. At bends in the cable, cleats shall be located immediately on each side.</p>					
3.4.0	<b>Conduit and Cable Trunking Installation</b>					
3.4.1	<p>Nature and Extent of Work:</p> <p>The works to be undertaken in this Section covers the design, supply, delivery, off-loading, storing, erection, installation, testing and setting to work of all cable trunking and conduit within the Demise including all fixings and brackets. Trunking shall be as indicated on the drawings.</p>					
3.4.2	<p>Segregation of Services:</p> <p>Independent trunking systems either as individual trunking or multi compartment trunking shall be provided for:-</p> <p>(i) Lighting and Power (separate trunkings will be provided for distribution boards, or group of boards, served by different transformers).</p> <p>Independent conduit systems shall be provided for:-</p> <p>(i) Lighting and Power (ii) Data and Communications</p>					
3.4.3	<p>Steel Conduits Generally:</p> <p>Conduits shall be:</p> <p>(a) Class 2, heavy gauge black enamel inside and outside welded conduit to BS.31, BS.4568 : Part 1, BS.6052 and BS.6099 where applicable for screwed conduit installation. Class 4, hot dipped galvanised inside and outside, welded conduit to BS.31, BS.4568 : Part 1, BS.6052, BS.6099 where applicable for screwed conduit installation. Stainless steel to BS EN 60529 and IEC 529, IP67 rated where applicable for screwed conduit installation.</p> <p>(b) Class 2 for general use internally, where installed under suitably controlled environment, and Class 4 for use outside buildings, in plant rooms, floor trenches and in floor screeds. Class 4 conduits shall be hot galvanised inside and out during manufacture. Stainless steel conduits for use in areas susceptible to corrosion and where hygiene is important (kitchens etc.) when a surface installation is required.</p> <p>(c) Threaded to the correct length in accordance with BS.4568 and each length shall be reamed at both ends to remove all sharp edges and burrs after screwing.</p> <p>(d) Cleaned of all lubricants and swarf before installation. Factory machined threads already cut shall be cleaned by having dyes run over them and wiped clean.</p> <p>(e) Protected from weather and mechanical damage during storage and installation at site.</p> <p>(f) Of European Manufacture.</p>					
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3.4.4	<p>Conduit Installation. Generally:</p> <p>All metallic conduits shall be:</p> <p>(a) Installed neatly and as unobtrusively as possible, parallel to general building lines when run on the surface of walls and ceilings.</p> <p>(b) Routed as approved by the Principal Contractor before installation. Spaced at the standard dimensions of multiple saddles where two or more conduits are run together.</p> <p>(c) Checked for rigidity and mechanical damage where run in floor screed, before the floor screed is laid. Any damage conduit runs shall be renewed.</p> <p>(d) Laid in straight line from point to point when concealed.</p> <p>(e) Protected at terminations by plugs or caps until installation of cables and swabbed dry and proved clear before wiring commences.</p> <p>(f) Provided with temporary protection where run in floors to prevent damage to the finish, until floor screeds are laid.</p> <p>(g) Painted with rust inhibiting paint after erection where threads are exposed or where the finish is damaged.</p> <p>(h) Screwed and butted solidly into boxes, couplings and conduit fittings and satisfactorily mechanically continuous throughout.</p> <p>(i) Tested for satisfactory electrical continuity before plastering or screeding and before cables are drawn in. The tests shall be witnessed by the Principal Contractor.</p> <p>(j) Installed with the minimum of running couplings other than those provided under (o) below. Where provided, couplings shall have machined end faces for locknuts having machined faces. Lockrings to be used on all couplers.</p> <p>(k) Bent or set using a bending machine and with minimal deformation of bore.</p> <p>(l) Threaded parallel with the bore. All conduit shall be held in an efficient pipe vice for screwing. Where coupled to equipment of trunking not having tapped conduit entries, smooth bore male brass bushes shall be used inside the equipment and circular milled locknuts to be installed at all terminations and on each side to ensure electrical continuity. All bushes shall be fitted with spring, shakeproof or compression washers.</p> <p>(m) Installed in accordance with the current edition of the IEE Regulations, Guidance Notes 'Selection and Erection' with respect to the maximum allowable number of cables in</p> <p>(n) Provided with draw-in facilities for easy installation or withdrawal of cables.</p> <p>(o) Installed with a running coupler socket inserted within 300mm above the floor or below the ceiling on all vertical drops or risers. Lock rings to be used on all couplers.</p> <p>(p) Installed only vertically in wall chases or on the surface of the walls. Horizontal runs shall be avoided where practical.</p>					
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	<p>(q) Supported 300mm each side of any bend, set adaptable or drawing box. Conduit boxes shall be fixed to the fabric of the building independently of the conduit. Where the conduit boxes have a minimum degree of protection of IP44, the fixings shall not reduce that protection.</p> <p>(r) Installed using Demise saddles for surface runs exposed to view. In stainless steel applications 50mm munson rings shall be used for support.</p> <p>(s) Installed using pressed steel or spacer bar saddles, or approved proprietary fixing when installed in roof spaces, above suspended ceilings, or in other spaces as agreed with the Principal Contractor.</p> <p>(t) Installed using cram pets for fixing when installed in screeds or in chases which will be rendered and plastered.</p> <p>(u) Installed with saddles or crampets spaced at distances recommended with the IEE Regulations BS.7671 Guidance Notes 'Selection &amp; Erection'.</p> <p>(v) Installed with saddles rigidly fixed to the structure by means of proprietary make of wall plug and screws to a depth to suit the structure.</p> <p>(w) Installed with all fixing holes in walls etc. drilled with masonry drills. Shot fired fixings shall not be used.</p> <p>(x) Installed so that where condensation in the conduit is likely, the sections shall be isolated by means of a conduit box filled with plastic compound of the non-hardening type, located in the higher position in the conduit run.</p> <p>(y) Provided with adequate drainage points where condensation is likely to occur.</p> <p>(z) Of 20mm dia. Minimum (25mm for IM&amp;T services).</p> <p>(aa) If the protective finish of any materials has been damaged, those materials shall either not be used or any remedial work shall be approved by the Principal Contractor before use. Conduits shall be clean and free from oil.</p> <p>(bb) Where a terminal block is to be accommodated in a circular conduit box it shall be fixed base and an extension ring shall be fitted to the box, of sufficient depth to ensure adequate space for the terminal block and cables. An adequate label worded, as approved by the Principal Contractor, shall be affixed to the box to clearly indicate its use.</p> <p>(cc) The length of thread on the ends of steel conduit shall match that in the conduit fittings or equipment; exposed thread will not be permitted. Running couplings with backnuts may be used with conduit having Class 2 protection, but where the protection is Class 4, only manufactured running couplings shall be used and given a coat of zinc - rich paint, following erection.</p> <p>(dd) Joints between PVC conduit and fittings shall be made with a suitable adhesive and expansion couplers shall be included.</p> <p>(ee) Conduit shall be cold bent on site with a suitable bending tool, without deforming its cross section.</p>					
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	<p>(ff) Unless otherwise indicated, galvanised conduit buried in concrete shall have at least 30mm depth of cover; it shall be securely fixed to prevent movement during pouring and vibrating of the concrete. Galvanised conduit buried in plaster shall have at least 15mm depth of cover.</p> <p>(gg) Where conduits, cross expansion and settlement joints in the building structure suitable provision shall be made to allow for movement of the structure. The Sub-Contractor shall submit his proposals for the approval of the Principal Contractor.</p> <p>(hh) Where conduit passes through an external wall, a conduit box shall be fitted on the inside of the wall and, after wiring, filled with an inert, permanently plastic compound having a high insulation value.</p> <p>(ii) Conduit shall be installed in screeds only where indicated or after receipt of the Principal Contractor's approval. Conduit boxes in floors, other than for agreed outlets will not be permitted.</p> <p>(ii) Open ends of conduit shall be temporarily plugged immediately they are installed to prevent ingress of water and solid material.</p> <p>(kk) Conduits shall be fixed in an approved manner in accordance with the following table:</p> <ol style="list-style-type: none"> <li>1. Fixing of Conduit                     <ul style="list-style-type: none"> <li>Floor screeds - Saddles</li> <li>Buried in plaster or render - Crampets or saddles</li> <li>Above false ceilings - Spacer bar</li> <li>Surface - Spacer bar/Distance saddles</li> </ul> </li> <li>2. Fixing of Saddles and Conduit Boxes                     <ul style="list-style-type: none"> <li>Structural Steelwork - Purpose made clamps, the type to be approved by the Contract Administrator</li> <li>Non-structural steelwork - Set screws and nuts complete with washers, shakeproof washers and loose nuts as recommended by the manufacturer</li> <li>Concrete, brick or building - Rawlplugs and Screws, expanding bolt type fixings</li> <li>Hollow Stud - Screw anchor type, gravity toggle type or spring type toggle to be approved by the Principal Contractor</li> </ul> </li> </ol>					
3.4.4	<p>Conduit Installations shall NOT:</p> <p>(a) Be concealed before inspection and approved by the Principal Contractor (7 days minimum notice of cover-up inspection to be given).</p> <p>(b) Have more than two right angle bends in any run without the provision of a draw-in box.</p> <p>(c) Have runs of more than 10m without a draw-in box on straight lengths or 7.5m on lengths containing a bend or bends.</p> <p>(d) Incorporate manufactured bends, tees, or elbows unless specified or with the prior permission of the Principal Contractor. Circular junction or adaptable boxes may be used instead.</p> <p>(e) Be fixed by means of crampets on the surface of walls.</p> <p>(f) Have cables drawn in until erection is completed.</p>					
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3.4.5	<p>(g) Be dismantled for cabling.                      (h) Be scored, marked or have the bore deformed.                      (i) Have damaged or poorly cut threads.                      (j) Be installed in contact with steam water or gas or heating pipework. A distance of 150mm shall be maintained from all other services wherever possible.</p> <p>(k) Have any untreated rust patches on surface.</p> <p>Galvanised Conduits shall be:                      (a) Fixed using galvanised saddles and sheradised or galvanised screws. Fibre fixing plugs shall not be used.</p> <p>(b) Painted with Zinc rich pain where threads are exposed.                      (c) Installed with all necessary galvanised accessories.</p> <p>(d) Galvanised conduits shall be installed where conduits are installed in floor screeds, and where surface installation is required.</p>					
3.4.6	<p>Metallic Flexible Conduit shall be:                      (a) Used only to items of equipment which are withdrawable or subject to vibration or adjustment.                      (b) LSF sheathed and of ample capacity for the number of cables.                      (c) Have a minimum length of 300mm and have sufficient length to allow the full range of withdrawal, adjustment, or movement necessary.                      (d) Terminated at each connection with factory made clamps. Run with earth conductors of minimum size 4mm<sup>2</sup> insulated cable installed internally, fixed at each end of the conduit with earth clamps. This shall be in addition to main circuit protective conductor.                      (e) In accordance with BS.731.</p>					
3.4.7	<p>Metallic Flexible Conduit shall NOT be:                      (a) Used externally to a building or exposed to the weather or in any position where ingress of moisture may occur.</p>					
3.4.8	<p>Stainless Steel Conduit shall be:                      (a) Fixed using stainless steel extra deep saddles or munson rings and stainless steel screws. Fibre fixing plugs shall not be used.                      (b) Installed with all necessary stainless steel accessories.                      (c) Installed in such a manner that all conduit entries and couplings are sealed to maintain IP67 rating.                      (d) Of minimum wall thickness 1.6mm with satin finish.</p>					
3.4.9	<p>Conduit Fittings:                      Circular Conduit Boxes shall be:                      (a) Of malleable cast iron to BS.4568 finished Black enamel silverlac or galvanised as appropriate and provided with lids of mild steel 2.4 thick sheet steel 1-15 thick for small type or malleable 3.2 thick, sheet steel, 1-4 7 thick for large type finished to suit the box and secured in position by brass roundhead or cheese head screws.                      (b) Provided with tapped spout entries except where arranged lor back entry looping.</p>					
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3.4.10	<p>(c) Of heavily galvanised weatherproof type where installed externally, with mineral jelly between surface of the joint, or alternatively fitted with a gasket.</p> <p>(d) Of the tangent type at right angle changes of direction where necessary to form a neat and unobtrusive run.</p> <p>(e) Installed in such a manner that the edge of the box is flush with the finished surface, or alternatively extension rings shall be used. The Principal Contractor shall be informed where extension rings are proposed, prior to installation.</p> <p>(f) Firmly grouted in where provided for switch and socket outlet points in brick and concrete.</p> <p>Adaptable boxes shall be:</p> <p>(a) Manufacture from sheet steel or cast iron.</p> <p>(b) Used instead of BS.4568 type boxes where two or more parallel conduit lengths are jointed together.</p> <p>(c) Provided with earthed steel barriers where necessary to segregate services.</p> <p>(d) Galvanised malleable cast iron type with heavy lids made watertight where used externally.</p> <p>(e) Fitted with overlapping lids where used on flush installation. All lids to be gasketed.</p> <p>(f) Heavily galvanised after manufacture, where used with galvanised conduit.</p> <p>(g) Fixed in accessible positions and secured to the fabric of the building.</p> <p>(h) Of adequate size for the number and size of cables entering and leaving and for the largest size of conduit connected to the box.</p>					
3.4.11	<p>Cable Trunking Installation:</p> <p>All cable trunking shall be:</p> <p>(a) Installed neatly and as unobtrusively as possible, parallel to general building lines when run on the surface of walls and ceilings or where concealed in ceiling or other service voids.</p> <p>(b) Routed as approved by the Principal Contractor before installation.</p> <p>(c) Checked for rigidity and mechanical damage where run in floor screed, before the floor screed is laid. Any damaged runs shall be renewed.</p> <p>(d) Provided with temporary protection where run in floor to prevent damage to the finish, until floor screeds are laid.</p> <p>(e) Butted solidly at intersections and joints between lengths, and satisfactorily mechanically continuous throughout. Earth links shall be provided for electrical continuity.</p> <p>(f) Tested for satisfactory mechanical continuity before plastering or screeding and before cables are drawn in. The tests shall be witnessed by the Principal Contractor.</p> <p>(g) Galvanised for all exposed/surface runs.</p> <p>(h) Joined between lengths and at changes of direction using the manufacturer's factory made accessories.</p>					
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	<p>(i) Installed in accordance with the current edition of the IEE Regulations with respect to the maximum allowable number of cables in trunking, with 30% spare capacity over and above the maximum number of cables provided.</p> <p>(j) Installed with cable supports to all vertical drops or risers in accordance with the current edition of the IEE Regulations. These shall support the cables adequately without undue stress or damage occurring and shall be offered for the pre-installation approval of the Principal Contractor.</p> <p>(k) Installed with approved fire barriers where runs pass through floors, fire division walls or smoke compartments.</p> <p>(l) Supported 150mm each side of any bend or set.</p> <p>(m) Installed clear of the structure utilising purpose made brackets.</p> <p>(n) Installed on walls with fixings by means of proprietary make of wall plug and screws to a depth to suit the structure. Fibre fixing plugs shall not be used.</p> <p>(o) Of the one manufacture throughout for each type of trunking.</p>					
3.4.12	<p>Trunking Installation shall NOT:</p> <p>(a) Be concealed before inspection and approval by the Principal Contractor.</p> <p>(b) Have cables drawn in.</p> <p>(c) Be dismantled for cabling.</p> <p>(d) Be scored, marked or otherwise deformed.</p> <p>(e) Be installed in contact with steam water or gas or heating pipework. A distance of 150mm shall be maintained from all other services wherever possible.</p> <p>(f) Be installed in such a manner to cause stress or damage to cables during either installation or their intended life once installed.</p>					
3.4.13	<p>Standard Cable Trunking:</p> <p>(a) The dimensions of cable trunking shall be determined by the Sub-Contractor in accordance with requirements of the current edition of the IEE Regulations, allowing a further 30% spare capacity.</p> <p>(b) The trunking shall be heavy gauge 1.5mm type single or multi-compartment as indicated on the drawings.</p> <p>(c) Cables shall be retained in the trunking by the manufacturer's retaining clips.</p> <p>(d) Fixed or bracketed to the structure at intervals not exceeding 2 metres.</p> <p>(e) The trunking shall have removable lid over its entire length which shall be fixed at 1 metre intervals. Where the trunking passed through walls or floors, the lid shall be neatly cut 75mm on each side, to allow removal of adjacent lengths.</p> <p>(f) The union between conduits and trunking shall be by male bush and flanged couplings with a serrated washer between the bush and the trunking tightly screwed up for earth continuity.</p>					
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3.4.14	<p>Dado/ Skirting Trunking:</p> <p>The trunking shall be of the three compartment type i.e. power, data and voice. The trunking shall be of a white LSF polyethylene finish.</p> <p>The trunking shall be installed xx mm above table/desk height (to be confirmed). Conduits to the trunking shall be flush and cables shall enter the trunking from the rear section to an approved detail.</p> <p>The trunking shall be complete with curved top and bottom sections, the middle section being straight and capable of accepting the various accessory plates.</p> <p>The data cabling shall be installed in the bottom compartment of the trunking. This compartment shall be fitted with a metal insert to give the cable additional screening. The insert shall be suitably earthed.</p> <p>Cables shall be retained within the trunking by means of suitable LSF cable retainers used every metre and change of direction in lid down applications. Corner pieces (both internal and external) shall be of the moulded type and be complete with cable separation shelves, and shelf couplers. Coupling sections shall be similarly equipped with shelf couplers. End caps shall be fitted at the end of all trunking runs.</p>					
3.4.15	<p>Accessory Boxes:</p> <p>Unless otherwise indicated, accessory boxes used with steel conduit and with MICS cables shall be metal and those used with insulating materials shall be of a similar insulating material. All boxes shall be manufactured to BS.4662.</p> <p>Where accessory boxes are of insulating material the material shall have the ignitability characteristic 'P' as specified in BS.476.</p> <p>Accessory boxes shall be suitable for flush or surface mounting, as indicated. Unless otherwise indicated, metal boxes for general use inside buildings shall be of steel with medium category of protection against corrosion; for use in plant rooms they shall be steel with heavy category or protection; and for use outside buildings and in other locations as indicated they shall be of a suitable ingress protected polycarbonate housing.</p> <p>Accessory boxes shall be of adequate depth to accommodate the accessories without causing compression of the cables. Generally boxes shall be minimum 35mm deep or to a minimum depth for IM&amp;T accessories, to be confirmed by the Sub-Contractor via the IM&amp;T SubContractor.</p> <p>Earthing terminals shall be fixed inside each accessory box and on the grids of grid-switches.</p> <p>The earthing terminal of each grid shall be connected by a separate protective conductor to the earthing terminal of the box. All accessory boxes shall have a brass earth stud capable of accepting 2 x 4mm<sup>2</sup> cables.</p>					
