

Ahearne Fire Engineering Ltd

RESPOND

RESPOND

24304 Fairhill Lodge

17-09-2026 REV B

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C20 Demolition

Clauses

5 Survey

1. **Scope:** Before starting deconstruction/ demolition work, examine available information, and carry out a survey of:
 - 1.1. the structure or structures to be deconstructed/ demolished,
 - 1.2. the site on which the structure or structures stand, and
 - 1.3. the surrounding area.
2. **Report and method statements:** Submit, describing:
 - 2.1. Form, condition and details of the structure or structures, the site and the surrounding area.
3. **Extent:**
 - 3.1. Type, location and condition of features of historical, archaeological, geological or ecological importance.
 - 3.2. Type, location and condition of adjoining or surrounding premises that might be adversely affected by removal of the structure or structures or by noise, vibration and/ or dust generated during deconstruction/ demolition.
 - 3.3. Identity and location of services above and below ground, including those required for the Contractor's use, and arrangements for their disconnection and removal.
 - 3.4. Form and location of flammable, toxic or hazardous materials, including lead-based paint, and proposed methods for their removal and disposal.
 - 3.5. Form and location of materials identified for reuse or recycling, and proposed methods for removal and temporary storage.
 - 3.6. Proposed programme of work, including sequence and methods of deconstruction/ demolition.
 - 3.7. Details of specific pre-weakening required.
 - 3.8. Arrangements for protection of personnel and the general public, including exclusion of unauthorized persons.
 - 3.9. Arrangements for control of site transport and traffic.
 - 3.10. **Special requirements:**

20 Features to be retained

1. **General:** Keep in place and protect the following: all existing furniture/ fittings/ equipment etc where possible.

25 Location of services

1. **Services affected by the Works:** Locate and mark positions.
2. **Mains services marking:** Arrange with the appropriate authorities for services to be located and marked.

30 Services disconnection arranged by contractor

1. **Responsibility:** Before starting deconstruction/ demolition arrange with the appropriate authorities for disconnection of services owned by those authorities and removal of associated fittings and equipment.

32 Disconnection of drains

1. **General:** Locate, disconnect and seal disused foul and surface water drains.

2. **Sealing:** Permanent, and within the site.

35 Live foul and surface water drains

1. **General:** Protect drains and fittings still in use. Keep free of debris and ensure normal flow during deconstruction/ demolition work.
2. **Damage:** Make good damage arising from deconstruction/ demolition work. Leave clean and in working order at completion of deconstruction/ demolition work.

40 Service bypass connections

1. **General:** Provide as necessary to maintain continuity of services to occupied areas of the site on which the deconstruction/ demolition is taking place and to adjoining sites/ properties.
2. **Notice:** Give adequate notice to adjoining owners and all affected occupiers if shutdown is necessary.

45 Services to be retained

1. **Damage to services:** Give notice, and notify relevant service authorities and/ or owner/ occupier regarding damage arising from deconstruction/ demolition.
2. **Repairs to services:** Complete as directed, and to the satisfaction of the service authority or owner.

50 Workmanship

1. **Standard:** Demolish structures in accordance with BS 6187.
2. **Operatives:** Appropriately skilled and experienced for the type of work. Holding, or in training to obtain, relevant CITB Certificates of Competence.
3. **Site staff responsible for supervision and control of work:** Experienced in the assessment of risks involved and methods of deconstruction/ demolition to be used.

55 Site hazards

1. **Precautions:** Prevent fire and/ or explosion caused by gas and/ or vapour from tanks, pipes, etc.
2. **Dust:** Reduce by periodically spraying with an appropriate wetting agent, or contain.
 - 2.1. **Lead dust:** Submit method statement for control, containment and clean-up regimes.
3. **Site operatives and general public:** Protect from vibration, dangerous fumes and dust arising during the course of the Works.

65 Structures to be retained

1. **Extent:** As per drawings.
2. **Parts which are to be kept in place:** Protect.
3. **Interface between retained structures and deconstruction/ demolition:** Cut away and strip out with care to minimize making good.

70 Partly deconstructed/ demolished structures

1. **General:** Leave partly in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Make secure outside working hours.
2. **Temporary works:** Prevent overloading due to debris and machinery.
3. **Access:** Prevent access by unauthorized persons.

71 Dangerous openings

1. **General:** Provide guarding at all times, including outside of working hours. Illuminate during hours of darkness.

2. **Access:** Prevent access by unauthorized persons.

76 Asbestos-containing materials – unknown occurrences

1. **Discovery:** Give notice immediately of suspected asbestos-containing materials when discovered during deconstruction/ demolition work. Avoid disturbing such materials.
2. **Removal:** Submit statutory risk assessments and details of proposed methods for safe removal.

78 Unforeseen hazards

1. **Discovery:** Give notice immediately when hazards, such as unrecorded voids, tanks, chemicals, are discovered during deconstruction/ demolition.
2. **Removal:** Submit details of proposed methods for filling, removal, etc.

85 Site condition at completion

1. **Debris:** Clear away and leave the site tidy on completion.

90 Contractor's property

1. **Components and materials arising from the deconstruction/ demolition work:** Property of the Contractor except where otherwise provided.
2. **Action:** Remove from site as work proceeds where not to be reused or recycled for site use.

91 Employer's property

1. **Components and materials to remain the property of the Employer:** Description: any remaining wall/ceiling tiles/paint etc.
2. **Protection:** Maintain until these items are removed by the Employer or reused in the Works, or until the end of the Contract.

95 Recycled materials

1. **Materials arising from deconstruction/ demolition work:** Can be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification and in accordance with any site waste management plan.

Ω End of Section

G10

Structural steel framing

General requirements/ information

112 Contractor's design

1. Description: Light-weight steel framing system
2. Design responsibility: Design and detail members and joints to suit locations in accordance with engineers details.
3. Structural requirements
 - 3.1. Generally: As section B50.
 - 3.2. Modifications:: None
 - 3.3. Design: Complete in accordance with the designated code of practice to satisfy specified performance criteria.
4. Fire Requirements: : Refer to AFEC Fire remediation layouts for fire rating.
5. Accoustic Performance:: as existing to DOE Technical Guidance Document
6. Design and production information: As per clause 123

123 Drawings and calculations prepared by Contractor

1. Information required:
 - 1.1. Drawings showing all construction details, including connections and manufactured tolerances.
 - 1.2. Risk assessments for the installation and construction process
 - 1.3. Risk assessments for the installation and construction process
 - 1.4. Requirements for storage of materials

Frame systems - Not Used

Cold-formed materials - Not Used

Fabrication

180 Information from manufacturer

1. Requirement:
 - 1.1. Drawings showing all construction details, including connections and manufactured tolerances.
 - 1.2. Risk assessments for the installation and construction process
 - 1.3. Installation instructions including training requirements for installers.
 - 1.4. Requirements for storage of materials

Welding - Not Used

Bolt assemblies - Not Used

Erection - Not Used

Testing

465 Testing

1. Testing: Prepare test pieces as necessary.
2. Test and examination results: Submit copies immediately they are available.

Protective coatings - Not Used

Protective coating systems - Not Used

Preparation for painting - Not Used

Painting

825 Stripe coat

1. External angles, nuts, bolt heads, rough weld seams, and areas difficult to coat: Apply an additional stripe coat of

Ω End of Section

G20

Carpentry/ timber-framing/ first fixing

General

105 Timber procurement

1. Timber (including timber for wood-based products): Obtained from well-managed forests/ plantations in accordance with:
 - 1.1. The laws governing forest management in the producer country or countries.
 - 1.2. International agreements such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
2. Documentation: Provide either in accordance with chain of custody certification scheme requirements:
 - 2.1. Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied. or
 - 2.2. Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.

Products

270 Ungraded softwood

1. Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
2. Surface finish: Regularized
3. Treatment
 - 3.1. Preservative treatment: None required
 - 3.1.1. Design service life: 40 years
 - 3.2. Flame-retardant treatment: None required

271 Ungraded hardwood for internal non-structural use

1. Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
2. Surface finish: Regularized
3. Treatment
 - 3.1. Preservative treatment: None required
 - 3.1.1. Design service life: 40 years
 - 3.2. Flame-retardant treatment: None required

311 Non-structural plywood

1. Standard: To an approved national standard.
2. Thickness: 18 mm.
3. Appearance class to BS EN 635: II
4. Use class to BS EN 335: Use Class 2
5. Bonding quality to BS EN 314-2: Class 2
6. Finish: Sanded
7. Edges: Square
8. Treatment

- 8.1. Preservative treatment: None required
 - 8.1.1. Design service life: 40 years
- 8.2. Flame-retardant treatment: None required

Workmanship generally

402 Cross section dimensions of non-structural softwood

- 1. Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
- 2. Maximum permitted deviations from finished sizes: As stated in BS EN 1313-1, clause 6 for sawn sections.