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	<p>Accessory boxes shall be fixed to the fabric of the building independently of the connecting cable or conduit, as specified for conduit boxes in Section 3.04. Where the accessories have a minimum degree of protection of IP44 the fixings shall not reduce that protection.</p> <p>Where boxes are provided in partitions noggins shall be provided to enable a firm and rigid fixing. The extent and locations of such noggins shall be detailed by the Sub-Contractor as part of their builderswork details. It shall be the Sub-Contractor's responsibility to ensure that all noggins are installed in a suitable manner/arrangement to facilitate firm and rigid fixing of accessory boxes.</p> <p>All flush boxes shall be recessed no more than 3mm below the finished wall.</p>					
3.5.0	<b>Cable Tray and Ladder Installation</b>					
3.5.1	<p>Nature and Extent of Work:</p> <p>The works to be undertaken in this section cover the design, supply, delivery, off-loading, storing, erection, including all fixings and brackets, installation, testing and setting to work of all cable tray and ladder as necessary for the various cable systems.</p> <p>All cables shall be adequately supported. Indicative cable containment requirements are as detailed on the Tender drawings (sizes shown shall be a minimum).</p> <p>Details of all containment systems, together with proprietary supports shall be provided on the working/production drawings. The Sub-Contractor shall allow for all necessary co-ordination meetings/correspondence with other WP Sub-Contractors within his tender to ensure that prior to any cable containment system installations, all routes, heights, zones etc. have been agreed with the Principal Contractor.</p> <p>Any necessary bends, risers, tee pieces etc. to achieve a co-ordinated services installation without clashes shall be deemed included within the accepted Tender price.</p>					
3.5.2	<p>Segregation of Services:</p> <p>Independent cable tray and ladder systems shall be provided for the cables of the following distribution networks.</p> <ul style="list-style-type: none"> <li>(i) Fire Alarm and Emergency Lighting</li> <li>(ii) LV Sub-Mains</li> </ul>					
3.5.3	<p>Straight Dividers:</p> <p>Straight dividers shall be fixed to cable trays and ladders, where indicated on the drawings, by means of M6 x 12mm roofing nuts and bolts.</p>					
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3.5.4	<p><b>Galvanised Cable Trays:</b></p> <p>All internal galvanised Cable Trays shall be manufactured from pre-galvanised mild steel, to BSEN 10142 : 1991 and BS EN.1 0143 : 1993 with a minimum coating weight of 275g/m2 . Cable tray and cable fittings shall be fully perforated, slot sizes shall be 20mm x 7mm (or similar), running parallel to the length of the cable tray and 13.5mm by 11 mm (or similar) running perpendicular to the length of the cable tray.</p> <p>Pre-galvanised cable trays for internal applications shall comply with the general requirements of GDCD Standard No.23 March 1979 and shall be:-</p>					
3.5.5	<p><b>Medium Duty Return Flange:</b></p> <p>(a) Gauges shall be a minimum of 1.0mm for tray up to 225mm, 1.2mm between 225mm and 300mm, and 1.5mm above 300mm. Flange height shall be a minimum of 25mm and a minimum return flange of 5mm.</p> <p>(b) In general, heavy duty, return flange, pre-galvanised perforated, cable tray shall be used for mains and sub-main cabling with medium duty, return flange, galvanised perforated cable tray used for fire alarm, emergency lighting and communications cables.</p> <p>(c) Supported on purpose-made suitably treated mild steel supports which shall permit easy adjustment and modification or by suitable channel, brackets and accessories to BS.6946 at intervals necessary to provide a rigid fixing in accordance with the manufacturers recommended fixing centres. Channels to BS.6946 shall be manufactured from 2.5mm material conforming to BS EN.1 0142 : 1991 and BS EN.1 0143 : 1993. Brackets to BS.6946 shall be manufactured from 6mm mild steel, 40mm wide, hot dip galvanised after manufacture to BS.729: 1971 (1994) and shall have a minimum hole size of 14mm dia holes to accept M 12 setscrews.</p> <p>(d) Capable of carrying without undue deflection, the total weight of cable likely to be carried on the tray regardless of the location of the joints.</p> <p>(e) Fixed to the fabric of the building by means of expansion type masonry plugs or bolts. Fixed to steelwork and purlins with proprietary fixings approved by the Structured Engineer and purl in manufacturer. Fibre fixing plugs shall not be used.</p> <p>(f) Installed with a space between the structure and supported tray as follows:                      Tray Space                      Up to 100mm wide - 75mm minimum space                      Above 100mm wide - 100mm minimum space</p> <p>(g) Installed using factory formed bends and tees. Where cut sections are used for sets they shall be free from sharp edges, and joined by means of fish plates or couplers bolted to each section in accordance with the manufacturers recommendations.</p> <p>(h) Painted with zinc rich paint to BS.4652 where cuts have been made.</p> <p>(i) Suitably protected where holes have been cut to allow cables to pass through or exit the tray.</p>					
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	<p>(i) Installed and coupled together using fish plate and/or flat bar couplers secured with the appropriate number of M6 x 12mm roofing bolts and nuts or stainless steel clips as required in accordance with the manufacturers recommendations.</p> <p>(k) Fitted with inverted cable tray through and extending to 300mm either side of fire barriers with the cable access being suitably fire stopped following installation.</p> <p>(l) Earth continuity connectors shall be fitted between each length of cable tray to ensure compliance with BS.4678. The earth continuity connectors shall be manufactured from copper braid to BS.41 09 complete with copper lugs to BS.6017 and BS.1977 or copper earth links with a minimum conductor area of 4mm<sup>2</sup> and with an electro- tinned finish.</p> <p>The connectors shall be fastened by M6 x 12mm roofing nuts and bolts. The connectors shall be fixed in accordance with the cable tray manufacturers recommendations.</p> <p>(m) Supported by trapeze hangers up to 450mm wide by M 10 threaded rods and M 12 threaded rods for 600mm widths and above.</p>					
3.5.6	<p>Channel nuts shall be:</p> <p>(a) Manufactured from steel to BS.970: Part 3: 1971. Channel nut shall be zinc plated to BS.3382 : Part 2 : 1961 clear passivated.</p>					
3.5.7	<p>Bolts shall be:</p> <p>(a) Manufactured to BS EN.240 18 : Grade 4.6. The bolt shall be zinc plated to BS.3382 : Part 2 : 1961 clear passivated.</p>					
3.5.8	<p>Cable Tray Covers:</p> <p>(a) Ventilated cable tray covers shall be provided as described on the drawings. The covers shall provide an adequate gap along either side through which air can circulate.</p> <p>(b) Ventilated cable tray covers shall be secured using proprietary clips and fixings in accordance with manufacturers recommendations.</p> <p>(c) All straight covers shall be supplied in lengths of 1.5m or 3m.</p>					
3.5.9	<p>Cables shall be fixed to the tray:</p> <p>(a) By means of proprietary forms of LSF or copper cable clips, hot dip galvanised cleats, saddles or straps with zinc plated or serrated bolts or nuts and washers at intervals of not more than 1200mm. Plastic wraps shall not be permitted.</p> <p>(b) By means of copper or brass saddles and clips where high temperatures or humid conditions are likely to be experienced. All saddles, clips, straps, etc, shall be fixed to the tray by means of brass screws or bolts and nuts.</p>					
3.5.10	<p>Cables shall not be fixed to the tray:</p> <p>(a) By means of strips of steel wire e.g. wire armour steels, ceiling grid, support steel.</p> <p>(b) With lengths of any material not specifically intended for the fixing of cables or capable of sustaining the cables respective maximum fault level.</p>					
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	(c) By plastic ties or wraps of any description.					
3.6.0	<b>Lighting Installation</b>					
3.6.1	Refer to scope of works section.					
3.7.0	<b>Emergency Lighting Installation</b>					
3.7.1	Refer to scope of works section.					
3.8.0	<b>General Power Installation</b>					
3.8.1	Nature and Extent of Work: The works to be undertaken in this section cover the design development supply, delivery, off-loading, storing, erection, installation, testing and setting to work of alterations to the lighting, lighting controls, small power, kitchen installation and structured cabling.					
3.8.2	Segregation of Services: Independent Cable Tray Trunking and Conduit Systems shall be provided as detailed in the relevant foregoing section of this Specification. Socket Outlets (Spurs & Isolators): Socket Outlets shall be: Supplied and installed by the Sub-Contractor and shall be 13 amp. 3 pin, shuttered type flush pattern finished to match lighting switches, by the same manufacturer and of the same range as existing and manufactured in accordance with BS.1363. Fused connection units, double pole switches, lightswitches and all other wall mounted accessories shall be from the same manufacturer and range as the existing installation. Items within risers and in ceiling voids shall be from the MK 'ALM' Metalclad range. All sockets to be fitted with dual earth terminals.					
3.8.3	Connection of Equipment: Where equipment is controlled by DP switches or spur units with flex outlets, the circuit LSF wiring shall be terminated and final connection shall be made to the equipment by silicone rubber insulated flexible cable. The rating of the cable and number of cores shall be suitable for the equipment being connected.  Where equipment is controlled by DP switches, spur units or flush isolators without flex outlets the circuit LSF wiring shall be terminated. From the DP switch, spur outlet or isolator box a concealed conduit shall be installed to a position adjacent to the equipment, terminating in a BS box with blank plate which shall have a hole for flexible cable entry. The method of final connection shall be determined to suit the equipment but shall either be silicone rubber insulated cable or LSF cables in conduit and flexible conduit.					
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	<p>The rating, number of cores required and conduit size shall be suitable for the equipment being connected.</p> <p>Where equipment is controlled by surface isolators, the LSF circuit wiring shall be terminated and final connections to the equipment shall be made directly to the equipment by silicone rubber insulated flexible cable with compression glands or LSF cables in flexible conduit. The method of final connection shall be determined to suit equipment.</p>					
4.0.0	<b>Testing &amp; Commissioning</b>					
4.1.0	<b>General</b>					
4.1.1	The purpose of this Section is to provide a framework for the Testing and Commissioning Procedures to be employed for the entire works included in this Sub-Contract and as described below, taking due account of the overall work content and programme of the entire works.					
4.1.2	The "Testing and Commissioning" detailed in the document shall be carried out by the Sub Contractor in conjunction with other Sub-Contractors.					
4.1.3	The work described in this Section is to be carried out by the Sub-Contractor who shall employ specialists experienced in complex and extensive work of this kind, where required.					
4.1.4	The Sub-Contractor shall monitor the progress of the works, including changes to any items of specified Equipment, throughout the Sub-Contract period and shall be responsible for ensuring that sufficient documentation is incorporated to allow satisfactory Testing and Commissioning.					
4.1.5	<p>The following items provide an outline of the work to be undertaken by the Sub-Contractor:-</p> <ol style="list-style-type: none"> <li>1. Testing and preparation for setting to work and commissioning. This shall include emergency lighting and fire alarm completion certificates to suit handover.</li> <li>2. Preparation, monitoring, reporting, revision and updating of a Commissioning Programme.</li> <li>3. Execution of commissioning for own works.</li> <li>4. Preparation and submission for approval by the Principal Contractor of the complete documentation of Commissioning Results for own works.</li> <li>5. Preparation and submission for approval by the Principal Contractor the comprehensive 'Operating and Maintenance Manuals' incorporating Commissioning Results.</li> <li>6. Preparation and submission for approval of the Principal Contractor the comprehensive 'As Fitted Drawings' and 'Schematic Diagrams'.</li> </ol> <p>Note : This to include drawings detailing the wiring for the fire alarm and other Specialist Systems, where applicable, in suitable time to facilitate the Specialist's own installation and commissioning works.</p>					
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	<p>7. Devise and install a scheme of labelling data control and monitoring cabling equipment, etc. for the approval of the Principal Contractor.</p> <p>8. Provision of 'Instruction and Training of Client Personnel'.</p> <p>9. Provide all measuring equipment or special apparatus required for carrying out inspections and tests unless otherwise agreed by the Principal Contractor.</p>					
4.2.0	<b>Inspections and Test</b>					
4.2.1	<p>Inspection and Tests on Site:</p> <p>The Sub-Contractor shall check the electrical and mechanical connections to all equipment supplied under the Contract before energising and shall be responsible for the correctness of such connections in accordance with contract drawings and Specification. Staff of the relevant competence shall be employed for this aspect of the Works.</p> <p>The Sub-Contractor shall submit to the Principal Contractor for approval and discussion, the procedure to be adopted and particulars and design of any temporary works involved.</p>					
4.2.2	<p>Principal Inspections and Tests:</p> <p>The Tenderer shall give the particulars of the following principal inspections (including those, if any, which must be carried out at Site due to Works limitations) that he will carry out to meet the requirements of the Specification, as listed.</p>					
4.3.0	<b>Documentation of Results</b>					
4.3.1	<p>The Sub-Contractor shall prepare all Documentation for his own works. This Documentation shall be based on the requirements set out in the Commissioning Documents and shall be submitted for the approval of the Principal Contractor in writing in advance of all Testing, Regulating and Commissioning for a particular Section of the works. Normally this shall be at least 14 days before the Principal Contractor is required to witness any tests, etc. If necessary the SubContractor shall revise the layout of such Documentation to suit the requirements of the Principal Contractor.</p>					
4.3.2	<p>At the time of witnessing the Sub-Contractor shall present the Documentation in duplicate, one set being returned to him signed for his master record and the other being retained by the Principal Contractor for his records. Thereafter the Sub-Contractor shall submit copies of the Documentation for formal distribution to all parties; this shall be done within 3 working days from the date of witness. It is anticipated that all witnessing shall be required only once, but in the event of any necessary re-testing, etc. the Sub-Contractor shall arrange this for the earliest possible date and shall re- submit all Documentation as described above.</p>					
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4.3.3	Thereafter throughout the remainder of the Sub-Contract Period the Sub-Contractor shall maintain on Site a Record Copy of all such Documentation for reference of all parties. The Master Copy shall be removed from Site to a safe and secure place for final incorporation into the 'Operating and Maintenance Manuals'.					
4.4.0	<b>Instruments</b>					
4.4.1	The Sub-Contractor shall be responsible for the provision of all Instruments and Equipment for carrying out the testing, and commissioning of the works covered by this Section.					
4.4.2	All instruments and equipment must have a Calibration Certificate not more than 6 months old. Calibration Certificates must be issued by an Approved Authority such as BSRIA, NEL. Normally this will require that at least two complete sets of equipment are available to allow return of instruments and equipment for calibration.					
4.4.3	In general, Specialist Instruments and Equipment provided by the SubContractor shall also be subject to the above requirements, unless prior permission, in writing, is obtained from the Principal Contractor.					
4.4.4	It shall be the Sub-Contractor's duty to ensure that all necessary Instruments and Equipment comply fully with the above requirements and he shall maintain a Manual of Test Certificates on Site for the inspection of all concerned.					
4.4.5	All instruments shall be traceable to NAMAS Standards.					
4.5.0	<b>Defects Liability Period and Support</b>					
4.5.1	The requirements for defects liability cover for the equipment supplied under the scope of this sub-contract, is identified elsewhere within the sub-contract document.					
4.5.2	The period for this cover and the support detailed as follows, is deemed to commence from the date of final system handover.					
4.5.3	In view of the phased hand over of the project, the date of system handover shall be defined as the date of the total project handover or completion of the system wide acceptance tests whichever is later.					
4.6.0	<b>Fault Diagnosis Support</b>					
4.6.1	The Sub-Contractor shall provide a level of warranty support that guarantees that their support shall commence the fault diagnosis and rectification process within 48 hours of initial contact. This service shall be available during normal working hours on normal working days in this country. The fault diagnosis support shall include:-  (a) Testing on a remote duplicate platform, or on site where deemed more applicable by the supplier, to replicate the fault.					
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4.7.0	(b) Detailed fault diagnosis to a specific area or software code. (c) Modification and testing of revised software/firmware. (d) Release of updated software/firmware to the Contract Administrator via an agreed change control procedure.  <b>Inspection and Testing: Cable Installation</b>					
4.7.1	General: The work to be undertaken in this section covers the testing of all cabling associated with this Sub-Contract. The Sub-Contractor will be responsible for the testing and collecting of all test results which must be typed and submitted, in accordance with the relevant Sections of this specification. The Sub-Contractor shall give the Principal Contractor all reasonable facilities to inspect the cabling to check its compliance with the specification and to witness tests. The tests shall be carried out by the Sub-Contractor, or with the approval of the Principal Contractor, by a Sub-Sub-Contractor. The Sub-Contractor shall provide all the necessary test equipment, artificial electrical loads, and all necessary facilities and labour to carry out the tests. The Sub-Contractor/The Sub-Contractor shall give the Principal Contractor at least ten days prior notice of the commencement of any tests and, in the absence of the Principal Contractor, may proceed with the tests on expiry of the notice.					
4.7.2	Test Instruments: Test instruments shall be:- (a) Provided by the Sub-Contractor. (b) Correctly calibrated and certified for the limits of accuracy necessary. If an instrument used is considered suspect by the Principal Contractor, it shall be tested by an authorised standardising laboratory. (c) Battery driven type of test pressure 500 volts for LV tests. (d) Of the line/earth path type for all circuits rated at 60 amperes and above. For circuits below 60 amperes the Principal Contractor will permit the use of neutral/earth path type. (e) Provided with an insulated and shrouded probe with flexible lead for testing metalwork such as switch plates. They shall not be of the stop go type but shall show the impedance value directly in ohms, on an easy to read scale and shall have means of measuring and correcting for voltage variations. (f) Operated by the personnel who shall be properly trained and competent in the use of the instruments. (g) All tests to be carried out a twice the working pressure of the equipment or cabling being tested.					
4.7.3	Method of Testing: The test shall include:-  <i>Carried forward to next page</i>					



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4.7.4	<p>Test Requirements:</p> <p>LV Cabling:</p> <p>All LV cables shall be tested in accordance with BS.5467 &amp; BS.7671. The test voltage shall be increased gradually to the full value and maintained continuously for 15 minutes. Insulation, continuity and polarity tests will be taken during the progress of the work and at completion. Before mains or circuits are made live, continuity and insulation tests must be taken and a proper record kept of all tests carried out and typed in duplicate, test results forwarded to the Principal Contractor. All tests must be witnessed by the Principal Contractor. To test the effectiveness of the earthing an earth fault loop impedance tester of the current injector type to be used.</p>					
4.7.5	<p>General:</p> <p>(a) Testing and inspection of installation shall be carried out in accordance with the current edition of the IEE Regulations for Electrical Equipment for Buildings. Before tests bonding to gas and water pipes must be removed.</p> <p>(b) Tests shall comprise, but shall not be limited to the following:</p>					
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	<p>Earth Continuity Tests: These tests shall be taken during progress of work to ensure that all joints in metal conduit and trunking etc., to be used as earth continuity conductors, are electrically and mechanically continuous.</p> <p>The contribution of the earth continuity conductors to the total earth fault loop impedance should not exceed, at any point in the installation, the value of 1 ohm.</p> <p>Verification of Polarity:                      Insulation resistance tests -The voltage used for these tests shall be a DC voltage not less than twice that which will be normally applied to the installation (i.e. twice the rms, value if the supply is AC) except that it need not exceed 500 volts for medium voltage. The insulation resistance tester to be used shall be of the constant voltage type. Where a test is made in accordance with above paragraph, any final sub-circuit should have a reading of not less than 200 Megohms and any test carried out in the entire installation from the main switchboard should have a reading of not less than 200 Megohms. Insulation test method shall be as described in the IEE Regulations, current edition. Line-Earth-Loop Impedance Test:                      Line-Earth-Loop Impedance Test:                      In order to indicate whether a fuse or overload circuit breaker affords adequate protection against dangerous earth leakage current and to ensure compliance the current edition of the IEE Regulations the above tests should be carried out on the complete installation, including any final sub-circuit. The above tests should be achieved by using an instrument such that:                      (a) A minimum current of 20 amperes is passed through a fault path, i.e., the circuit formed by the phase conductor, the earth continuity conductor and the earth return path.                      (b) The test current is produced by the full mains voltage.                      (c) A direct impedance reading is obtained from the instrument.                      (d) In using such an instrument, care should be taken to ensure that no ill effects can arise if the earthing circuit is in fact defective.</p> <p>RCD Test:                      RCD tests shall be carried out on all residual current devices after installation to ensure that they are within specification and operate satisfactorily. This test sequence shall be in addition to proving that the test button, when fitted, operates correctly (the effectiveness of the test button shall be checked after the test sequence).</p>					
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5.0.0	RCD tests shall only be carried out after earth loop impedance tests have been implemented and written approval is obtained from the Principal Contractor that results are satisfactory.					
	<b>Testing &amp; Commissioning</b>					
5.1.0	<b>General</b>					
5.1.1	The purpose of this Section is to provide a framework for the Testing and Commissioning Procedures to be employed for the entire works included in this Sub-Contract and as described below, taking due account of the overall work content and programme of the entire works.					
5.1.2	The "Testing and Commissioning" detailed in the document shall be carried out by the Sub Contractor in conjunction with other Sub-Contractors.					
5.1.3	The work described in this Section is to be carried out by the Sub-Contractor who shall employ specialists experienced in complex and extensive work of this kind, where required.					
5.1.4	The Sub-Contractor shall monitor the progress of the works, including changes to any items of specified Equipment, throughout the Sub-Contract period and shall be responsible for ensuring that sufficient documentation is incorporated to allow satisfactory Testing and Commissioning.					
5.1.5	The following items provide an outline of the work to be undertaken by the Sub-Contractor:- 1. Testing and preparation for setting to work and commissioning. This shall include emergency lighting and fire alarm completion certificates to suit handover.  2. Preparation, monitoring, reporting, revision and updating of a Commissioning Programme. 3. Execution of commissioning for own works. 4. Preparation and submission for approval by the Principal Contractor of the complete documentation of Commissioning Results for own works. 5. Preparation and submission for approval by the Principal Contractor the comprehensive 'Operating and Maintenance Manuals' incorporating Commissioning Results. 6. Preparation and submission for approval of the Principal Contractor the comprehensive 'As Fitted Drawings' and 'Schematic Diagrams'. Note : This to include drawings detailing the wiring for the fire alarm and other Specialist Systems, where applicable, in suitable time to facilitate the Specialist's own installation and commissioning works. 7. Devise and install a scheme of labelling data control and monitoring cabling equipment, etc. for the approval of the Principal Contractor. 8. Provision of 'Instruction and Training of Client Personnel'.					
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	<p>9. Provide all measuring equipment or special apparatus required for carrying out inspections and tests unless otherwise agreed by the Principal Contractor.</p>					
5.2.0	<b>Inspections and Test</b>					
5.2.1	<p>Inspection and Tests on Site:                      The Sub-Contractor shall check the electrical and mechanical connections to all equipment supplied under the Contract before energising and shall be responsible for the correctness of such connections in accordance with contract drawings and Specification. Staff of the relevant competence shall be employed for this aspect of the Works.                      The Sub-Contractor shall submit to the Principal Contractor for approval and discussion, the procedure to be adopted and particulars and design of any temporary works involved.</p>					
5.2.2	<p>Principal Inspections and Tests:                      The Tenderer shall give the particulars of the following principal inspections (including those, if any, which must be carried out at Site due to Works limitations) that he will carry out to meet the requirements of the Specification, as listed.</p>					
5.3.0	<b>Documentation of Results</b>					
5.3.1	<p>The Sub-Contractor shall prepare all Documentation for his own works. This Documentation shall be based on the requirements set out in the Commissioning Documents and shall be submitted for the approval of the Principal Contractor in writing in advance of all Testing, Regulating and Commissioning for a particular Section of the works. Normally this shall be at least 14 days before the Principal Contractor is required to witness any tests, etc. If necessary the SubContractor shall revise the layout of such Documentation to suit the requirements of the Principal Contractor.</p>					
5.3.2	<p>At the time of witnessing the Sub-Contractor shall present the Documentation in duplicate, one set being returned to him signed for his master record and the other being retained by the Principal Contractor for his records. Thereafter the Sub-Contractor shall submit copies of the Documentation for formal distribution to all parties; this shall be done within 3 working days from the date of witness. It is anticipated that all witnessing shall be required only once, but in the event of any necessary re-testing, etc. the Sub-Contractor shall arrange this for the earliest possible date and shall re- submit all Documentation as described above.</p>					
5.3.3	<p>Thereafter throughout the remainder of the Sub-Contract Period the Sub-Contractor shall maintain on Site a Record Copy of all such Documentation for reference of all parties. The Master Copy shall be removed from Site to a safe and secure place for final incorporation into the 'Operating and Maintenance Manuals'.</p>					
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5.4.0	<b>Instruments</b>					
5.4.1	The Sub-Contractor shall be responsible for the provision of all Instruments and Equipment for carrying out the testing, and commissioning of the works covered by this Section.					
5.4.2	All instruments and equipment must have a Calibration Certificate not more than 6 months old. Calibration Certificates must be issued by an Approved Authority such as BSRIA, NEL. Normally this will require that at least two complete sets of equipment are available to allow return of instruments and equipment for calibration.					
5.4.3	In general, Specialist Instruments and Equipment provided by the SubContractor shall also be subject to the above requirements, unless prior permission, in writing, is obtained from the Principal Contractor.					
5.4.4	It shall be the Sub-Contractor's duty to ensure that all necessary Instruments and Equipment comply fully with the above requirements and he shall maintain a Manual of Test Certificates on Site for the inspection of all concerned.					
5.4.5	All instruments shall be traceable to NAMAS Standards.					
5.5.0	<b>Defects Liability Period and Support</b>					
5.5.1	The requirements for defects liability cover for the equipment supplied under the scope of this sub-contract, is identified elsewhere within the sub-contract document.					
5.5.2	The period for this cover and the support detailed as follows, is deemed to commence from the date of final system handover.					
5.5.3	In view of the phased hand over of the project, the date of system handover shall be defined as the date of the total project handover or completion of the system wide acceptance tests whichever is later.					
5.6.0	<b>Fault Diagnosis Support</b>					
5.6.1	The Sub-Contractor shall provide a level of warranty support that guarantees that their support shall commence the fault diagnosis and rectification process within 48 hours of initial contact. This service shall be available during normal working hours on normal working days in this country. The fault diagnosis support shall include:-  (a) Testing on a remote duplicate platform, or on site where deemed more applicable by the supplier, to replicate the fault. (b) Detailed fault diagnosis to a specific area or software code. (c) Modification and testing of revised software/firmware. (d) Release of updated software/firmware to the Contract Administrator via an agreed change control procedure.					
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6.0.0	<b>Inspection and Testing: Cable Installation</b>					
6.1.0	<b>General</b>					
6.1.1	The work to be undertaken in this section covers the testing of all cabling associated with this Sub-Contract. The Sub-Contractor will be responsible for the testing and collecting of all test results which must be typed and submitted, in accordance with the relevant Sections of this specification.					
6.1.2	The Sub-Contractor shall give the Principal Contractor all reasonable facilities to inspect the cabling to check its compliance with the specification and to witness tests.					
6.1.3	The tests shall be carried out by the Sub-Contractor, or with the approval of the Principal Contractor, by a Sub-Sub-Contractor. The Sub-Contractor shall provide all the necessary test equipment, artificial electrical loads, and all necessary facilities and labour to carry out the tests. The Sub-					
6.1.4	Contractor/The Sub-Contractor shall give the Principal Contractor at least ten days prior notice of the commencement of any tests and, in the absence of the Principal Contractor, may proceed with the tests on expiry of the notice.					
6.2.0	<b>Test Instruments</b>					
6.2.1	Test instruments shall be:- (a) Provided by the Sub-Contractor. (b) Correctly calibrated and certified for the limits of accuracy necessary. If an instrument used is considered suspect by the Principal Contractor, it shall be tested by an authorised standardising laboratory.  (c) Battery driven type of test pressure 500 volts for LV tests. (d) Of the line/earth path type for all circuits rated at 60 amperes and above. For circuits below 60 amperes the Principal Contractor will permit the use of neutral/earth path type. (e) Provided with an insulated and shrouded probe with flexible lead for testing metalwork such as switch plates. They shall not be of the stop go type but shall show the impedance value directly in ohms, on an easy to read scale and shall have means of measuring and correcting for voltage variations. (f) Operated by the personnel who shall be properly trained and competent in the use of the instruments. (g) All tests to be carried out a twice the working pressure of the equipment or cabling being tested.					
6.3.0	<b>Method of Testing</b>					
6.3.1	The test shall include:- (a) A visual inspection of the whole of the installation, covering equipment and sections in subways, walkways and false ceilings where accessible.					
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	<p>(b) The operation of all accessories and items of equipment and a check for proper function, including such items as may have been supplied by others under this Sub-Contract. These tests shall be made under normal operating conditions and the results noted.</p> <p>(c) Insulation tests shall cover all circuits and shall be made between phases, phase to neutral, phase to earth and neutral to earth. Where a central or main distributing point is 1 0 meg ohms or above, individual sub-circuit tests may be omitted at the discretion of the Principal Contractor.</p> <p>(d) All information obtained from the foregoing tests must be recorded and submitted in duplicate, typed, and must be witnessed by the Principal Contractor or his representative.</p> <p>(e) The Principal Contractor shall be notified of the method to be used for each type of test, and notification shall be given not less than 10 days before the final tests are to be made. The tests shall be carried out in accordance with the methods set out in the IEE Wiring Regulations, current edition (including amendments) and guidance notes.</p>					
6.4.0	<b>Test Requirements</b>					
6.4.1	<p>LV Cabling:</p> <p>All LV cables shall be tested in accordance with BS.5467 &amp; BS.7671.</p> <p>The test voltage shall be increased gradually to the lull value and maintained continuously for 15 minutes. Insulation, continuity and polarity tests will be taken during the progress of the work and at completion. Before mains or circuits are made live, continuity and insulation tests must be taken and a proper record kept of all tests carried out and typed in duplicate, test results forwarded to the Principal Contractor. All tests must be witnessed by the Principal Contractor.</p> <p>To test the effectiveness of the earthing an earth fault loop impedance tester of the current injector type to be used.</p>					
6.4.2	<p>General:</p> <p>(a) Testing and inspection of installation shall be carried out in accordance with the current edition of the IEE Regulations for Electrical Equipment lor Buildings. Before tests bonding to gas and water pipes must be removed.</p> <p>(b) Tests shall comprise, but shall not be limited to the following:</p> <p style="padding-left: 20px;">Earth Continuity Tests: These tests shall be taken during progress of work to ensure that all joints in metal conduit and trunking etc., to be used as earth continuity conductors, are electrically and mechanically continuous.</p> <p style="padding-left: 20px;">The contribution of the earth continuity conductors to the total earth fault loop impedance should not exceed, at any point in the installation, the value of 1 ohm.</p> <p style="padding-left: 20px;">Verification of Polarity:</p>					
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	<p>Insulation resistance tests -The voltage used for these tests shall be a DC voltage not less than twice that which will be normally applied to the installation (i.e. twice the rms, value if the supply is AC) except that it need not exceed 500 volts for medium voltage circuits.</p> <p>The insulation resistance tester to be used shall be of the constant voltage type.</p> <p>Where a test is made in accordance with above paragraph, any final sub-circuit should have a reading of not less than 200 Megohms and any test carried out in the entire installation from the main switchboard should have a reading of not less than 200 Megohms.</p> <p>Insulation test method shall be as described in the IEE Regulations, current edition. Line-Earth-Loop Impedance Test:</p> <p>Line-Earth-Loop Impedance Test: In order to indicate whether a fuse or overload circuit breaker affords adequate protection against dangerous earth leakage current and to ensure compliance the current edition of the IEE Regulations the above tests should be carried out on the complete installation, including any final sub-circuit. The above tests should be achieved by using an instrument such that:</p> <p>(a) A minimum current of 20 amperes is passed through a fault path, i.e., the circuit formed by the phase conductor, the earth continuity conductor and the earth return path.</p> <p>(b) The test current is produced by the full mains voltage.</p> <p>(c) A direct impedance reading is obtained from the instrument.</p> <p>(d) In using such an instrument, care should be taken to ensure that no ill effects can arise if the earthing circuit is in fact defective.</p> <p>RCD Test: RCD tests shall be carried out on all residual current devices after installation to ensure that they are within specification and operate satisfactorily. This test sequence shall be in addition to proving that the test button, when fitted, operates correctly (the effectiveness of the test button shall be checked after the test sequence).</p> <p>RCD tests shall only be carried out after earth loop impedance tests have been implemented and written approval is obtained from the Principal Contractor that results are satisfactory.</p>					
	<i>Carried to Tender Summary</i>					