403 Cross section dimensions of non-structural hardwood

- 1. Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
- 2. Maximum permitted deviations from finished sizes: As stated in BS EN 1313-2:
 - 2.1. Clause 6 for sawn sections.
 - 2.2. Clause NA.3 for further processed sections.

420 Warping of timber

- 1. Bow, spring, twist and cup: Not greater than the limits set down in BS EN 14081-1 and BS 4978 for softwood, or BS EN 14081-1 and BS 5756 for hardwood

430 Selection and use of timber

- 1. Timber members damaged, crushed or split beyond the limits permitted by their grading: Do not use.

435 Notches, holes and joints in timber

- 1. Notches and holes
 - 1.1. General: Avoid if possible.
 - 1.2. Sizes: Minimum needed to accommodate services.
 - 1.3. Position: Do not locate near knots or other defects.
 - 1.4. In same joist: Minimum of 100 mm apart horizontally.
 - 1.5. Notches in joists
 - 1.5.1. Position: Locate at top. Form by sawing down to a drilled hole.
 - 1.5.2. Depth (maximum): 0.15 x joist depth.
 - 1.5.3. Distance from supports: Between 0.1 and 0.2 x span.
 - 1.6. Holes in joists
 - 1.6.1. Position: Locate on neutral axis.
 - 1.6.2. Diameter (maximum): 0.25 x joist depth.
 - 1.6.3. Centres (minimum): Three x diameter of largest hole.
 - 1.6.4. Distance from supports: Between 0.25 and 0.4 of span.
 - 1.7. Notches in roof rafters, struts and truss members: Not permitted.
 - 1.8. Holes in struts and columns: Locate on neutral axis.
 - 1.8.1. Diameter (maximum): 0.25 x minimum width of member.
 - 1.8.2. Centres (minimum): Three x diameter of largest hole.
 - 1.8.3. Distance from ends: Between 0.25 and 0.4 of span.
- 2. Scarf joints, finger joints and splice plates: Do not use without approval.

440 Processing treated timber

1. **Cutting and machining:** Carry out as much as possible before treatment.
2. **Extensively processed timber:** Retreat timber sawn lengthways, thickened, planed, ploughed, etc.
3. **Surfaces exposed by minor cutting/ drilling:** Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

450 Moisture content

1. **Moisture content of wood and wood-based products at time of installation:** Not more than:
 - 1.1. Covered in generally unheated spaces: 24%.
 - 1.2. Covered in generally heated spaces: 20%.
 - 1.3. Internal in continuously heated spaces: 20%.

451 Moisture content testing

1. **Procedure:** When instructed, test timber sections with an approved electrical moisture meter.
2. **Test sample:** Test 5%, but not less than ten lengths of each cross section in the centre of the length.
3. **Test results:** 90% of values obtained to be within the specified range. Provide records of all tests.

510 Protection

1. **Generally:** Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.
2. **Timber and components:** Store under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.
3. **Trussed rafters:** Keep vertical during handling and storage.

Jointing timber

570 Jointing/ fixing generally

1. **Generally:** Where not specified precisely, select methods of jointing and fixing and types, sizes and spacings of fasteners in compliance with section Z20.

Erection and installation

770 Additional supports

1. **Provision:** Position and fix additional studs, noggings and/ or battens to support edges of sheets materials, and wall/ floor/ ceiling-mounted appliances, fixtures, etc. shown on drawings
2. **Material properties:** Additional studs, noggings and battens to be of adequate size and have the same treatment, if any, as adjacent timber supports.

Ω End of Section

H31

Metal profiled/ flat sheet self-supporting cladding

Types of cladding/ covering system

110 Metal profiled sheet self-supporting cladding - Spec for replacement if damaged.

1. Description: Factory-manufactured metal-faced insulated sandwich panel system
2. Humidity load: To [BS EN ISO 13788](#), Class 1.
3. Support structure: Galvanized steel Zed purlins to engineers spec at 2500 mm centres.
 - 3.1. Bearing width (minimum): 35mm
 - 3.2. Pitch: Vertical.
4. Cladding/ covering system type: Single-skin.
5. External sheets
 - 5.1. Material: Aluminium grade EN AW-3004.
 - 5.2. Thickness (nominal): As determined by clause 195.
 - 5.3. Profile: As existing.
 - 5.4. Cover width: 100mm
 - 5.5. Finish side 1 (outer)
 - 5.5.1. Colour: As existing.
 - 5.6. Finish side 2 (inner)
 - 5.6.1. Colour: As existing.
6. Accessories: As required to complete installation.
7. Primary cladding/ covering sheet fasteners: Self drilling and tapping carbon steel stand off screws with assembled carbon steel .
 - 7.1. Fastener profile location: Crown.
 - 7.2. Number and location of fasteners: As clause 196.
 - 7.3. End laps size (minimum): 150mm.
8. Stitching laps
 - 8.1. End laps: Self drilling stainless steel screws with assembled stainless steel EPDM elastomer faced sealing washer and plastics cap colour RAL 9007 at maximum centres to Eng. spec.
 - 8.2. Side laps: Self drilling stainless steel screws with assembled stainless steel EPDM elastomer faced sealing washer and plastics cap colour RAL 9007 at maximum centres to Engineers spec.
9. Spacers: Mini zed rails of steel to BS EN 10147 grade minimum thickness, minimum bearing width to Engineers spec and using plastics ferrules.
 - 9.1. Depth of spacer: To be such that insulation is not compressed between external and lining sheets.
 - 9.2. Fasteners: Galvanised.
10. Breather membrane: As clause 280.

120 Metal profiled sheet self-supporting cladding/ roof covering - Spec for replacement if damaged.

1. Description: Factory-manufactured metal-faced insulated sandwich panel system
2. Cladding/ covering system type: As per existing.
3. External sheets

- 3.1. Standards generally: To [BS EN 14782](#).
- 3.2. Material: Aluminium-coated steel to [BS EN 10346](#).
- 3.3. Manufacturer: Submit proposals
- 3.4. Composition: Manufacturer's standard.
- 3.5. Thickness (nominal): As per existing.
- 3.6. Profile: Manufacturer's standard.
4. Sealing laps
5. Breather membrane: As per existing.
6. Air and vapour control layer: As per existing.
7. Fire performance:
 - 7.1. Roof covering: As clause 204.
 - 7.2. Substrate/ ventilated cavities/ inner lining: As clause 205.
 - 7.3. Cavity fire barriers: As clause 206.

General requirements

175 Product samples

1. General: Before commencing detailed design, submit labelled samples of the following:
300mm section sinusoidal cladding.

176 Fastener samples

1. General: During detailed design, submit labelled samples of each type of fastener.

Design/ performance requirements

185 Performance compliance

1. Verification: Before commencing fabrication, submit evidence based on laboratory testing or computer modelling.

196 Integrity of cladding/covering

1. Requirement: Determine profiles, sizes and thicknesses of sheets, the sizes, number and spacing of fixings, configuration and location of spacer systems and incorporation of other accessories and fittings to ensure cladding/ covering system will resist factored dead, imposed and design live loads, and accommodate deflections and thermal movements without damage, in accordance with BS 5427 -1.
2. Primary fasteners:: Not to be subjected to any bending moment.
3. Wind loads:: Calculate to BS 6399-2, Standard Method and BS 5427-1 appropriate to location, exposure, height, building shape and size, taking account of existing and known future adjacent structures.

Fixing cladding/ roof covering - Not Used

Ω End of Section

J41

Reinforced bitumen membrane roof coverings

Types of roof covering

115 Single-layer reinforced bitumen membrane warm deck roof covering Over 4th Floor, Plant Roof & Balconies.

1. **Description:** Reinforced polymer-modified bitumen capping sheet, APP/SBS dual formulation, mineral finished, self-adhesive with welded laps on PIR insulation on VCL on existing screed substrate.
2. **Substrate:** Existing screed substrate
 - 2.1. **Preparation:** Remove existing waterproof covering.
3. **Air and vapour control layer (AVCL):** Determined by contractor.
4. **Insulation:** Phenolic foam board, as [clause 427](#).
5. **Overlay to insulation:** Not required.
6. **Waterproof covering:** Single-layer reinforced bitumen waterproofing, as [clause 405](#).
7. **Flashings and detail work:** Additional layer of SBS-modified bitumen membrane, mineral-surfaced.
8. **Surface protection:** Solar reflective paint a [clause 478](#).
9. **Accessories:** Angle fillets, as [clause 335](#). Perimeter trims, as [clause 345](#). Pipe collars, as [clause 480](#).