## 5. Description of Works



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Item	Description of Works	Rate £	Quantity	Unit	£	p
1.0	<b>General</b>					
1.1	To be read in conjunction with ECC576 Preliminaries.	-	-	Sum		
1.2	Allow for all necessary scaffolding and access equipment to complete the works.	-	-	Sum		
1.3	Allow for all necessary welfare facilities to complete the works.	-	-	Sum		
1.4	Allow of all materials and sundries to complete the works.	-	-	Sum		
1.5	Allow for all personal protective equipment to complete the works.	-	-	Sum		
1.6	Allow for all necessary plant and equipment to complete the works.	-	-	Sum		
1.7	Allow for all necessary skips and disposal fees for debris and waste,	-	-	Sum		
1.8	Allow for all necessary permits to complete the works.	-	-	Sum		
1.9	Allow for compliance with the Construction (Design & Management) Regulations 2015.	-	-	Sum		
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Item	Description of Works	Rate £	Quantity	Unit	£	p
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2.0	<b>Downtakings</b>					
2.1	Take down and remove existing partition walls as shown in drawing ref. 06B710797/PH2/1. Include for removal of door sets, glazed screens, fixtures & fittings.	-	-	Sum		
2.2	Existing single leaf doors to be put aside for re-use.	-	-	Sum		
2.3	Take down and remove existing suspended ceilings as shown in drawing ref. 06B710797/PH2/1.	-	-	Sum		
2.4	Take down and remove existing raised access floor as shown in drawing ref. 06B710797/PH2/1.	-	-	Sum		
2.5	Take down and remove existing timber boxing to central heating pipework.	-	-	Sum		
2.6	Take down and remove existing timber cills and facings to windows.	-	-	Sum		
2.7	Allow for making good after downtakings.	-	-	Sum		
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Item	Description of Works	Rate £	Quantity	Unit	£	p
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3.0	<b>Partition Walls</b>					
3.1	To be read in conjunction with NBS Specification K10.	-	-	Sum		
3.2	Supply and fit new partition walls as shown on drawing ref. 06B710797/PH2/1 to consist of 70mmm metal studs with two layers 12.5mm Gyproc Soundbloc wall board to both sides and 50mm Isover partition roll between studs.	-	-	Sum		
3.3	Allow for formation of new door openings.	-	-	Sum		
3.4	Allow for formation of counter screen opening,	-	-	Sum		
3.5	Allow for beech veneer finish timber facings.	-	-	Sum		
3.6	Allow for beech veneer finish timber skirtings.	-	-	Sum		
3.7	Allow for additional framing to support mounting of flat panel televisions.	-	-	Sum		
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Item	Description of Works	Rate £	Quantity	Unit	£	p
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4.0	<b>Joinerworks</b>					
4.1	To be read in conjunction with NBS Specification L10, L20, L40, P20, P21, Z10.	-	-	Sum		
4.2	Supply and fit new beech veneer finish timber door set as per door schedule ref. D1 and as shown on drawing ref. 06B710797/PH2/1.		1	no		
4.3	Supply and fit new beech veneer finish timber door frames to prepared door openings to suit existing retained doors as shown on drawing ref 06B710797.		5	no		
4.4	Allow for installation of existing retained doors to new frames as per door schedule ref. D1 &D2 and as shown on drawing ref. 06B710797/PH2/1.		5	no		
4.5	Supply and fit new beech veneer finish timber counter screen with 13.5mm laminated safety glass as shown on drawings ref. 06B710797/PH2/1 & 5.	-	-	Sum		
4.6	Supply and fit new beech veneer timber cills and facings to existing window units.	-	-	Sum		
4.7	Allow for relocation of wall mounted fire extinguishers to locations shown on drawing ref. 06B710797/PH2/3 as follows:-  a) Hydrospray extinguisher. b) Carbon dioxide extinguisher.		3	no		
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5.0	<b>Suspended Ceilings</b>					
5.1	To be read in conjunction with NBS Specification K40.	-	-	Sum		
5.2	Supply and fit new suspended ceiling at height of 2.4m above floor level as shown in drawing ref. 06B710797/PH2/2 to consist of Armstrong Prelude 24 exposed 24mm grid with 600x600mm Armstrong Dune eVo lay-in tiles with tegular edge.	-	-	Sum		
5.3	Allow for all necessary materials to complete the installation including perimeter trims, top fixings & hangers, main runners & cross tees.	-	-	Sum		
5.4	Allow for cutting new suspended ceiling tiles for all new M&E equipment.	-	-	Sum		
5.5	Supply additional boxes of suspended ceiling tiles for spares.		2	no		
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6.0	<b>Floor Coverings</b>					
6.1	To be read in conjunction with NBS Specification M50.	-	-	Sum		
6.2	Thoroughly prepare existing floor slab for new application.	-	-	Sum		
6.3	Apply self levelling compound to prepared floor slab as shown in drawing ref. 06B710797/PH2/8.	-	-	Sum		
6.4	Supply and lay new Milliken Light Trails Dusk, colour Titanium as shown in drawing ref. 06B710797/PH2/8 fully adhered with release adhesive.	-	-	Sum		
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7.0	<b>Decoration</b>					
7.1	To be read in conjunction with NBS Specification M20, M60.	-	-	Sum		
7.2	Strip existing wall coverings to all existing walls as shown on drawing ref. 06B710797/PH2/8 and prepare surfaces for new plaster application.	-	-	Sum		
7.3	Apply plaster skim coat to existing walls as shown on drawing ref. 06B710797/PH2/8 prior to decoration.	-	-	Sum		
7.4	Tape and fill all joints and fixings to wall linings to new partition walls as shown on drawing ref. 06B710797/PH2/8 prior to decoration.	-	-	Sum		
7.5	Thoroughly prepare and apply one sealer coat and two coats matt emulsion to the following:- a) Existing walls with plaster skim coat. b) Wall linings to both sides of new partition walls. As shown on drawing ref. 06B710797/PH2/8.	-	-	Sum		
		-	-	Sum		
7.6	Thoroughly prepare and apply one undercoat and one coat gloss paint to the following:- a) Previously painted door frames & facings. b) Previously painted glazed screen frames & facings.  c) Previously painted skirtings. d) Previously painted window facings. e) Previously gloss painted surfaces.	-	-	Sum		
		-	-	sum		
		-	-	sum		
		-	-	sum		
		-	-	Sum		
7.7	Allow for making good finishes and decoration to all surfaces affected by M&E downtakings.	-	-	Sum		
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8.0	<b>Window Blinds</b>					
8.1	To be read in conjunction with NBS Specification N10.	-	-	Sum		
8.2	Take down and remove existing window blinds to external windows.		52	no		
8.3	Supply and fit new vertical louvre window blinds, colour pale blue to external windows.		52	no		
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9.0	<b>Internal Signage</b>					
9.1	To be read in conjunction with NBS Specification N15.	-	-	Sum		
9.2	Supply and fit new fire safety signage as shown in drawing ref. 06B710797/PH2/3 as follows:- a) Fire Action Notice. b) Hydrospray Extinguisher. c) Carbon Dioxide Extinguisher. Signage to be manufactured with 2mm acrylic.		3 3 3	no no no		
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10.0	<b>Electrical Works</b>					
10.1	To be read in conjunction with M&E Specification.	-	-	Sum		
10.2	All works to be carried out in accordance with the IET Wiring Regulations 17th Edition.	-	-	Sum		
10.3	Allow for isolation of electrical supply to third floor. Electrical supplies to other floors to be maintained during works.	-	-	Sum		
10.4	Take down and remove existing electrical supplies providing small power to perimeter skirting trunking back to distribution board. Allow for removal of all equipment, wiring, containment, skirting trunking, accessories, fixtures & fittings.	-	-	Sum		
10.5	Take down and remove existing electrical supplies providing small power to equipment located in existing raised access floor back to distribution board. Allow for removal of all equipment, wiring, containment, accessories, fixtures & fittings.	-	-	Sum		
10.6	Take down and remove all existing recessed modular light fittings as shown in drawing ref. 06B710797/PH2/4.	-	-	Sum		
10.7	Allow for all necessary alterations and upgrades to existing electrical switchgear and distribution located in third floor electrical cupboard.	-	-	Sum		
10.8	Allow for all necessary materials and equipment required to complete the works.					
10.9	Electrical distribution to be separated into three areas:- a) Open Plan Office b) Reception, Locker Room, Examination Rooms 1 & 2.  c) Conference Rooms 1 & 2. New and existing altered circuits to be laid out in an efficient manner and identified at distribution boards.	-	-	Sum		
10.10	Supply and fit new perimeter three compartment pvc skirting trunking to perimeter walls and new partition walls as necessary. Layout shown in drawing ref. 06B710797/PH2/2 is for reference only and the trunking should be laid out in an efficient manner to suit the equipment layout,	-	-	Sum		
10.11	Supply and install new small power circuits to serve new electrical equipment. Contractor to design and install circuits in an efficient manner to suit the equipment layout. Where possible wiring should be hidden behind new partition walls otherwise it should be contained within the new skirting trunking.	-	-	Sum		
10.12	Supply and fit new 13 amp 2 gang double switched socket outlets as shown on drawing ref. 06B710797/PH2/2. Where practical sockets should be recess mounted into new partition walls otherwise they should be mounted within new skirting trunking.		45	no		
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10.13	Supply and fit new power supplies for new wireless access points as shown on drawing ref. 06B710797/PH2/2. Power supply to be mounted within ceiling void.		4	no		
10.14	Supply and fit new power supply for door access control system as shown on drawing ref. 06B710797/PH2/4. Power supply to be mounted adjacent to door access control equipment.	-	5	no		
10.15	Allow for cleaning casings and diffusers to existing recessed modular luminaires to be re-used.	-		Sum		
10.16	Allow for all necessary alterations and upgrades to existing lighting circuits to suit new LED lighting layout as shown in drawing ref. 06B710797/PH2/2.	-		Sum		
10.17	Allow for provision of lighting control using PIR sensor occupancy switches with switch groupings as shown in drawing ref. 06B710797/PH2/2.	-		Sum		
10.18	Allow for provision of emergency lighting test key switches for switch groupings in electrical cupboard. Modify existing provision if practicable.	-		Sum		
10.19	Supply and fit new Whitecroft Tegan Office LG7 compliant LED recessed modular luminaires to existing modified lighting circuits as shown in drawing ref. 06B710797/PH2/2.	-	76	no		
10.20	Allow for provision of emergency lighting packs to recessed modular luminaires shown on drawings ref. 06B710797/PH2/2.		14	no		
10.21	Supply and fit new Whitecroft Exit LED maintained emergency exit luminaires as shown on drawing ref. 06B710797/PH2/2. Running man logo to be in direction of travel.	-	3	no		
10.22	Allow for identifying all new and altered circuits at distribution boards.	-		Sum		
10.23	Provide Minor Electrical Installation Works Certificate from approved trade body on completion to confirm that new electrical installations and equipment complies with the IET Wiring Regulations 17th Edition	-		Sum		
10.24	Provide Emergency Lighting Test Certificate from approved trade body on completion to confirm that new emergency lighting installations complies with BS5266-1 2016, Emergency Lighting Code of Practice for the Emergency Lighting of Premises.	-		Sum		
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Maritime & Coastguard Agency, Marine House, Blaikies Quay, Aberdeen, AB11 5EZ  
Third Floor - Internal Alterations

Item	Description of Works	Rate £	Quantity	Unit	£	p
<i>Brought Forward from Previous Page</i>						
11.0	<b>Data Installation</b>					
11.1	To be read in conjunction with M&E Specification.	-	-	Sum		
11.2	Supply and install new CAT6 data cabling from server cabinet to be located in Capita Comms Room to new RJ45 sockets. Cabling to be carried within ceiling void using cable trays.		46	no		
11.3	Supply and fit new RJ45 sockets to new skirting trunking as shown in drawing ref. 06B710797/PH2/2. Allow for connection of RJ45 sockets to CAT6 cabling.		42	no		
11.4	Supply and fit new RJ45 sockets within ceiling void for new wireless access points as shown in drawing ref. 06B710797/PH2/2. Allow for connection of RJ45 sockets to CAT6 cabling.		4	no		
11.5	Supply and fit compatible patch panels at server cabinet. Allow for connecting CAT6 cabling to patch panel.	-	-	Sum		
11.6	Allow for numbering each RJ45 socket and associated CAT6 cable termination at patch panels with a unique sequential number.	-	-	Sum		
11.7	Allow for end to end testing and provide certification confirming maximum deliverable speed.	-	-	Sum		
11.8	All cabling to be maintained in neat bunches of tied cable and lead from patch panels to sockets in an efficient manner.	-	-	Sum		
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Maritime & Coastguard Agency, Marine House, Blaikies Quay, Aberdeen, AB11 5EZ  
Third Floor - Internal Alterations

Item	Description of Works	Rate £	Quantity	Unit	£	p
<i>Brought Forward from Previous Page</i>						
12.0	<b>Heating Works</b>					
12.1	To be read in conjunction with M&E Specification.	-	-	Sum		
12.2	Allow for temporary isolation and drain down of existing central heating to third floor accommodation.	-	-	Sum		
12.3	Take down and put aside for refitting all existing central heating radiators to allow for plaster skim coating of external walls.	-	-	Sum		
12.4	Allow for adjusting central heating pipework to radiators to ensure that all radiators are level following removal of raised access floor.	-	-	Sum		
12.5	Refit all radiators following completion of plaster skim coat. Allow for reconnection of all central heating pipework.	-	-	Sum		
12.6	Supply and fit proprietary pipe boxing system to existing central heating pipework manufactured using 5mm melamine finished plywood. Allow for all necessary fixing battens, fixtures & fittings.	-	-	Sum		
12.7	Allow for relocation of existing thermostatic controls as directed. <b>Provisional Sum.</b>	-	-	Prov		
12.8	Refill central heating system to third floor. Allow for pressure testing and recommissioning.	-	-	Sum		
<i>Carried forward to next page</i>						



Maritime & Coastguard Agency, Marine House, Blaikies Quay, Aberdeen, AB11 5EZ  
Third Floor - Internal Alterations

Item	Description of Works	Rate £	Quantity	Unit	£	p
<i>Brought Forward from Previous Page</i>						
13.0	<b>Fire Alarm</b>					
13.1	To be read in conjunction with M&E Specification.	-	-	Sum		
13.2	All fire alarm works to be carried out in accordance with BS5839-1:2017 Fire Detection and Fire Alarm Systems for Buildings, Code of Practice for Design, Installations, Commissioning and Maintenance of Systems in Non-Domestic Premises.	-	-	Sum		
13.3	Allow for isolation of fire alarm zones serving third floor.	-	-	Sum		
13.4	Take down and remove all existing fire alarm equipment. Allow for removal of wiring, containment, fixtures & fittings.	-	-	Sum		
13.5	All new equipment to be wired into existing fire alarm control panel using fire resistant wiring.	-	-	Sum		
13.6	Allow for all necessary alterations and upgrades to existing fire alarm system.	-	-	Sum		
13.7	Supply and fit new manual call points as shown on drawing ref. 06B710797/PH2/3.		3	no		
13.8	Supply and fit new smoke detectors as shown on drawing ref. 06B710797/PH2/3.		14	no		
13.9	Supply and fit new sounders with low current, high audio output as shown on drawing ref. 06B710797/PH3.		3	no		
13.10	Commission and test new fire alarm equipment.	-	-	Sum		
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Maritime & Coastguard Agency, Marine House, Blaikies Quay, Aberdeen, AB11 5EZ  
Third Floor - Internal Alterations

Item	Description of Works	Rate £	Quantity	Unit	£	p
<i>Brought Forward from Previous Page</i>						
14.0	<b>Mechanical Ventilation / Air Conditioning</b>					
14.1	To be read in conjunction with M&E Specification.	-	-	Sum		
14.2	Allow for designing and installation of new mechanical ventilation system in Reception as shown in drawing ref. 06B710797/PH2/1. Mechanical ventilation to be designed in accordance with CIBSE Guide B:2001 Installation and Equipment Data, Section B2, Ventilation and Air-Conditioning. System to be capable of 8 air changes per hour. <b>Provisional Sum.</b>	-	-	Prov		
14.3	Decommission and de-gas existing air conditioning units serving third floor.	-	-	sum		
14.4	Take down and put aside existing Daikin air conditioning ceiling cassettes in Office 8. Existing power and condensing pipework to be retained.		2	no		
14.5	Take down and put aside existing Daikin air conditioning under ceiling cassettes in Radio Room. Existing power supply and condensing pipework to be retained.		2	no		
14.6	Allow for relocation of existing Daikin air conditioning ceiling cassettes to new locations to be confirmed. Air conditioning to be installed in accordance with CIBSE Guide B:2001 Installation and Equipment Data, Section B2, Ventilation and Air-Conditioning. <b>Provisional Sum.</b>	-	-	Prov		
14.7	Allow for relocation of existing Daikin air conditioning under ceiling cassettes to new locations to be confirmed. Air conditioning to be installed in accordance with CIBSE Guide B:2001 Installation and Equipment Data, Section B2, Ventilation and Air-Conditioning. <b>Provisional Sum.</b>	-	-	Prov		
14.8	Allow for relocation of existing air conditioning controls as directed. <b>Provisional Sum.</b>	-	-	Prov		
14.9	Allow for re-gassing and recommissioning air conditioning on completion of works.	-	-	Sum		
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**Maritime & Coastguard Agency, Marine House, Blaikies Quay, Aberdeen, AB11 5EZ  
Third Floor - Internal Alterations**

Item	Description of Works	Rate £	Quantity	Unit	£	p
<i>Brought Forward from Previous Page</i>						
15.0	<b>Door Access Control System</b>					
15.1	To be read in conjunction with M&E Specification					
15.2	New door access control equipment to be installed in accordance with:- a) BS EN60839-11-1 Alarm and Electronic Security Systems - Electronic Access Control Systems - System & Component Requirements. b) BS EN60839-11-2 Alarm and Electronic Security Systems - Electronic Access Control Systems - Application Guidelines. c) BS EN5-0466 - Equipment for use in audio and video door entry. d) BS 7671-2008+A3 2015 Requirements for Electrical Installations IET Wiring Regulations. e) BS EN14846:2008 Electromagnetically Operated Locks & Striking Plates.	-	-	Sum		
15.3	Access door control system to be installed by the following nominated sub-contractor:- Think Security Systems Limited, Unit 4, Posterngate Business Park, Harts Lane, Godstone, Surrey, RH9 8LZ, tel. 01342 477447.	-	-	Sum		
15.4	Take down and remove existing door access control systems serving building. Existing Paxton Net2 system shown on drawing ref. 06B710797/PH2/7 to be retained.	-	-	Sum		
15.5	New door access control system to be compatible with and interface with existing Paxton Net2 system.	-	-	Sum		
15.6	Supply and install new door access control system as shown in drawings ref. 06B710797/PH2/4 & 7. System to have the following capabilities:- a) External access provided by human video/audio verification and token access. b) Internal access provided by token access. c) Security Grade 2 (low to medium risk). d) PC based system providing programming, system logs and monitoring. e) Wired system to be provided. f) All doors to be secured using electronic card read lever latch to be released on a) fire alarm activation; b) authorisation from access control system; c) green box release; and d) integral manual single action override. g) Video/audio interface to provide capacity for up to 10 individual users via monitors/handsets.	-	-	Sum		
15.7	Test and commission system on completion.	-	-	Sum		
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Maritime & Coastguard Agency, Marine House, Blaikies Quay, Aberdeen, AB11 5EZ  
Third Floor - Internal Alterations

Item	Description of Works	Rate £	Quantity	Unit	£	p
	<i>Brought Forward from Previous Page</i>					
16.0	<b>Plumberworks</b>					
16.1	To be read in conjunction with M&E Specification.	-	-	Sum		
16.2	Isolate water supply to third floor prior to undertaking works.	-	-	Sum		
16.3	Take down and remove existing cold water supply tap as shown in drawing ref. 06B710797/PH2/1 back to source. Do not leave any dead legs following removal of tap.	-	-	Sum		
	<i>Carried forward to Tender Summary</i>					



# Appendix I

## Tender Drawings

**Do not scale this drawing.**

All dimensions to be checked on site.  
Drawing to be read in conjunction with any specifications, schedules and Consultants drawings and details.

**DOOR SCHEDULE**

**Door 1 (D1) (3no.)**

**Door Set**  
Manufacturer:- Bespoke Door  
Type:- FD30S  
Size:- H1981mm x W926mm  
Finish:- Door and frame to have veneer finish (steamed beech)  
Vision Panels:- 2no. H710mm x W216mm (Part M compliant)

**Door Ironmongery**  
Manufacturer:- Union Assa Abloy  
Lock:- Integrated with new door access control system, electronic card reader lever latch with integral manual single action lever latch internal release, internal release button and green box release.  
Hinges:- 3no. PowerLOAD Lift-Off Hinges, satin stainless steel (605)  
Pull Handle:- Single Pull Handle with Rose, satin stainless steel (PH01RX) (External face)  
Door Closer:- Medium Duty, satin stainless steel (N8824)  
Accessories:- 838x150x1.5mm satin stainless steel kick plates (2no.)  
330x75x1.2mm satin stainless steel push plate (Internal face)

**Door 2 (D2) (2no.)**

**Door Set**  
Description:- Existing door set retained during downtakings.  
Type:- FD30S  
Size:- As existing  
Finish:- As existing

**Door Ironmongery**  
Description:- As existing  
Lock:- Integrated with new door access control system, electronic card reader lever latch with integral manual single action lever latch internal release, internal release button and green box release.

**Door 3 (D3) (3no.)**

**Door Set**  
Manufacturer:- Existing door set retained during downtakings.  
Type:- FD30S  
Size:- As existing  
Finish:- As existing

**Door Ironmongery**  
Description:- As existing

B	Amended door release specification.	swf	26/06/18
A	Final Layout	swf	06/06/18
Rev	Revision Details	By	Chk'd Date

**GVA**  
Sutherland House, 149 St Vincent Street, Glasgow, G2 5NW  
T: +44 (0) 141 300 8000  
F: +44 (0) 141 300 8001  
E: enquiries@gva.co.uk  
www.gva.co.uk/scotland

Project Name  
3rd Floor Marine House, Blaikies Quay, Aberdeen  
Internal Alterations - Phase 2

Client  
Maritime & Coastguard Agency

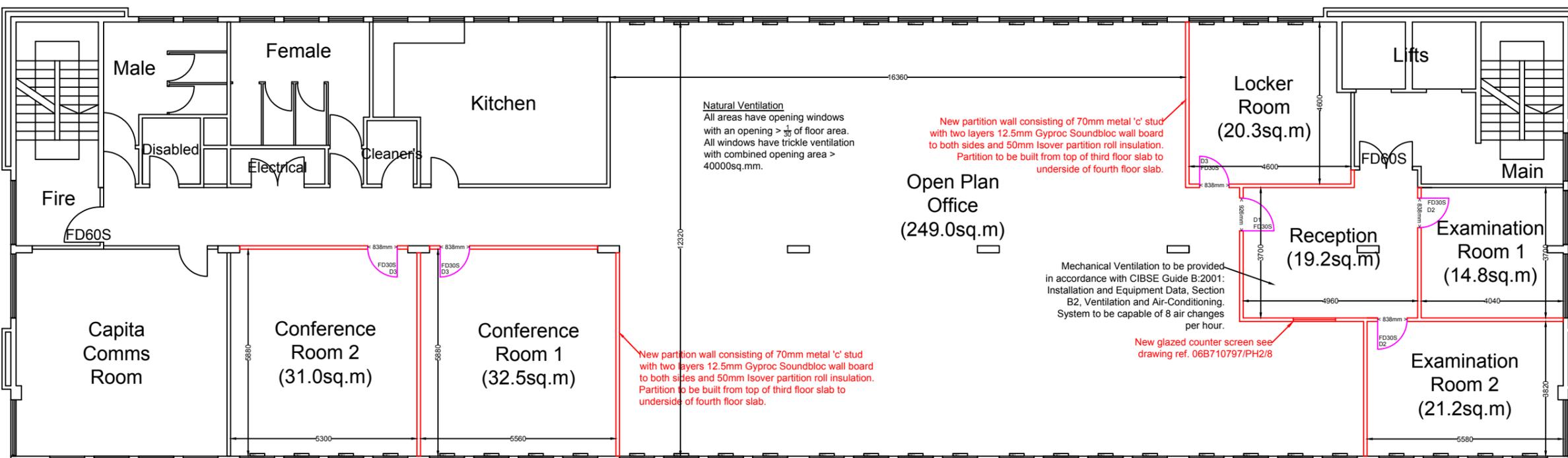
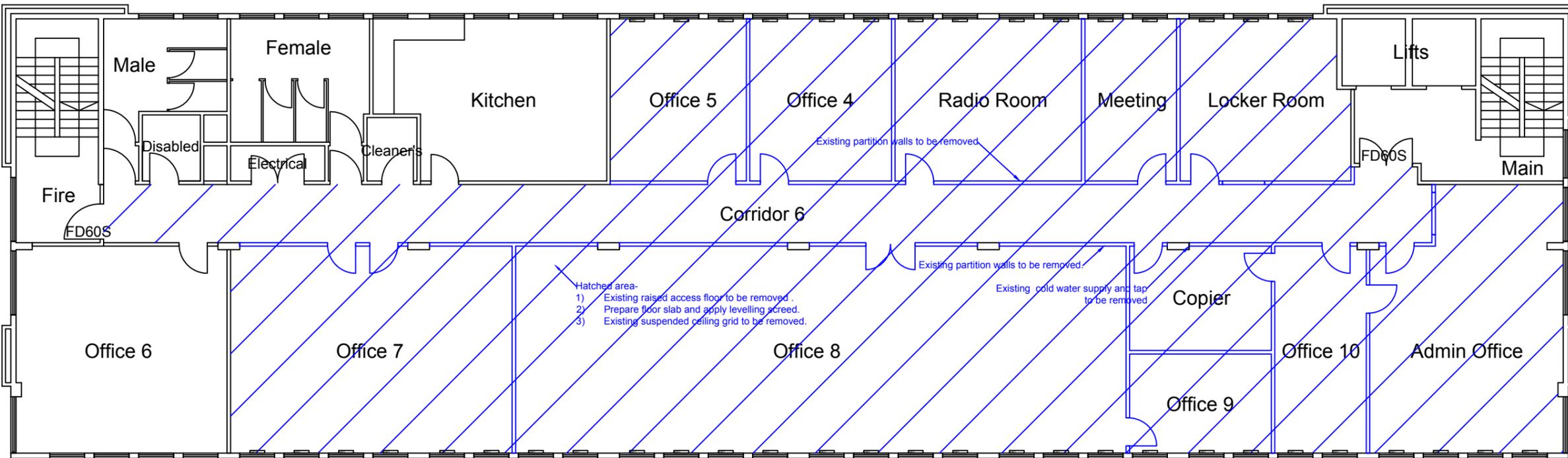
Drawing Title  
Existing & Proposed Floor Plans

Drawn By	Chk'd By	Scale @ A2	Date
swf	-	1:100	01/05/18

Project No.	Drawing No.	Revision
06B710797	PH2/1	B

For Building Warrant / Tender Issue

**A2**



**Natural Ventilation**  
All areas have opening windows with an opening > 1/30 of floor area. All windows have trickle ventilation with combined opening area > 40000sq.mm.

New partition wall consisting of 70mm metal 'c' stud with two layers 12.5mm Gyproc Soundbloc wall board to both sides and 50mm Isover partition roll insulation. Partition to be built from top of third floor slab to underside of fourth floor slab.

Mechanical Ventilation to be provided in accordance with CIBSE Guide B:2001: Installation and Equipment Data, Section B2, Ventilation and Air-Conditioning. System to be capable of 8 air changes per hour.

New partition wall consisting of 70mm metal 'c' stud with two layers 12.5mm Gyproc Soundbloc wall board to both sides and 50mm Isover partition roll insulation. Partition to be built from top of third floor slab to underside of fourth floor slab.

New glazed counter screen see drawing ref. 06B710797/PH2/8

**Do not scale this drawing.**  
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 Drawing to be read in conjunction with any specifications, schedules and Consultants drawings and details.