115 Single-layer reinforced bitumen membrane warm deck roof covering Over Reception

1. **Description:** Reinforced polymer-modified bitumen capping sheet, APP/SBS dual formulation, mineral finished, self-adhesive with welded laps on PIR insulation on VCL on existing metal deck substrate.
2. **Substrate:** Existing metal deck substrate
 - 2.1. **Preparation:** Remove existing waterproof covering.
3. **Air and vapour control layer (AVCL):** Determined by contractor.
4. **Insulation:** Phenolic foam board, as [clause 427](#).
5. **Overlay to insulation:** Not required.
6. **Waterproof covering:** Single-layer reinforced bitumen waterproofing, as [clause 405](#).
7. **Flashings and detail work:** Additional layer of SBS-modified bitumen membrane, mineral-surfaced.
8. **Surface protection:** Solar reflective paint a [clause 478](#).
9. **Accessories:** Angle fillets, as [clause 335](#). Perimeter trims, as [clause 345](#). Pipe collars, as [clause 480](#).

Performance

230 Thermal performance

1. **Requirement:** Determine type and thickness of insulation and integral or separate overlay to satisfy the following criteria:
 - 1.1. **Thermal transmittance of roof (maximum):** 0.16 W/(m²·K).
 - 1.2. **Compressive strength of insulation (minimum) at 10% compression:** 150 kPa.
 - 1.3. **Finished surface:** Suitably even, stable and robust to receive roof covering.
 - 1.4. **Insulation compliance:** To relevant harmonized European standard, or Agrément-certified.

240 Fire performance

1. Classification: BROOF(t4), in accordance with [BS EN 13501-5](#).

Products

335 Angle fillets

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Submit proposals.
2. Material: As supplied by insulation manufacturer.

340 Preformed sleeves

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Submit proposals.
2. Type: Preformed flanged sleeve.

345 Perimeter trims

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Submit proposals.
2. Type: GRP.

395 Air and vapour control layer

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Submit proposals.
2. Type: As membrane manufacturer's recommendations.

405 Single-layer reinforced bitumen waterproof covering

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Submit proposals.
2. Colour: Grey.
3. Attachment: Determined by contractor.
4. Guarantee: 25 years

427 Phenolic foam (PF) insulation

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Submit proposals.
2. Standard: To [BS EN 13166](#).
 - 2.1. Reaction to fire: Manufacturer's standard.
 - 2.2. Thermal conductivity (minimum): Manufacturer's standard.
 - 2.3. Thickness: 120mm
 - 2.4. Compressive strength (minimum): Manufacturer's standard
3. Edges: Square.
4. Facing: Composite aluminium foil-faced both sides.

465 Precast concrete paving slabs at 2nd floor balconies

1. Manufacturer: Existing concrete paving to be cleaned and reused.
2. Standard:

- 2.1. Size: to match existing

467 Support system for precast concrete paving slabs

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Submit proposals.
2. Size: As per AFEC detail drawings

478 Solar reflective paint

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Submit proposals.
2. Colour: Grey.

480 Pipe collars

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Submit proposals.

Execution generally - Not Used

Substrates/ air and vapour control layers/ warm deck roof insulation

625 Removing existing coverings

1. Mechanical stripping: Permitted.
2. Exposed substrate: Do not damage.

650 Laying overlay to metal deck

1. Setting out: Lay boards with staggered joints and long edges at right angles to troughs in deck.
 - 1.1. Joints: 1 mm gap per metre panel size.
 - 1.2. End joints: Centre over crowns of deck.
2. Fasteners
 - 2.1. Type: As fastener manufacturer's recommendations.
 - 2.2. Fixing: Determined by contractor.
 - 2.3. Fastener heads: Flush with, or below board surface.

670 Laying air and vapour control layer

1. Attachment: Securely bond or nail to substrate.
2. Side and end laps: 100 mm and 150 mm, respectively. Seal using materials and method recommended by bitumen membrane manufacturer.
3. Joints in second layer (where applicable): Stagger by half a membrane.
4. Penetrations: Fully seal using bonding or taping methods recommended by manufacturer.
5. Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like: Enclosed with vapour control layer.

Waterproof membranes/ accessories - Not Used

Surfacing - Not Used

Completion

930 Flood test

1. Condition of roof before testing: Complete to a stage where integrity of bitumen membrane covering can be tested.
2. Outlets: Externally cover and seal. Protect against damage from water pressure using temporary kerbs. Do not use plugs to seal outlets.
3. Flood levels: Submit proposals. In no case higher than kerbs.
4. Flood duration: 24 hours
5. Inspection to detect leaks: Regular.
6. Completion of test: Slowly drain roof. Do not overload or flood outlets.
7. Test results and warranty: Submit on completion of testing.

940 Completion

1. Roof areas: Clean.
2. Outlets: Clear.
3. Work necessary to provide a weathertight finish: Complete.
4. Storage of materials on finished surface: Not permitted.
5. Completed membrane: Do not damage. Protect from chemicals, traffic and adjacent or high-level working.

Ω End of Section

K10

Gypsum board dry linings/ partitions

Types of dry lining

120 Shaftwall partition system

1. Description: Refer to AFEC wall lining plans for Shaftwall partition locations
2. Partition type: Shaftwall
3. Partition height: Site dimension.
4. Head condition: Existing concrete slab to ground, intermediate floors and inclined metal profiled roof decking to top floor and to GP Hall.
 - 4.1. Deflection allowance: 15 mm maximum
5. Structural performance
 - 5.1. Strength grade to BS 5234-2: Severe
 - 5.1.1. Additional tests: Not required
 - 5.2. Air pressure and deflection: Not applicable
 - 5.3. Other requirements: None
6. Fire performance
 - 6.1. Reaction to fire: To BS EN 13501-1, class B-s3, d2 or better
 - 6.2. Fire resistance of complete partition assembly: To BS EN 13501-2. EI 60
7. Airborne sound insulation
 - 7.1. Laboratory measurement of complete partition assembly:
 - 7.2. Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: Not required
8. Metal framing: Type to match board manufacturer specification to complete the shaftwall assembly and achieve specified performance.
9. Insulation: n/a
 - 9.1. Thickness: Not applicable
10. Resilient layer: 19 mm as clause 408
11. Linings: Two layers of 15mm fire resistant plasterboard as clause 404
12. Finishing: Skim coat plaster as clause 680
 - 12.1. Primer/ Sealer: All painted walls to be primed
 - 12.2. Accessories: Beads/ stops as recommended by board manufacturer as clause 692
13. Other requirements: Air tight sealant to window and external door frames as clause 692. Fire stopping around services / penetrations as section P12. Provide additional studs as grounds for classroom equipment as required.

126 Wall Lining

1. Description: Refer to AFEC wall lining plans for lining locations
2. Partition type: Single or double row metal studs
3. Partition height: Site dimension.
4. Head condition: Varies - Existing steel beam or concrete slab to ground and intermediate floors. Steel beam or inclined metal profiled roof decking to top floor.
 - 4.1. Deflection allowance: 15 mm maximum
5. Structural performance
 - 5.1. Strength grade to BS 5234-2: Severe
 - 5.1.1. Additional tests: Not required

- 5.2. Air pressure and deflection: Not applicable
- 5.3. Other requirements: None
- 6. Fire performance
 - 6.1. Reaction to fire: To BS EN 13501-1, class B-s3, d2 or better
 - 6.2. Fire resistance of complete partition assembly: Refer to AFEC Fire Remediation drawings for fire resistance of partition.
- 7. Airborne sound insulation
 - 7.1. Laboratory measurement of complete partition assembly:
 - 7.2. Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: To match existing performance.
- 8. Metal framing: Type to existing board manufacturer specification to complete the partition assembly and achieve specified performance.
- 9. Insulation: Mineral wool, as recommended by board manufacturer to meet specified performance.
 - 9.1. Recycled content: Not applicable
 - 9.2. Thickness: As recommended by board manufacturer to meet specified performance.
- 10. Resilient layer:
- 11. Linings: 15mm plasterboard as clause 401 + 15mm impact resistant plasterboard as clause 408 (or 12.5mm tile backer board to wet areas as clause 422) to both sides
- 12. Finishing: Seamless jointing as clause 670 or skim coat plaster as clause 680.
 - 12.1. Primer/ Sealer: All painted walls to be primed
 - 12.2. Accessories: Metal beads/ stops as recommended by board manufacturer and as clause 692.
- 13. Other requirements: Fire rated Partitions - Intumescent Mastic sealant to window/door frames and partition junctions as clause 338. Fire stopping around services / penetrations as section P12. Provide additional studs as grounds for classroom equipment as required.