**ELECTRICAL WORKS KEY**

-  600x600mm recessed modular luminaire. 'E' denotes emergency fitting.
-  Recessed PIR occupancy switch.
-  Emergency exit luminaire (maintained).
-  13 Amp 2 gang double switched socket outlet.
-  CAT 6 single socket.
-  Wireless access point. (Provided by MCA)

**ELECTRICAL WORKS NOTES**

All electrical works to be carried out in accordance with BS7671: 2008+A3 2015, Requirements for Electrical Installations, IET Wiring Regulations.

All emergency lighting will be in accordance with BS5266-1 2016, Emergency Lighting Code of Practice for the Emergency Lighting of Premises.

**Lighting Installation**

Escape route lighting to be supplied via protected circuits.

Existing recessed modular luminaires to be taken down and removed.

Supply and fit new Whitecroft Tegan Office LG7 compliant LED recessed modular luminaires to existing modified lighting circuits.

Existing lighting circuits to be modified as necessary.

Recessed modular luminaires to be controlled via ceiling mounted PIR occupancy switch.

Supply and fit new Whitecroft Exit LED maintained emergency exit luminaires.

**Small Power Installation**

Existing small power installation to be removed.

New electrical installation to be provided consisting of small power and data equipment installed in 3 compartment pvc skirting trunking.

New electrical installation to be separated into three areas as follows:- 1) Open Plan Office; 2) Reception, Locker Room, Examination Rooms 1 & 2; 3) Conference Rooms 1 & 2.

Existing electrical distribution and switchgear to be upgraded as necessary.

New small power provision to be installed as follows:- a) 45no 13amp 2 gang double switched sockets; b) 4no power supplies for wireless access point; c) 4no power supplies for door access control system.

All new manual controls to be installed at a maximum height of 1.0m above floor level.

Rev	Revision Details	By	Chk'd	Date



Sutherland House, 149 St Vincent Street, Glasgow, G2 5NW  
 T: +44 (0) 141 300 8000  
 F: +44 (0) 141 300 8001  
 E: enquiries@gva.co.uk  
 www.gva.co.uk/scotland

Project Name  
 3rd Floor Marine House, Blaikies Quay, Aberdeen  
 Internal Alterations - Phase 2

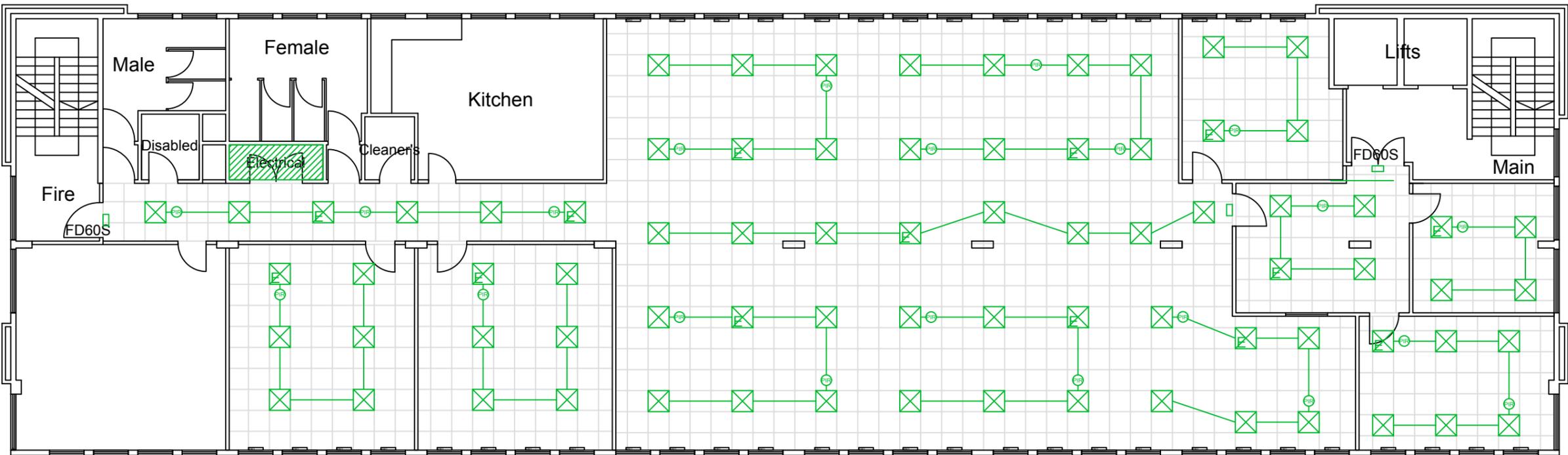
Client  
 Maritime & Coastguard Agency

Drawing Title  
 Lighting & Small Power As Proposed

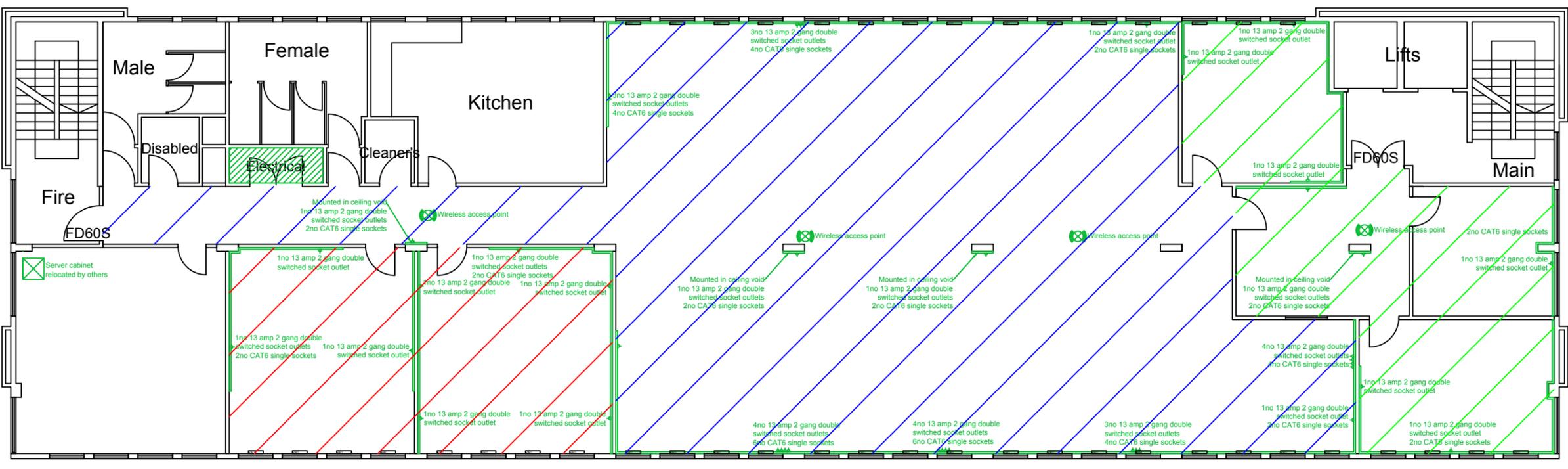
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Project No. 06B710797	Drawing No. PH2/2	Revision -
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PROPOSED LIGHTING DISTRIBUTION



PROPOSED SMALL POWER DISTRIBUTION

**Do not scale this drawing.**  
 All dimensions to be checked on site.  
 Drawing to be read in conjunction with any specifications, schedules and Consultants drawings and details.

**FIRE STRATEGY**

**Third Floor Only**

Regulation 2.9.2	
Floor Area	497sq.m
Description	Office
Occupancy Load Factor	6.0 (Table 2.10)
Occupancy Capacity	83

Regulation 2.9.3	
Directions of Travel	2
Occupancy Profile	Medium Evacuation (Table 2.11)
Travel Distance	Less than 45m

Regulation 2.9.7	
Occupancy Capacity	61-600
Minimum Number of Storey Exits	2 (Table 2.13)
Exits Provided	2

**FIRE ALARM SYSTEM WORKS KEY**

-  Fire alarm call point.
-  Fire alarm smoke detector.
-  Fire alarm audible sounder.

**FIRE ALARM WORKS NOTES**

All fire alarm works will be carried out in accordance with BS5839-1:2017 Fire Detection and Fire Alarm Systems for Buildings Code of Practice for Design, Installation, Commissioning and Maintenance of Systems in Non-Domestic Premises.

New fire alarm works to interface with existing fire alarm control panel located in ground floor entrance lobby.

Rev	Revision Details	By	Chk'd	Date

**GVA**  
 Sutherland House, 149 St Vincent Street, Glasgow, G2 5NW  
 T: +44 (0) 141 300 8000  
 F: +44 (0) 141 300 8001  
 E: enquiries@gva.co.uk  
 www.gva.co.uk/scotland

Project Name  
 3rd Floor Marine House, Blaikies Quay, Aberdeen  
 Internal Alterations - Phase 2

Client  
 Maritime & Coastguard Agency

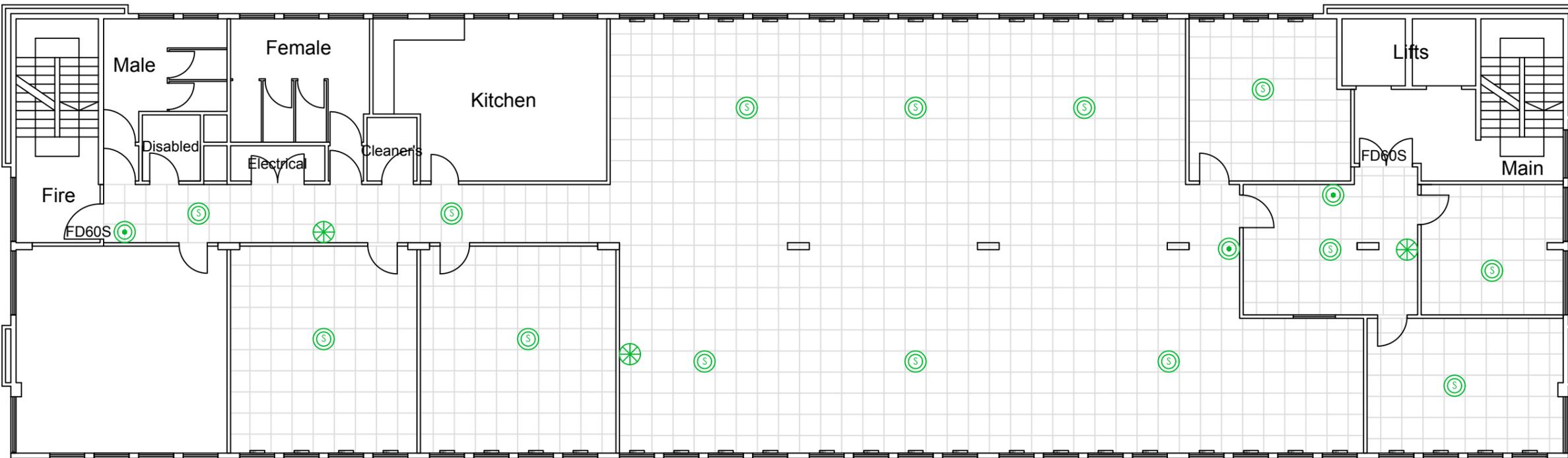
Drawing Title  
 Proposed Fire Alarm System  
 Proposed Fire Strategy

Drawn By	Chk'd By	Scale @ A2	Date
swf	-	1:100	11/06/18

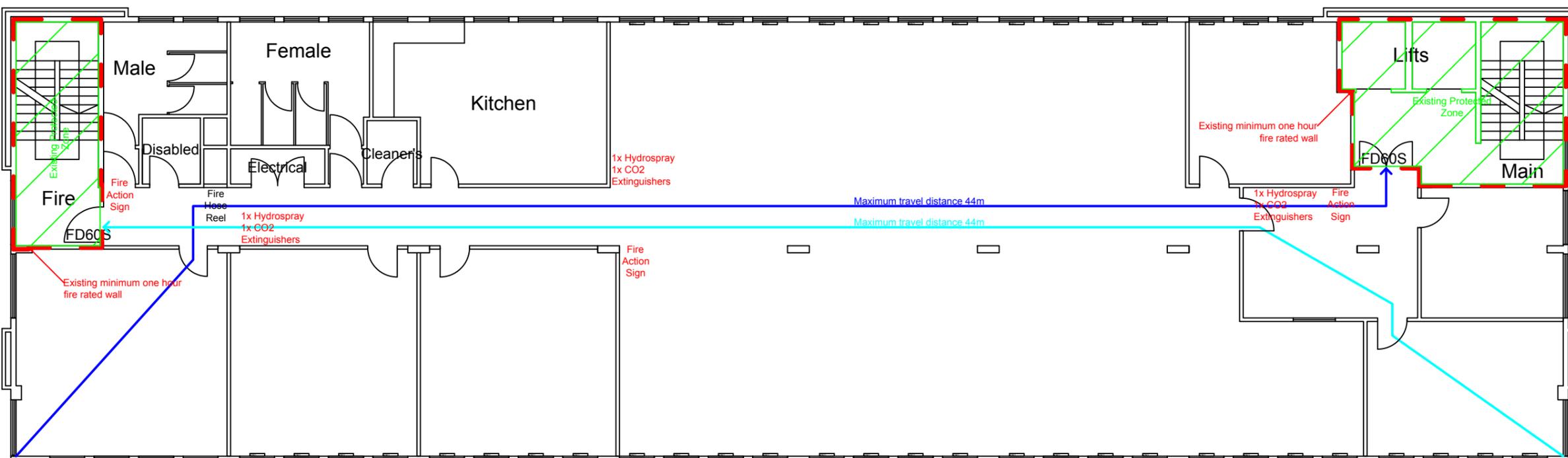
Project No.	Drawing No.	Revision
06B710797	PH2/3	-

For Building Warrant / Tender Issue

**A2**



PROPOSED FIRE ALARM SYSTEM



PROPOSED FIRE STRATEGY

**Do not scale this drawing.**

All dimensions to be checked on site.  
Drawing to be read in conjunction with any specifications, schedules and Consultants drawings and details.

**ELECTRICAL WORKS KEY**

☒ 600x600mm recessed modular luminaire to be removed

**ELECTRICAL WORKS NOTES**

All electrical works to be carried out in accordance with BS7671: 2008+A3 2015, Requirements for Electrical Installations, IET Wiring Regulations.

**DOOR ACCESS CONTROL SYSTEM NOTES**

Works to be carried out in accordance with:-

BS EN 60839-11-1 Alarm and Electronic Security Systems - Electronic Access Control Systems - Systems & Component Requirements.

BS EN60839-11-2 Alarm and Electronic Security Systems - Electronic Access Control Systems - Application Guidelines.

BS EN 5-0486 - Equipment for use in audio and video door-entry systems.

BS 7671-2008+A3 2015 Requirements for Electrical Installations. IET Wiring Regulations.

BS EN 14846:2008 Electromagnetically Operated Locks & Striking Plates.

Contractor to have design responsibility for new access control system.

Existing access control system to be removed.

System to have following capabilities:-

- a) Paxton Net 2 system interfaced with existing system located in ground floor data centre.
- b) External access provided by human video/audio verification and token access.
- c) Internal access provided by token access.
- d) Security Grade 2 (Low to Medium Risk).
- e) PC based system providing programming, system logs and monitoring.
- f) Wired system to be provided.
- g) All doors to be secured using electronic card reader lever latch to be released with a) single action lever latch internal release; b) fire alarm activation; c) authorisation from access control system; and d) green box release.
- h) Video/audio interface to provide capacity for up to 10 individual users via monitors/handsets.