215 Suspended ceiling system Type 1

- 1. Description:: Generally.
- 2. Standard:: To BS EN 13964.
- 3. Evidence of compliance: : All ceilings kits to be CE marked. Submit Declaration of Performance (DoP).
- 4. Lining board: : 12.5 mm plasterboard as clause 401.
 - 4.1. Finishing: : Seamless jointing as clause 670 or skim coat plaster as clause 680.
 - 4.1.1. Primer/ Sealer: : Primer to painted areas as section M60.
- 5. Suspension system: : As recommended by lining manufacturer to complete the ceiling system and achieve specified performance.
 - 5.1. Grid type: : With primary channels.
 - 5.2. Hangers: : Type recommended by board manufacturer.
 - 5.2.1. Length: : To give ceiling soffit height above finished floor level to match existing
 - 5.3. Top fixing: : To suit structural soffit of existing concrete slab and inclined metal profiled roof
- 6. Access units: : As clause 430.
- 7. Integrated services fittings:: None
- 8. Other requirements: : None
- 9. System performance
 - 9.1. Standard: : To BS EN 13964
 - 9.2. Structural: : The ceiling system must safely support all anticipated loads including services fittings.

9.3. Fire performance

9.3.1. Reaction to fire: : To BS EN 13501-1, class B-s3, d2 or better

9.4. Fire resistance: : Not required

9.5. Airborne sound insulation (complete floor and ceiling assembly)

9.5.1. Weighted sound reduction index, R_w (minimum), to BS EN ISO 717-1: : To match existing performance.

9.5.2. Other requirements:: None

9.6. Electrical continuity and earth bonding: Required

9.7. Other BS EN 13964 characteristics: None

216 Fire rated suspended ceiling system

1. Description:: Suspended gypsum board ceiling system providing minimum 60 minutes fire resistance.
2. Standard:: To BS EN 13964.
3. Evidence of compliance: : All ceilings kits to be CE marked. Submit Declaration of Performance (DoP).
4. Lining board: : 15mm plasterboard as clause 401.
 - 4.1. Finishing: : Seamless jointing as clause 670 or skim coat plaster as clause 680.
 - 4.1.1. Primer/ Sealer: : Primer to painted areas as section M60.
5. Suspension system: : As recommended by lining manufacturer to complete the ceiling system and achieve specified performance.
 - 5.1. Grid type: : With primary channels.
 - 5.2. Hangers: : Type recommended by board manufacturer.
 - 5.2.1. Length: : To give ceiling soffit height above finished floor level to match existing
 - 5.3. Top fixing: : To suit structural soffit of existing concrete slab and inclined metal profiled roof
6. System performance
 - 6.1. Standard: : To BS EN 13964
 - 6.2. Structural: : The ceiling system must safely support all anticipated loads including services fittings.
 - 6.3. Fire performance
 - 6.3.1. Reaction to fire: : To BS EN 13501-1, class B-s3, d2 or better
 - 6.4. Fire resistance: : 60EI
 - 6.5. Airborne sound insulation (complete floor and ceiling assembly)
 - 6.5.1. Weighted sound reduction index, R_w (minimum), to BS EN ISO 717-1: : To match existing performance.
 - 6.5.2. Other requirements:: None

290 Stud Framing System - General Locations Type 1

1. Description: Non structural stud locations. Refer to AFEC plans for locations
2. Partition type: Single row studs
3. Partition height: Site dimension.
4. Head condition: Existing concrete floor to ground , intermediate floors and inclined metal profiled roof decking to top floor.
 - 4.1. Deflection allowance: 15 mm maximum
5. Structural performance
 - 5.1. Strength grade to BS 5234-2: Severe

- 5.1.1. Additional tests: Not required
- 5.2. Air pressure and deflection: Not applicable
- 5.3. Other requirements: Allow for weight of ceramic tiles, as section M40
- 6. Fire performance
 - 6.1. Reaction to fire: To BS EN 13501-1, class B-s3, d2 or better
 - 6.2. Fire resistance of complete partition assembly: To BS EN 13501-2. EI 120
- 7. Airborne sound insulation
 - 7.1. Laboratory measurement of complete partition assembly:
 - 7.2. Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: To match existing performance.
- 8. Metal framing: 92mm I Studs at 600mm centres, 300mm centres behind tiled area or otherwise required by manufacturer.
- 9. Insulation: 3x25mm mineral wool or thicknesses of mineral wool as recommended by framing system manufacturer to meet the specified performance.
 - 9.1. Recycled content: Not applicable
 - 9.2. Thickness: Varies
- 10. Resilient layer: To framing system manufacturer specification
- 11. Linings: Refer to AFEC Wall Types drawing for linings to partitions.
- 12. Finishing: Not applicable
 - 12.1. Primer/ Sealer: Not applicable
 - 12.2. Accessories: Not applicable
- 13. Other requirements: Provide additional studs as grounds for classroom equipment as required.

292 Stud Framing System - General Locations Type 3

- 1. Description: Non structural stud locations. Refer to AFEC plans for locations
- 2. Partition type: Double row studs
- 3. Partition height: Site dimension.
- 4. Head condition: Existing concrete floor to ground , intermediate floors and inclined metal profiled roof decking to top floor.
 - 4.1. Deflection allowance: 15 mm maximum
- 5. Structural performance
 - 5.1. Strength grade to BS 5234-2: Severe
 - 5.1.1. Additional tests: Not required
 - 5.2. Air pressure and deflection: Not applicable
 - 5.3. Other requirements: Allow for weight of ceramic tiles, as section M40
- 6. Fire performance
 - 6.1. Reaction to fire: To BS EN 13501-1, class B-s3, d2 or better
 - 6.2. Fire resistance of complete partition assembly: To BS EN 13501-2. EI 120
- 7. Airborne sound insulation
 - 7.1. Laboratory measurement of complete partition assembly:
 - 7.2. Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: To match existing performance.
- 8. Metal framing: 70mm I Studs at 600mm centres 300mm centres behind tiled area or otherwise required by manufacturer.
- 9. Insulation: 50mm mineral wool or thicknesses of mineral wool as recommended by framing system manufacturer to meet the specified performance.

- 9.1. Recycled content: Not applicable
- 9.2. Thickness: Varies
- 10. Resilient layer: To framing system manufacturer specification
- 11. Linings: Refer to AFEC Wall Types drawing for linings to partitions.
- 12. Finishing: not applicable
 - 12.1. Primer/ Sealer: not applicable
 - 12.2. Accessories: not applicable
- 13. Other requirements: Provide additional studs as grounds for classroom equipment as required.

General/ preparation

305 Compliance with performance requirements

- 1. Testing/ Assessment: Submit UKAS accredited laboratory reports for the following: Fire.
- 2. Materials, components and details: As used in testing/ assessment reports. If discrepancies arise, give notice.

335 Additional supports

- 1. Framing: Accurately position and securely fix to give full support to:
 - 1.1. Partition heads running parallel with, but offset from main structural supports.
 - 1.2. Fixtures, fittings and service outlets. Mark framing positions clearly and accurately on linings.
 - 1.3. Board edges and lining perimeters, as recommended by board manufacturer to suit type and performance of lining.

395 Control samples

- 1. General: Complete areas of finished work and obtain approval of appearance before proceeding.
- 2. Type of dry lining: K10/121 abutting K10/205.
 - 2.1. Location/ Size: One classroom.

Components

400 Gypsum boards generally

- 1. Standard
 - 1.1. Gypsum plasterboard to BS EN 520.
 - 1.2. Gypsum fibre board to BS EN 15283-2.
 - 1.3. Evidence of compliance: All sheets to be CE marked. Submit Declaration of Performance (DoP).

401 Gypsum plasterboard

- 1. Type: To BS EN 520, type A.
- 2. Core density (minimum): 650 kg/m³.
- 3. Reaction to fire: Class A2-s1, d0.
- 4. Water vapour resistance factor: Manufacturer's standard
- 5. Thermal conductivity: 0.19 W/(m·K).
- 6. Other BS EN 520 characteristics: None
- 7. Recycled content: Manufacturer's standard.
- 8. Exposed surface and edge profiles: First layer square edge; face layer tapered edge.

404 Gypsum plasterboard (improved fire protection)

1. Type: To BS EN 520, type F.
2. Core: Including fibres and/ or other additives for improved cohesion at high temperature.
 - 2.1. Density (minimum): 800 kg/m³.
3. Reaction to fire: Class A2-s1, d0.
4. Water vapour resistance factor: Manufacturer's standard
5. Thermal conductivity: 0.19 W/(m·K).
6. Other BS EN 520 characteristics: Controlled density
7. Recycled content: Manufacturer's standard.
8. Exposed surface and edge profiles: First layer square edge; face layer tapered edge.