Rev	Revision Details	By	Chk'd	Date
B	Amended door release specification.	swf		26/06/18

**GVA**  
Sutherland House, 149 St Vincent Street, Glasgow, G2 5NW  
T: +44 (0) 141 300 8000  
F: +44 (0) 141 300 8001  
E: enquiries@gva.co.uk  
www.gva.co.uk/scotland

Project Name  
3rd Floor Marine House, Blaikies Quay, Aberdeen  
Internal Alterations - Phase 2

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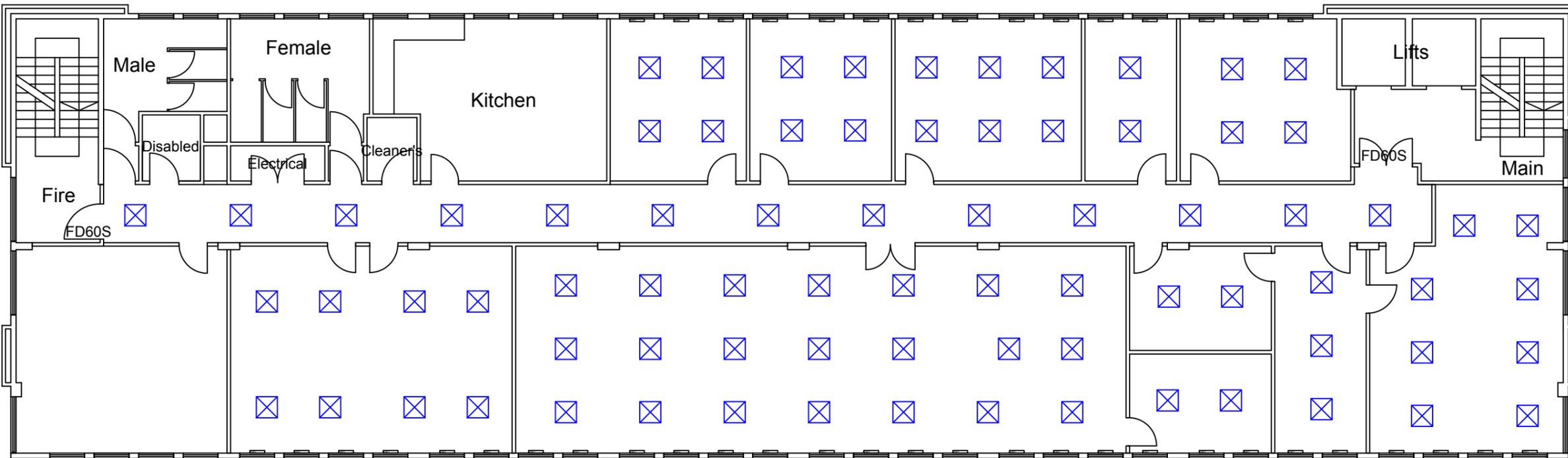
Drawing Title  
Existing Lighting Layout  
Proposed Door Access Control

Drawn By swf	Chk'd By -	Scale @ A2 1:100	Date 11/06/18
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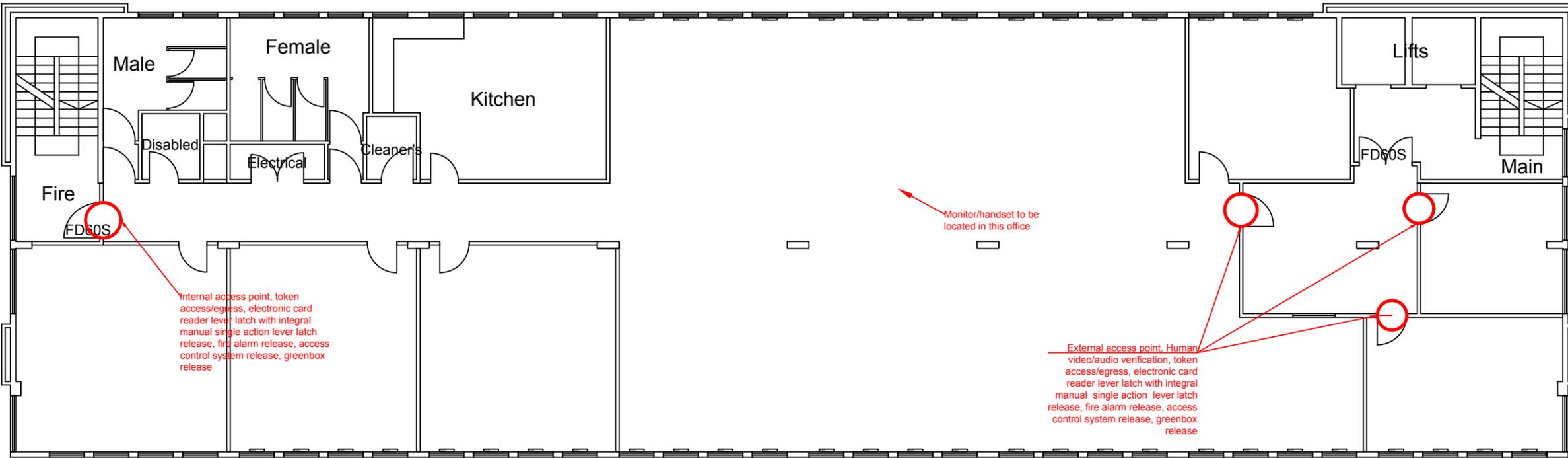
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For Building Warrant / Tender Issue

**A2**

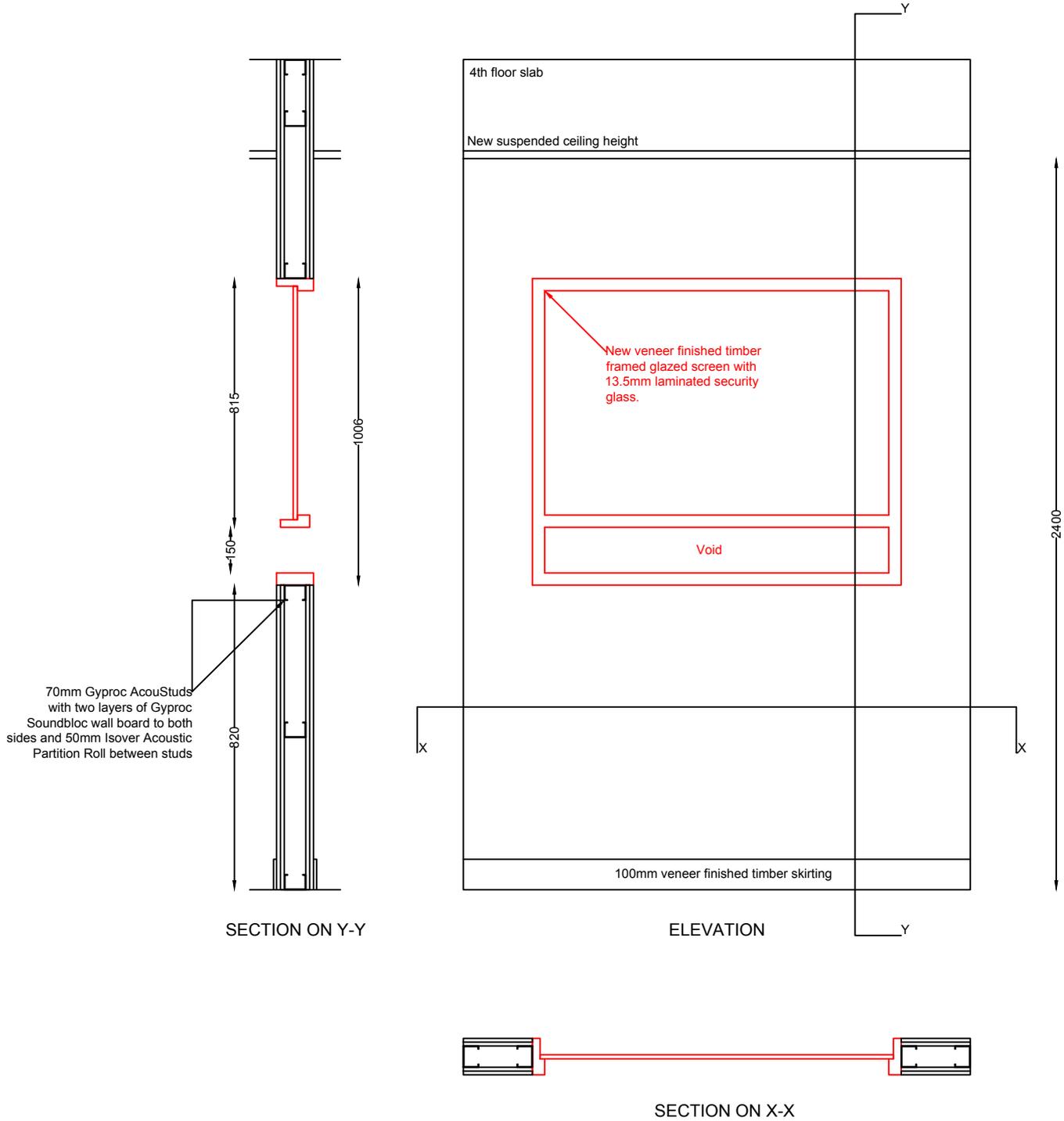


EXISTING LIGHTING LAYOUT



PROPOSED DOOR ACCESS CONTROL

**Do not scale this drawing.**  
 All dimensions to be checked on site.  
 Drawing to be read in conjunction with any specifications,  
 schedules and Consultants drawings and details.



70mm Gyproc AcouStuds  
 with two layers of Gyproc  
 Soundbloc wall board to both  
 sides and 50mm Isover Acoustic  
 Partition Roll between studs

New veneer finished timber  
 framed glazed screen with  
 13.5mm laminated security  
 glass.

Void

100mm veneer finished timber skirting

SECTION ON Y-Y

ELEVATION

SECTION ON X-X

Rev	Revision Details	By	Chk'd	Date

Project Name  
 Marine House, Blaikies Quay, Aberdeen  
 Third Floor - Internal Alterations - Phase 2

Client  
 Maritime & Coastguard Agency

Drawing Title  
 Proposed Detail Drawings

Drawn By swf	Chk'd By -	Scale @ A4 1:20	Date 11/06/18
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Project No. 06B710797	Drawing No. PH2/5	Revision -
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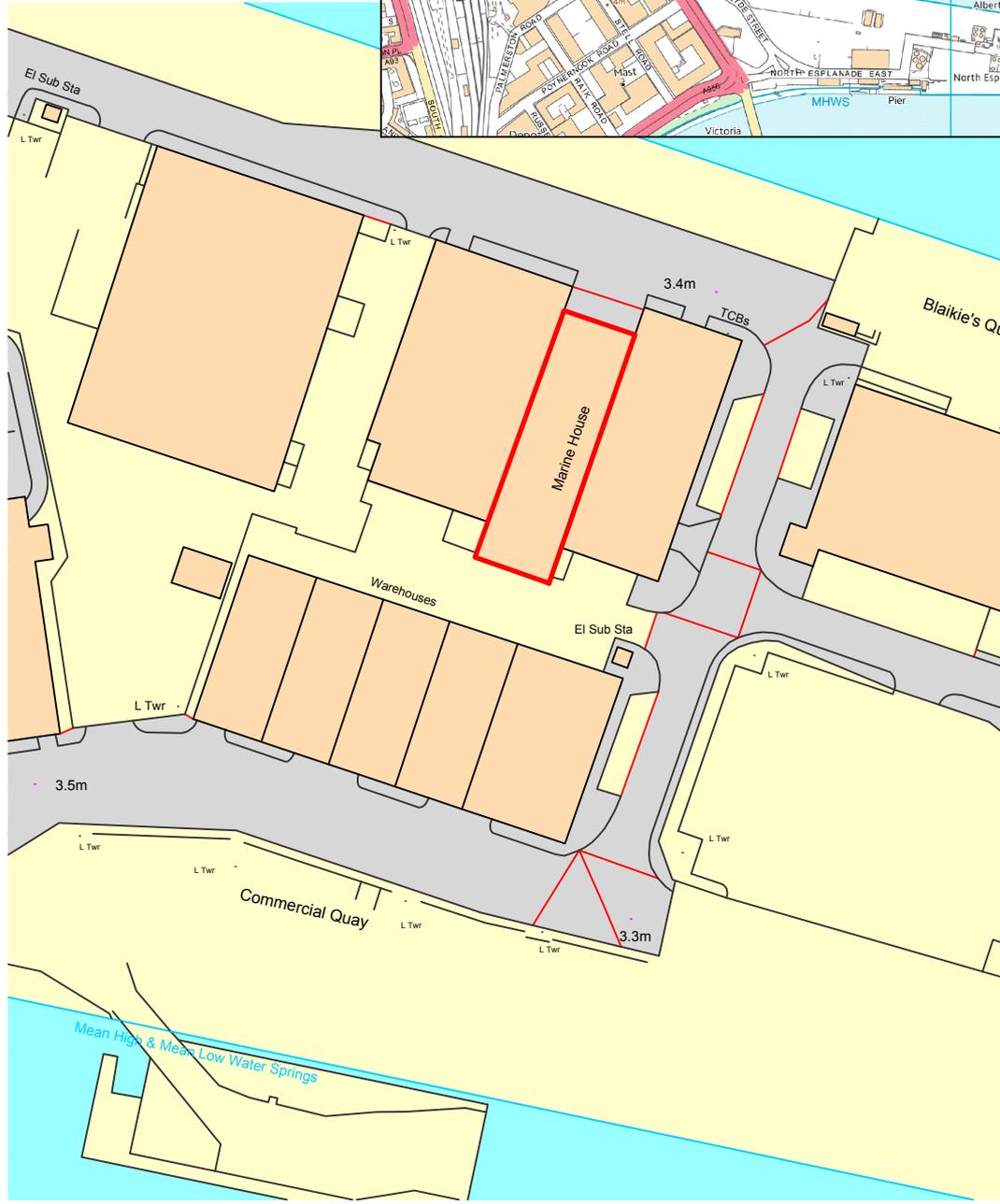
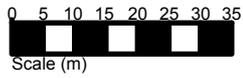
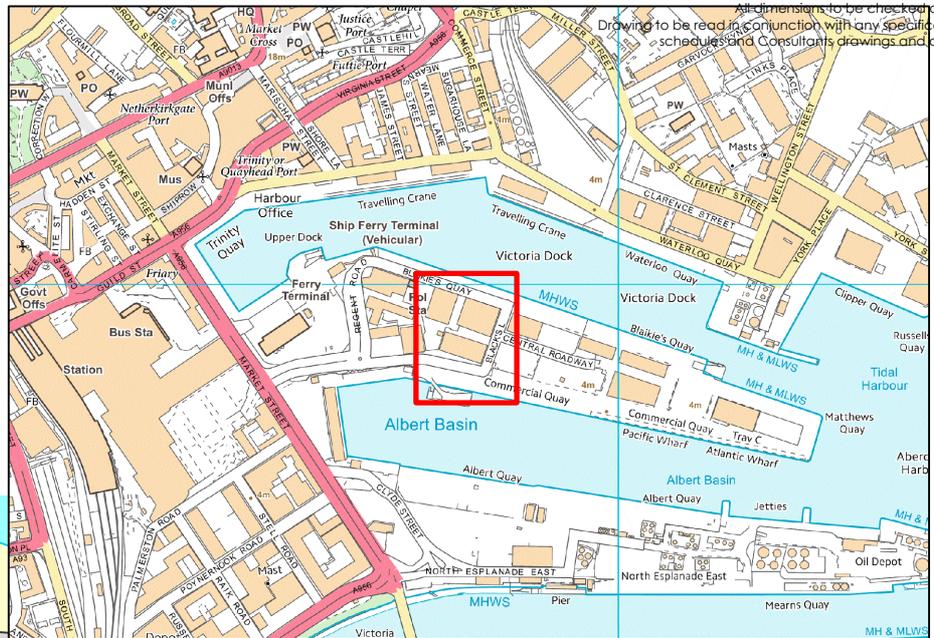


Sutherland House, 149 St Vincent Street, Glasgow, G2 5NW  
 T: +44 (0) 141 300 8000  
 F: +44 (0) 141 300 8001  
 E: enquiries@gvajb.co.uk

www.gva.co.uk/scotland

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Drawing Title Location Plan			
Rev	Revision Details	By	Chk'd Date
Project Name Marine House, Blaikie's Quay, Aberdeen Internal Alterations - Phase 1			
Drawn By swf	Chk'd By -	Scale @ A4 1:1250	Date 07/03/18
Project No. 06B710797	Drawing No. PH2/6	Revision -	



Sutherland House, 149 St Vincent Street, Glasgow, G2 5NW  
 T: +44 (0) 141 300 8000  
 F: +44 (0) 141 300 8001  
 E: enquiries@gvajb.co.uk  
 www.gva.co.uk/scotland

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--

For Building Warrant

**A4**

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 All dimensions to be checked on site.  
 Drawing to be read in conjunction with any specifications, schedules and Consultants drawings and details.