406 Gypsum plasterboard (improved fire protection and moisture resistant)

1. Type: To BS EN 520, type H1 and F
2. Core: Moisture resistant and including fibres and/ or other additives for improved cohesion.
 - 2.1. Density (minimum): 800 kg/m³.
3. Paper facings: Moisture resistant.
4. Reaction to fire: Class A2-s1, d0
5. Water vapour resistance factor: Dry - 10 μ
6. Thermal conductivity: 0.24 W/(m·K)
7. Other BS EN 520 characteristics: Controlled density
8. Recycled content: Submit proposals
9. Exposed surface and edge profiles: Clean and undamaged

408 Gypsum plasterboard (impact resistant)

1. Type: To BS EN 520, type I.
2. Core density (minimum): 900 kg/m³.
3. Paper facings: Heavy duty.
4. Reaction to fire: Class A2-s1, d0.
5. Water vapour resistance factor: Manufacturer's standard
6. Thermal conductivity: 0.25 W/(m·K).
7. Other BS EN 520 characteristics: Controlled density, improved core adhesion at high temperatures, and enhanced strength.
8. Recycled content: Manufacturer's standard.
9. Exposed surface and edge profiles: First layer square edge; face layer tapered edge.

409 Gypsum plasterboard (improved sound insulation)

1. Type: To BS EN 520, type D
2. Core density (minimum): 820 kg/m³.
3. Reaction to fire: Class A2-s1, d0 or better
4. Water vapour resistance factor: Dry - 10 μ
5. Thermal conductivity: Manufacturer's standard
6. Other BS EN 520 characteristics: None
7. Recycled content: Submit proposals
8. Exposed surface and edge profiles: Suitable to receive specified finish

420 Gypsum fibre board

1. Description:: Increased fire resistance in protecting steel
2. Type: To BS EN 15283-1, type F & H1.
3. Thickness: 15 mm
4. Reaction to fire: Class A2-s1, d0.
5. Water vapour resistance factor: Manufacturer's standard.
6. Thermal conductivity: 0.30 W/(m·K).
7. Other BS EN 15283-2 characteristics: None
8. Recycled content: Manufacturer's standard.

421 Gypsum fibre board Type 2

1. Description:: Increased fire resistance in protecting steel
2. Type: To BS EN 15283-1, type F & H1.
3. Thickness: 20 mm
4. Reaction to fire: Class A2-s1, d0.
5. Water vapour resistance factor: Manufacturer's standard.
6. Thermal conductivity: 0.30 W/(m·K).
7. Other BS EN 15283-2 characteristics: None
8. Recycled content: Manufacturer's standard.

422 Gypsum fibre board (reduced water absorption)

1. Type: To BS EN 15283-1, type GM-H1.
2. Thickness: 10/12.5/15 mm.
3. Reaction to fire: Class A2-s1, d0.
4. Water vapour resistance factor: Manufacturer's standard.
5. Thermal conductivity: 0.30 W/(m·K).
6. Other BS EN 15283-2 characteristics: None
7. Recycled content: Manufacturer's standard.

430 Access panels

1. Description: To downstand beams and suspended ceilings.
2. Type: 60 minutes fire protection to BS EN 13501-2.
 - 2.1. Sizes: 550 x 550 mm.
3. Frame: Bead for taping and jointing.
4. Panel: Metal; primed for site painting as section M60.
5. Lock: Tamper proof and operated by castellated key.

431 Access panels Type 2

1. Description: To suspended ceiling under water tank room
2. Type: Type U, no fire rated
 - 2.1. Sizes: 900 x 1200mm
3. Frame: Exposed picture frame type
4. Panel: Metal; primed for site painting as section M60.
5. Lock: Tamper proof and operated by castellated key.

Installation

435 Dry linings generally

1. **General:** Use fixing, jointing, sealing and finishing materials, components and installation methods recommended by board manufacturer.
2. **Cutting gypsum boards:** Neatly and accurately without damaging core or tearing paper facing.
 - 2.1. **Cut edges:** Minimize and position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.
3. **Fixings boards:** Securely and firmly to suitably prepared and accurately levelled backgrounds.
4. **Finishing:** Neatly to give flush, smooth, flat surfaces free from bowing and abrupt changes of level.

445 Ceilings

1. **Sequence:** Fix boards to ceilings before installing dry lined walls and partitions.
2. **Orientation of boards:** Fix with bound edges at right angles to supports and with ends staggered in adjacent rows.
3. **Two layer boarding:** Stagger joints between layers.

455 Metal framing for partitions/ wall linings

1. **Setting out:** Accurately aligned and plumb.
 - 1.1. **Frame/ Stud positions:** Equal centres to suit specified linings, maintaining sequence across openings.
 - 1.2. **Additional studs:** To support vertical edges of boards.
2. **Fixing centres at perimeters (maximum):** 600 mm.
3. **Openings:** Form accurately.
 - 3.1. **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.
 - 3.2. **Services penetrations:** Allow for associated fire stopping.

465 Staggered stud partitions

1. **Horizontal frame members (noggins, bearers, etc.) and boards:** Fix between alternate studs and not touching adjacent offset studs.

475 Metal furrings for wall linings

1. **Setting out:** Accurately aligned and plumb.
 - 1.1. **Vertical furring positions:** Equal vertical centres to suit specified linings, maintaining sequence across openings. Position adjacent to angles and openings.
 - 1.2. **Additional vertical furrings:** To support vertical edges of boards and at junctions with partitions.
 - 1.3. **Horizontal furring positions:** To provide continuous support to edges of boards.
2. **Adhesive bedding to furrings**
 - 2.1. **Dabs:** Length 200 mm (minimum). Located at ends of furrings and thereafter at 450 mm (maximum) centres.
 - 2.2. **Junctions with partitions:** Continuous bed with no gaps across cavity.

485 Suspended ceiling grids

1. **Setting out:** Accurately aligned and level.
 - 1.1. **Grid members and hangers:** Centres to suit specified linings and imposed loads.

- 1.2. **Additional grid members:** Provide bracing and stiffening at upstands, partition heads, access hatches, etc.
2. **Fixing:** Securely at perimeters, grid joints, top and bottom hanger fixings.

505 Installing mineral wool insulation

1. **Fitting insulation:** Closely butted joints and no gaps. Use fasteners to prevent slumping or displacement.
2. **Services**
 - 2.1. **Electrical cables overlaid by insulation:** Sized accordingly.
 - 2.2. **Ceilings:** Cut insulation around electrical fittings, etc.

510 Sealing gaps and air paths

1. **Location of sealant:** To perimeter abutments and around openings.
 - 1.1. **Pressurized shafts and ducts:** At board-to-board and board-to-metal frame junctions.
2. **Application:** To clean, dry and dust free surfaces as a continuous bead with no gaps.
 - 2.1. **Gaps greater than 6 mm between floor and underside of gypsum board:** After sealing, fill with jointing compound.

545 Cavity fire barriers within suspended ceilings

1. **Type:** Compressed mineral wool core with aluminum facing Exemplier.
2. **Fire resistance:** To BS EN 13501-2, EI 30, To BS 476-20, 30/30 minutes (Integrity/ Insulation)
3. **Ceiling void subdivision:** Fix barriers not more than 20 m apart in any direction.
4. **Fixing at perimeters and joints:** Secure, stable and continuous with no gaps, to provide a complete barrier to smoke and flame.
5. **Service penetrations:** Cut and pack to maintain barrier integrity. Sleeve flexible materials. Adequately support services passing through barrier.
6. **Ceiling systems for fire protection:** Do not impair fire resisting performance of ceiling system.

555 Fire stopping at perimeters of dry lining systems

1. **Material:** Tightly packed mineral wool or intumescent mastic/ sealant.
2. **Application:** To perimeter abutments to provide a complete barrier to smoke and flame.

560 Joints between boards

1. **Tapered edged gypsum boards**
 - 1.1. **Bound edges:** Lightly butted.
 - 1.2. **Cut/ unbound edges:** 3 mm gap.
2. **Square edged plasterboards:** 3 mm gap.
3. **Square edged gypsum fibre boards:** 5 mm gap.

565 Vertical joints

1. **Joints:** Centre on studs.
 - 1.1. **Partitions:** Stagger joints on opposite sides of studs.
 - 1.2. **Two layer boarding:** Stagger joints between layers.

570 Horizontal joints

1. **Surfaces exposed to view:** Horizontal joints not permitted. Seek instructions where height of partition/ lining exceeds maximum available length of board.

2. Two layer boarding: Stagger joints between layers by at least 600 mm.
3. Edges of boards: Support using additional framing.
 - 3.1. Two layer boarding: Support edges of outer layer.

575 Plank plasterboard

1. First layer in two layer boarding: Square edged with long edges at right angles to studs.

580 Insulation backed plasterboard

1. General: Do not damage or cut away insulation to accommodate services.
2. Installation at corners: Carefully cut back insulation or plasterboard as appropriate along edges of boards to give a continuous plasterboard face, with no gaps in insulation.

590 Fixing gypsum board to metal framing/ Furrings

1. Partitions/ Wall linings: Fix securely and firmly at the following centres (maximum):
 - 1.1. Single layer boarding: To all framing at 300 mm centres. Reduce to 200 mm centres at external angles.
 - 1.2. Multi-layer boarding: Face layer at 300 mm centres, and previous layers around perimeters at 300 mm centres.
2. Ceilings: 230 mm. Reduce to 150 mm at board ends and at lining perimeters.
3. Position of screws from edges of boards (minimum): 10 mm.
 - 3.1. Screw heads: Set in a depression. Do not break paper or gypsum core.

592 Fixing insulation backed plasterboard to metal furrings

1. Fixing to furrings: In addition to screw fixings apply continuous beads of adhesive sealant to furrings.

595 Deflection heads

1. Fixing boards: Do not fix to head channels.

610 Fixing gypsum board to timber

1. Fixing to timber: Securely at the following centres (maximum):
 - 1.1. Nails: 150 mm.
 - 1.2. Screws to partitions/ wall linings: 300 mm. Reduce to 200 mm at external angles.
 - 1.3. Screws to ceilings: 230 mm.
2. Position of nails/ screws from edges of boards (minimum)
 - 2.1. Bound edges: 10 mm.
 - 2.2. Cut/ unbound edges: 13 mm.
3. Position of nails/ screws from edges of timber supports (minimum): 6 mm.

Finishing

650 Level of dry lining across joints

1. Sudden irregularities: Not permitted.
2. 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.
 - 2.1. Tapered edge joints
 - 2.1.1. Permissible deviation (maximum) across joints when measured with feet resting on boards: 3 mm.

2.2. External angles

2.2.1. Permissible deviation (maximum) for both faces: 4 mm.

2.3. Internal angles

2.3.1. Permissible deviation (maximum) for both faces: 5 mm.

670 Seamless jointing to gypsum boards

1. **Cut edges of boards:** Lightly sand to remove paper burrs.
2. **Filling and taping:** Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of paper tape, fully bedded.
3. **Protection of edges/ corners:** Reinforce external angles, stop ends, etc. with specified edge/ angle bead.
4. **Finishing:** Apply jointing compound. Feather out each application beyond previous application to give a flush, smooth, seamless surface.
5. **Nail/ screw depressions:** Fill with jointing compound to give a flush surface.
6. **Minor imperfections:** Remove by light sanding.

680 Skim coat plaster finish

1. **Plaster type** As recommended by board manufacturer..
 - 1.1. **Thickness:** 2-3 mm.
2. **Joints:** Fill and tape except where coincident with metal beads.
3. **Finish:** Tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks.

692 Rigid beads/stops

1. **Internal:** To BS EN 13658-1.
2. **External:** To BS EN 13658-2.

695 Installing beads/ Stops

1. **Cutting:** Neatly using mitres at return angles.
2. **Fixing:** Securely using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
3. **Finishing:** After joint compounds/ plasters have been applied, remove surplus material while still wet from surfaces of beads exposed to view.

725 Repairs to existing gypsum board

1. **Filling small areas with broken cores:** Cut away paper facing, remove loose core material and fill with jointing compound.
 - 1.1. **Finish:** Flush, smooth surface suitable for redecoration.
2. **Large patch repairs:** Cut out damaged area and form neat hole with rectangular sides. Replace with matching gypsum board.
 - 2.1. **Fixing:** Use methods to suit type of dry lining, ensuring full support to all edges of existing and new gypsum board.
 - 2.2. **Finishing:** Fill joints, tape and apply jointing compound to give a flush, smooth surface suitable for redecoration.

Ω End of Section

K40

Demountable suspended ceilings

Types of ceiling system

10 Pre-installation survey

1. Identify each type of tile currently installed.
2. Notify Architect of findings and await instructions.

110 Unit/ modular suspended ceiling system

1. Description: Generally. Existing spec to be validated on site
2. Standard: To BS EN 13964.
3. Evidence of compliance: All ceilings kits to be CE marked. Submit Declaration of Performance (DoP).
4. Ceiling system manufacturer: To match existing.
 - 4.1. Product reference: To match existing.
5. Ceiling
 - 5.1. Infill units: As clause 265.
 - 5.2. Ceiling module: 600 x 600 mm.
 - 5.3. Soffit height above finished floor level: To match existing ceiling.
6. Grid
 - 6.1. Form: Interlocking.
 - 6.2. Exposure: Exposed.
7. Access: Infill units fully demountable
8. Suspension system: As clause 250
9. Perimeter trim: As clause 260
10. Accessories: None
11. Integrated services fittings: Hangers and housings for linear luminaires
12. Other requirements: Mix new and existing tiles to disguise repairs.

General/ performance - Not Used

Components

240 Samples

1. General: Submit representative samples of the following: Infill units for all suspended ceiling .

245 Standards

1. Steel panels: To BS EN 10346.
2. Aluminium sheet, strip and plate: To BS EN 485-1 and -2.
3. Aluminium bars, tubes and sections: To relevant parts of BS EN 515, BS EN 573, BS EN 755 and BS EN 12020.

250 Suspension system

1. Manufacturer: To match existing.
 - 1.1. Product reference: To match existing.

2. **Extent of system:** Include all hangers, fixings, main runners, cross members, primary channels, perimeter trims, splines, noggings, clips, bracing, bridging, etc. necessary to complete the ceiling system and achieve specified performance.
3. **Top fixings:** Wire hanger anchor bolts.
4. **Hangers:** Wire hangers.
5. **Grid type:** 24 mm wide T sections.
 - 5.1. **Finish:** Powder coated as section Z31.
 - 5.2. **Colour:** White.

260 Perimeter trims generally

1. **Type:** Steel angle trim to match existing, colour and finish to match exposed grid.
2. **Manufacturer:** To match existing.
 - 2.1. **Product reference:** To match existing.
3. **Fixings**
 - 3.1. **Fasteners:** Screws as recommended by ceiling manufacturer.
 - 3.2. **Fixing centres (maximum):** 450 mm

265 Infill units generally

1. **Type:** Fine fissured mineral fibre tiles with square edge profile.
2. **Manufacturer:** To match existing.
 - 2.1. **Product reference:** To match existing.
 - 2.2. **Form:** Pressed units
 - 2.3. **Sizes:** 600 x 600 mm and 1200 x 600 mm.
 - 2.4. **Finish:** To match existing.
 - 2.5. **Colour:** To match existing.
3. **Recycled content:** Not applicable

Execution

302 Control samples

1. **General:** Complete areas as part of the finished work in the following locations: K40/110: One.
2. **Approval:** Obtain before completing areas of similar work.

305 Setting out

1. **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.
2. **Infill and access units, integrated services:** Fitted correctly and aligned.
3. **Edge/ perimeter infill units size (minimum):** Half standard width or length.
4. **Corner infill units size (minimum):** Half standard width and length.
5. **Grid:** Position to suit infill unit sizes. Allow for permitted deviations from nominal sizes of infill unit.
6. **Infill joints and exposed suspension members:** Straight, aligned and parallel to walls, unless specified otherwise.
7. **Suitability of construction:** Give notice where building elements and features to which the ceiling systems relate are not square, straight or level.

310 Bracing

1. **General:** Secure, with additional bracing and stiffening to give a stable ceiling system resistant to design loads and pressures.

315 Protection

1. **Loading:** Do not apply loads for which the suspension system is not designed.
2. **Ceiling materials:** When necessary, remove and replace correctly using special tools and clean gloves, etc. as appropriate.

320 Top fixing

1. **Building structure:** Verify suitability.
2. **Structural soffit:** Existing concrete slab to ground and any intermediate floors; inclined profiled metal roof decking to top floor.
 - 2.1. **Suitability to receive specified fixings:** Evaluate and confirm.
3. **Fixing generally:** In accordance with BS EN 13964.
4. **Fixing to**
 - 4.1. **Concrete:** Drill and insert suitable expanding anchors.
 - 4.2. **Aerated concrete:** Fix through from the top of concrete units and provide a system of primary support channels.
 - 4.3. **Structural steel:** Drill, or use suitable proprietary clips/ adaptors.
 - 4.4. **Metal roof decking:** Fix to sides of liner tray corrugations.
 - 4.5. **Timber:** Fix to side of joists at least 50 mm from bottom edge. If ceiling system is intended for fire protection, fix into top third of joists.
 - 4.6. **Hollow structural members:** Submit fixing proposals.