**DOOR ACCESS CONTROL SYSTEM NOTES**

Works to be carried out in accordance with:-

BS EN 60839-11-1 Alarm and Electronic Security Systems - Electronic Access Control Systems - Systems & Component Requirements.

BS EN60839-11-2 Alarm and Electronic Security Systems - Electronic Access Control Systems - Application Guidelines.

BS EN 5-0486 - Equipment for use in audio and video door-entry systems.

BS 7671-2008+A3 2015 Requirements for Electrical Installations. IET Wiring Regulations.

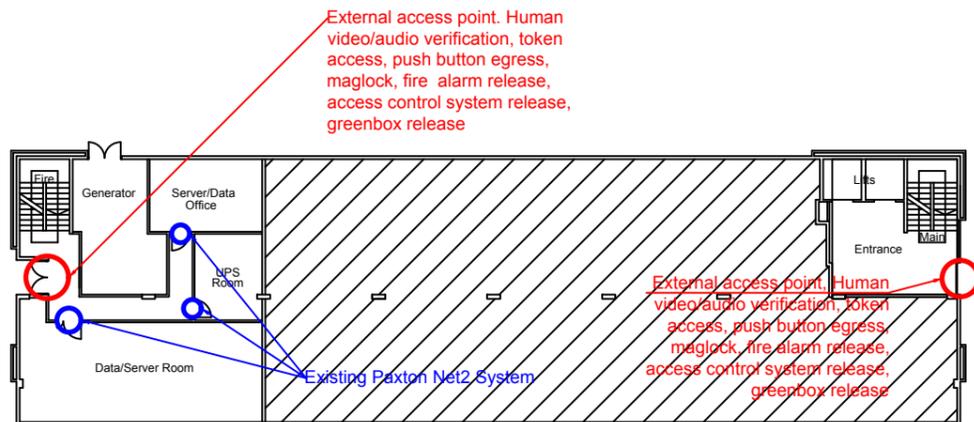
BS EN 14846:2008 Electromagnetically Operated Locks & Striking Plates.

Contractor to have design responsibility for new access control system.

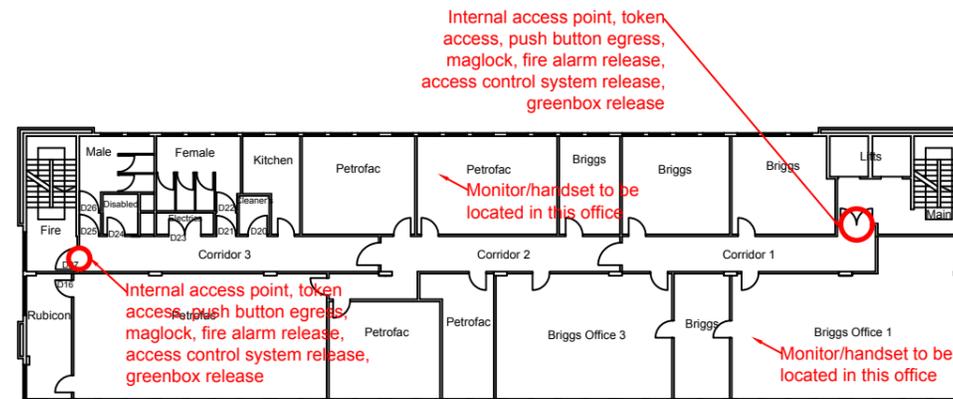
Existing access control system to be removed.

System to have following capabilities:-

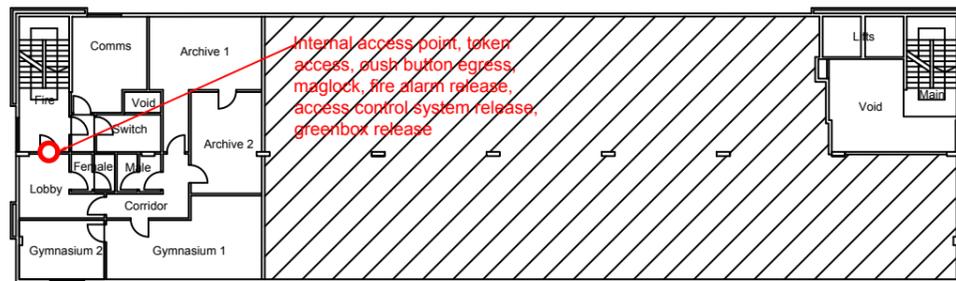
- Paxton Net 2 system interfaced with existing system located in ground floor data centre.
- External access provided by human video/audio verification and token access.
- Internal access provided by token access.
- Security Grade 2 (Low to Medium Risk).
- PC based system providing programming, system logs and monitoring.
- Wired system to be provided.
- All doors to be secured using electronic card reader lever latch to be released with a) single action lever latch internal release; b) fire alarm activation; c) authorisation from access control system; and d) green box release.
- Video/audio interface to provide capacity for up to 10 individual users via monitors/handsets.



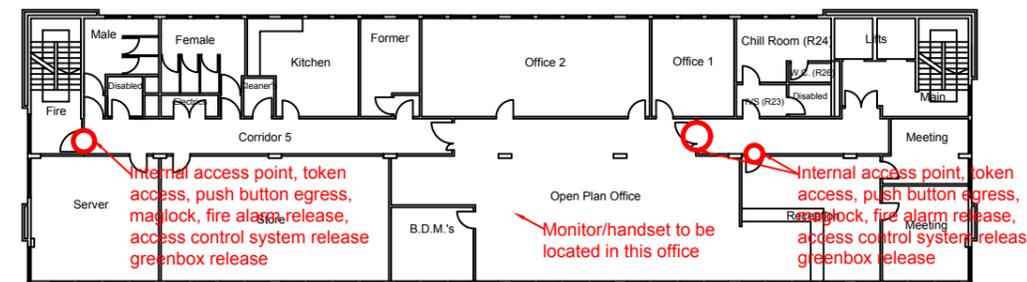
GROUND FLOOR PLAN



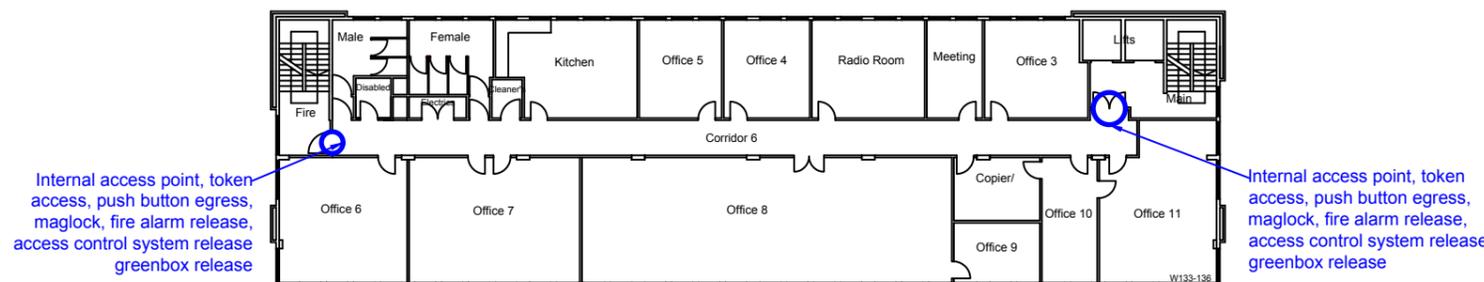
1ST FLOOR PLAN



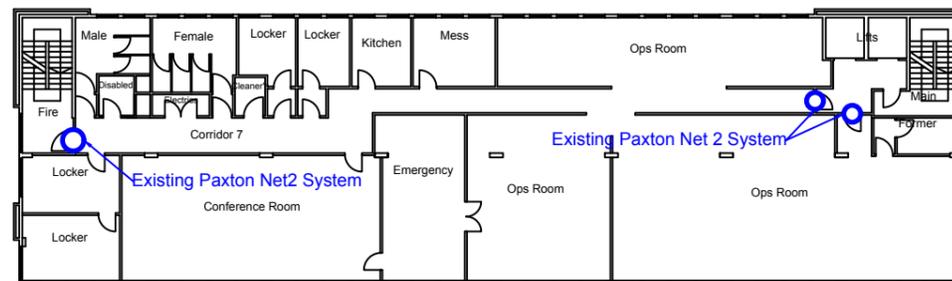
MEZZANINE FLOOR PLAN



2ND FLOOR PLAN



3RD FLOOR PLAN



4TH FLOOR PLAN

Rev	Revision Details	By	Chk'd	Date



Sutherland House, 149 St Vincent Street, Glasgow, G2 5NW  
 T: +44 (0) 141 300 8000  
 F: +44 (0) 141 300 8001  
 E: enquiries@gva.co.uk

www.gva.co.uk/scotland

Project Name  
 3rd Floor Marine House, Blaikies Quay, Aberdeen  
 Internal Alterations - Phase 2

Client  
 Maritime & Coastguard Agency

Drawing Title  
 Existing Floor Plans  
 Proposed Door Access Control System

Drawn By swf	Chk'd By -	Scale @ A2 1:250	Date 11/06/18
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Project No. 06B710797	Drawing No. PH2/7	Revision -
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For Tender Issue

**Do not scale this drawing.**

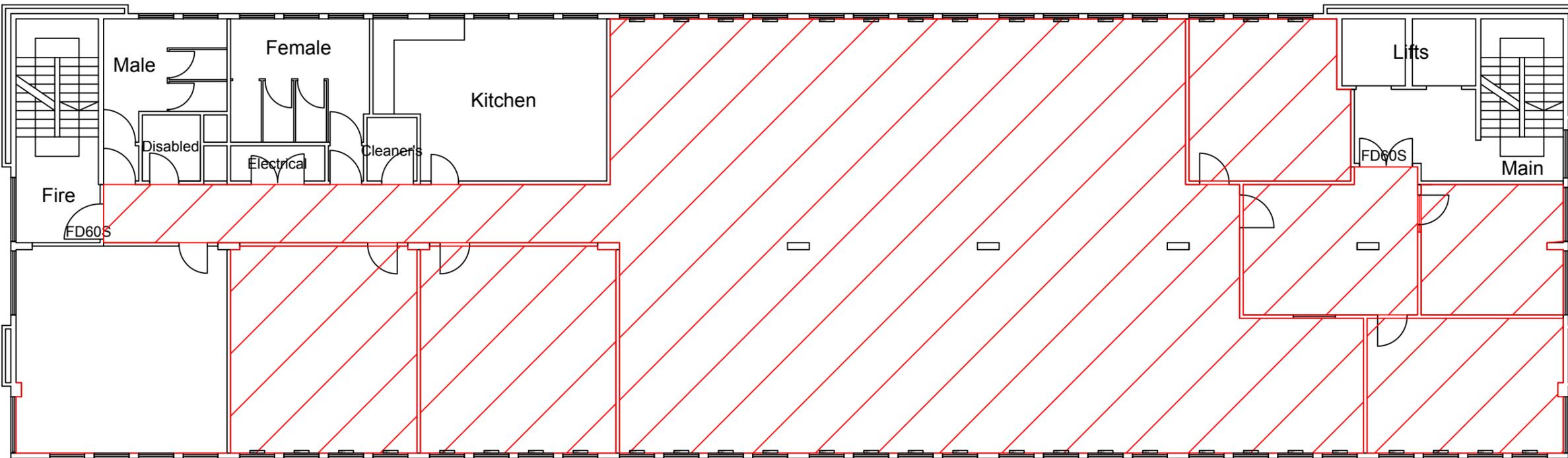
All dimensions to be checked on site.  
Drawing to be read in conjunction with any specifications, schedules and Consultants drawings and details.

**SCHEDULE OF FINISHES**

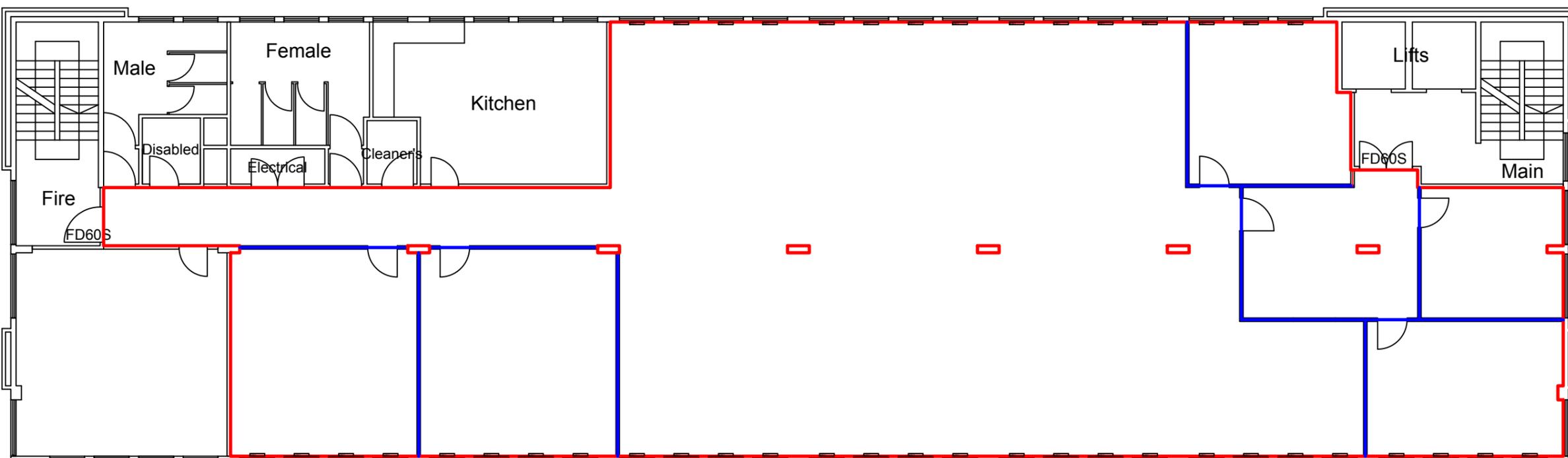
 Existing concrete floor slab to be prepared to receive new floor coverings. Self levelling compound to be laid on top of concrete floor slab. Milliken Light Trails, Dusk Titanium carpet tile floor coverings to be laid onto prepared floor surface using manufacturer recommended adhesive.

 Existing wall finishes to be stripped of any existing wall coverings and prepared for new finishes. Plaster skim coat to be applied to keyed surfaces. One sealer coat and two coats matt emulsion to be applied to plaster skim coat.

 New plasterboard wall lining boards to be taped and filled and prepared for new finishes. One sealer coat and two coats matt emulsion to be applied to plasterboard wall lining boards.



PROPOSED FLOOR FINISHES



PROPOSED WALL FINISHES

Rev	Revision Details	By	Chk'd	Date

**GVA**  
 Sutherland House, 149 St Vincent Street, Glasgow, G2 5NW  
 T: +44 (0) 141 300 8000  
 F: +44 (0) 141 300 8001  
 E: enquiries@gva.co.uk  
 www.gva.co.uk/scotland

Project Name  
 3rd Floor Marine House, Blaikies Quay, Aberdeen  
 Internal Alterations - Phase 2

Client  
 Maritime & Coastguard Agency  
 -

Drawing Title  
 Proposed Finishes Schedule  
 -

Drawn By swf	Chk'd By -	Scale @ A2 1:100	Date 11/06/18
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Project No. 06B710797	Drawing No. PH2/8	Revision -
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For Information

**A2**

# Contact Details

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## Enquiries

Stuart Ferris, Dip BS, MRICS  
+44 (0)141 305 6345  
stuart.ferris@gva.co.uk

## Visit us online

[gva.co.uk](http://gva.co.uk)

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### GVA

Sutherland House, 149 St Vincent Street, Glasgow, G2 5NW

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