325 Installing hangers

1. **Wire hangers:** Straighten and tension before use.
2. **Installation:** Install vertical or near vertical, without bends or kinks. Do not allow hangers to press against fittings, services, or insulation covering ducts/ pipes.
3. **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.
4. **Extra hangers:** Provide as necessary to carry additional loads.
5. **Fixing**
 - 5.1. **Wire hangers:** Tie securely at top with tight bends to loops to prevent vertical movement.
 - 5.2. **Angle/ strap hangers:** Do not use rivets for top fixing.
6. **Spacings:** 1200 mm.

335 Installing perimeter trims

1. **Jointing:** Neat and accurate, without lipping or twisting.
 - 1.1. **External and internal corners:** Mitre joints generally. Overlap joints at internal corners are not acceptable.
 - 1.2. **Intermediate butt joints:** Minimize. Use longest available lengths of trim. Align adjacent lengths.
2. **Fixing:** Fix firmly to perimeter wall, edge battens or other building structure.
 - 2.1. **Fasteners:** Screws as recommended by ceiling manufacturer.
 - 2.2. **Fixing centres:** 450 mm

340 Exposed grids

1. Grid fixings: Wire hangers
2. Main runners: Install level. Do not kink or bend hangers.
 - 2.1. Spliced joints: Stagger.
 - 2.2. Wire hangers passing through main runners: Use sharp bends and tightly wrapped loops.
 - 2.3. Angle/ strap hangers: Do not use rivets for bottom fixing.
 - 2.4. Angular displacement of long axis of one runner in relation to next runner in line with it: Not visually apparent.
3. Cross members supported by main runners or other cross members: Install perpendicular to intersecting runners.
4. Cross tees: Flat and coplanar with flanges of main runners after panel insertion.
 - 4.1. Cross tees over 600 mm long, cut and resting on perimeter trim: Provide an additional hanger.
5. Holding down clips: Locate to manufacturer's recommendations.
 - 5.1. Fire protecting/ resisting ceiling systems: Use clip type featured in the fire test/ assessment.

355 Installing infill units

1. General
 - 1.1. Perimeter infill units: Trimmed, as necessary, to fully fill space between last grid member and perimeter trim. Prevent subsequent movement.
 - 1.2. Deeply textured infill units: Minimize variations in apparent texture and colour. In particular, avoid patchiness.
2. Concealed grids: Install infill units uniformly, straight and aligned. Avoid dimension creep.
 - 2.1. Infill units around recessed luminaires and similar openings: Prevent movement and displacement.

385 Upstands and bulkheads

1. Vertical ceiling systems: Support and brace to provide alignment and stability.
2. High upstands: Provide support at base of upstand.

390 Openings in ceiling materials

1. General: Neat and accurate. To suit sizes and edge details of fittings. Do not distort ceiling system.

395 Integrated services

1. General: Position services accurately, support adequately. Align and level in relation to the ceiling and suspension system. Do not diminish performance of ceiling system.
2. Small fittings: Support with rigid backing boards or other suitable means. Do not damage or distort the ceiling.
 - 2.1. Surface spread of flame rating of additional supporting material: Not less than ceiling material.
3. Services outlets
 - 3.1. Supported by ceiling system: Provide additional hangers.
 - 3.2. Independently supported: Provide flanges to support ceiling system.

401 Ceiling-mounted luminaires

1. Support: Independent.
 - 1.1. Independently supported luminaires: Suspension adjusted to line and level of ceiling.

- 1.2. Ceiling supported luminaires: Modifications and/ or extra support required: To each luminaire.
2. Surface mounted luminaires: Units installed so that in event of a fire the designed grid expansion provision is not affected.
3. Modular fluorescent recessed luminaires: Compatible with ceiling module. Extension boxes must not foul ceiling system.
4. Recessed rows of luminaires: Provide flanges for support of grid and infill units, unless mounted above grid flanges. Retain in position with lateral restraint.
5. Fire protecting/ resisting ceiling systems: Luminaires must not diminish protection integrity of ceiling system.
6. Access: Provide access for maintenance of luminaires.

406 Trunking

1. Recessed trunking: Provide flanges for support of grid and infill units, unless mounted above grid flanges. Retain in position with lateral restraint.

500 Electrical continuity and earth bonding

1. Inclusion in finished work: Required

Completion

520 User instructions

1. Contents: Include the following:
 - 1.1. Correct methods for removing and replacing infill units and other components.
 - 1.2. Cleaning methods and materials.
 - 1.3. Recommendations for redecoration.
 - 1.4. Ceiling systems intended for fire protection: Limitations placed on subsequent alterations and maintenance procedures, to ensure that their fire performance is not impaired.
 - 1.5. Maximum number, position and value of point loads that can be applied to ceiling system after installation.

530 Spares

1. General: At Completion supply the following: 20 tiles for ceiling system K40/120 and 10 tiles for.

Ω End of Section

L10

Windows - If replacement is required.

General

110 Evidence of performance

1. **Certification:** Provide independently certified evidence that all incorporated components comply with specified performance requirements.

115 Timber procurement

1. **Timber (including timber for wood based products):** Obtained from well managed forests and/ or plantations in accordance with:
 - 1.1. The laws governing forest management in the producer country or countries.
 - 1.2. International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
2. **Documentation:** Provide either:
 - 2.1. Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
 - 2.2. Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.
3. **Certification scheme:** UK Timber Procurement Policy Category A evidence certification scheme.
 - 3.1. **Other evidence:** None

120 Preconstruction survey

1. **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
2. **Designated items:** all surveys to be as per associated documents, survey existing support structure, glazing size, spec if know, framing size, fixing, bead sizes, wood type, seal type .
3. **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
4. **Timing:** Before fabrication.

Products

330 Aluminium windows

1. **Standard:**
Extruded aluminium double glazed windows with integrated louvres (where indicated) to works requirements drawings. Non-fire and/ or smoke rated windows to BS EN 14351-1 and BS 4873
2. **Manufacturer:** Submit product proposals to employers representative for approval of a firm currently registered under a third-party quality assurance scheme
3. **Product reference:**
IAB/BBA Agreement Certified, double glazed polyester powder coated thermally broken aluminium frames, flush finish externally.
4. **Finish as delivered:** Polyester Powder Coating : To be applied by Qualicoat approved applicator using a standard RAL colour in matt finish to EN12206-1 2004. Prior to the application of the polyester power coating the aluminium profiles are to be pre-treated using an 8-stage process of acid etching, Chrome or Chrome Free process to Qualicoat approval and water rinsing.
5. **Thermal performance (U-value maximum):** 1.3W/m²K or better, to ISO/NP 10077-1:2017 and ISO 10077-2:2017.

6. **Acoustic performance rating:**
The Rw sound reduction index for the Glazing should not be less than 27db, to BS EN ISO 140.
7. **Fire performance**
7.1. **Fire resistance:** Not required
8. **Glazing details:** Drained and ventilated dry glazed system. The windows to be factory fitted with double glazed units with external 'snap in' extruded aluminium beads with captive 'E' gaskets externally and wedge gasket internally. The corners of the gaskets shall be accurately mitred together and sealed to ensure an effective joint. Setting blocks and location pieces shall be fitted in accordance with BS 6262 in order to ensure the windows are maintained square and rigid. Composition of glazing to achieve required U-value target and in accordance with BS 6262-4:2018. Glass G-factor of 0.5, where indicated on drawings outer pane to be toughened and laminated and inner pane to be laminated glass, all Low-E. Glass to be set against extruded EPDM rubber gaskets retained in undercut grooves within the aluminium profile and clip-in glazing beads. All units to be 28mm in thickness. Typical centre pane make up: 4mm glazing – 20mm argon filled cavity (90%) – 4mm soft coat thermal glazing.
9. **Beading:** Manufacturer's standard
10. **Ironmongery/ Accessories:** Corrosion resistant multipoint single lever locking system is to be incorporated in all opening sashes, to BS EN 1670:2007. Security locking to openable sections with winders to high level and security locking lever handle to low level openable sections. Restrictors to low level openable sections.
11. **Fixing:** All straps, clips, brackets, lugs, screws, nuts, bolts, rivets, metal washers, shims and other fixings shall be manufactured from one of the following: stainless steel grade A2, A4 or F1 conforming to BS EN ISO 3506-1:2020 or BS EN ISO 3506-2:2020; steel which has been finished by one of the following methods: zinc plating in accordance with BS EN ISO 2081:2018, code Fe/Zn 12 or Fe/Zn 25, and chromate passivation in accordance with BS 6338:1982, ISO 4520-1981, class 2Cor 2D; hot dip galvanizing in accordance with BS EN ISO 1461:2022 to a minimum coating mass of 460 g/m²; spraying with a zinc coating in accordance with BS EN ISO 063:2017, symbol Zn4; any other protective treatment of equivalent performance to those specified in 4.1 Aluminium (a) to (c), of an alloy having mechanical strength properties at least equal to that of the frame. Fixing devices should be capable of withstanding the design wind load (see BS EN 1991-1-4:2005+A1:2010) and any operating forces of the windows. Provision should also be made to prevent water penetrating any holes provided for the fixings.
12. **Blinds:** Refer to specification clause N10.
13. **Trickle Vents:** Not permitted - passive wall vents only as indicated on drawings.
14. **Maintenance :** Readily easy to clean, service and maintain.
15. **Verification :** See Clause 110A.

360 PVC-U windows

1. **Description::** PVC-U double glazed windows to works requirements drawings.
2. **Standard:** Non-fire and/ or smoke-rated windows to BS EN 14351-1 and BS 7412:2024.
3. **Manufacturer:** Submit product proposals to employers representative for approval of a firm currently registered under a third-party quality assurance scheme; submit registration at tender.
4. **Profile:** a) White PVC-U extruded hollow profiles used in plastic windows and door sets shall conform to BS EN 12608-1:2016+A1:2020 and BS EN 12608-4:2024. (b) Surface covered PVC-U extruded hollow profiles used in plastic windows and door sets shall conform to BS EN 12608-2:2023.

Note edge frame thickness and opening sections are to be of sufficient depth and set out when viewed externally to allow for installation of future 30mm EWI rendered reveal liner - refer to architectural details.

5. **Colour/ Texture:** White
6. **Exposure category to BS 6375-1/ Design wind load:** 1600 Pa

7. Reinforcement: Manufacturer's standard
8. Thermal performance (U-value maximum): 1.2 W/m²K
9. Acoustic performance rating: Manufacturer's standard
10. Fire performance
 - 10.1. Fire resistance: Not required
11. Glazing details:
12. Beading: Manufacturer's standard
13. Ironmongery/ Accessories: Corrosion resistant multipoint single lever locking system is to be incorporated in all opening sashes, to BS EN 1670:2007. Security locking to openable sections with winders to high level and security locking lever handle to low level openable sections. Restrictors to low level openable sections.
14. Fixing: All straps, clips, brackets, lugs, screws, nuts, bolts, rivets, metal washers, shims and other fixings shall be manufactured from one of the following: stainless steel grade A2, A4 or F1 conforming to BS EN ISO 3506-1:2020 or BS EN ISO 3506-2:2020; steel which has been finished by one of the following methods: zinc plating in accordance with BS EN ISO 2081:2018, code Fe/Zn 12 or Fe/Zn 25, and chromate passivation in accordance with BS 6338:1982, ISO 4520-1981, class 2Cor 2D; hot dip galvanizing in accordance with BS EN ISO 1461:2022 to a minimum coating mass of 460 g/m²; spraying with a zinc coating in accordance with BS EN ISO 063:2017, symbol Zn4; any other protective treatment of equivalent performance to those specified in 4.1 Aluminium (a) to (c), of an alloy having mechanical strength properties at least equal to that of the frame. Fixing devices should be capable of withstanding the design wind load (see BS EN 1991-1-4:2005+A1:2010) and any operating forces of the windows. Provision should also be made to prevent water penetrating any holes provided for the fixings.

Execution

710 Protection of components

1. General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry floored and covered storage.
2. Stored components: Stack vertical or near vertical on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

730 Priming/ sealing

1. Wood surfaces inaccessible after installation: Prime or seal as specified before fixing components.

750 Building in

1. General: Not permitted unless indicated on drawings.
 - 1.1. Brace and protect components to prevent distortion and damage during construction of adjacent structure.

765 Window installation generally

1. Installation: Into prepared openings.
2. Gap between frame edge and surrounding construction
 - 2.1. Minimum: 2mm
 - 2.2. Maximum: 10mm
3. Distortion: Install windows without twist or diagonal racking.

780 Fixing of wood frames

1. Standard: As section Z20.
2. Fasteners: Stainless steel wood screws in compliance with fire rated

- 2.1. **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.

790 Fire-resisting frames

1. Gap between back of frame and reveal: Completely fill with tightly packed mineral wool and intumescent mastic, ensure gap is no greater than 10mm at any point to complete perimeter of fire rated screen..

810 Sealant joints Type 1

1. **Sealant**
 - 1.1. **Manufacturer:** Submit proposals.
 - 1.1.1. **Product reference:** Fire Rated Intumescent.
 - 1.2. **Colour:** white unless otherwise approved. Graphite can be used in non-visible areas .
 - 1.3. **Application:** As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.

811 Sealant Joints - Silicone Type 2

1. **Sealant**
 - 1.1. **Manufacturer:** Submit proposals.
 - 1.1.1. **Product reference:** Submit proposals
 - 1.2. **Colour:** Graphite unless otherwise approved.
 - 1.3. **Application:** As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.

820 A Ironmongery

1. **Fixing:** In accordance with any third-party certification conditions applicable. Assemble and fix carefully and accurately using fasteners with matching finish supplied by ironmongery manufacturer. Do not damage ironmongery and adjacent surfaces.
2. **Checking/ Adjusting/ Lubricating:** Carry out at Completion and ensure correct functioning.

820 B SAMPLES

1. **Samples:** Controls samples to be provided for review prior to commencement.
 - 1.1. **Samples to be included::** Refer to AFEC Fire Control Sample Schedule.

Ω End of Section

L20

Doors/ shutters/ hatches

General

110 Evidence of performance

1. **Certification:** Provide independently certified evidence that all incorporated components comply with specified performance requirements.

112 Timber procurement

1. **Timber (including timber for wood-based products):** Obtained from well-managed forests and/ or plantations in accordance with:
 - 1.1. The laws governing forest management in the producer country or countries.
 - 1.2. International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
2. **Documentation:** Provide either:
 - 2.1. Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
 - 2.2. Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.
3. **Certification scheme:** UK Timber procurement policy Category A evidence certification scheme.
 - 3.1. **Other evidence:** subject to submittals

115 Fire resisting and smoke control pedestrian doors/ door assemblies/ doorsets

1. **CE marked fire resisting and smoke control pedestrian doorsets:** To BS EN 16034 and in conjunction with BS EN 13241 and BS EN 14351-1 (and eventually prEN 14351-2).
2. **Door products:** As defined in BS EN 12519.
3. **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 resisting and/ or smoke control if tested to BS 476-22, BS EN 1634-1, BS EN 1634-3 or is CE marked to BS EN 16034. Specified values should not be a combination of both standards. Such certification must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.
4. Components, assemblies or sets will be marked to the relevant CE marking European product standard (hEN), national product standard and/ or third party certification rating.

120 Non fire resisting pedestrian doors/ door assemblies/ doorsets

1. Provide certified evidence, in the form of a product conformity certificate or engineering assessment, that each pedestrian door/ doorset/ assembly supplied will comply with the specified requirements to BS EN 14351-1. Such certification must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.
2. Components and assemblies will be marked to the relevant CE marking European product standard (hEN), national product standard and/ or third party certification rating.

150 Site dimensions

1. **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
2. **Designated items:** TBC

Products

270 Wood door assemblies/ doorsets

1. Description: Internal, 30min Fire Resisting, FD30S
2. Materials: Generally to BS EN 942.
3. Manufacturer: : Submit Proposals
4. Tested in accordance with: BS 476-22: 1987.
BS EN 1634-1: 2000/ 2008.
BS EN 1363-1: 1999.
DD 171.
EN 1191.
EN 1192.
EN 947.
EN 949.
EN 950.
5. Door leaf::
 - 5.1. Material:: Three layer particleboard to match Global Certification of door assembly/doorset
 - 5.2. Thickness:: 44 mm.
 - 5.3. Acoustic performance :: 30dB for Offices & standard classrooms, 40dB for workshops
 - 5.4. Size:: As per site dimensions.
 - 5.5. Glazing:: To match Global Certification of door assembly/doorset.
 - 5.6. Hinges: : To match Global Certification of door assembly/doorset.
 - 5.7. Locking: : To match Global Certification of door assembly/doorset.
 - 5.8. Lipping:: To match Global Certification of door assembly/doorset.
 - 5.9. Accessories/ Other requirements: To match Global Certification of door assembly/doorset.
 - 5.10. Ironmongery:: To match Global Certification of door assembly/doorset.
 - 5.11. Seals: : To match Global Certification of door assembly/doorset.

271 Wood door assemblies/ doorsets

1. Description: Internal, 60min Fire Resisting, FD60S
2. Materials: Generally to BS EN 942.
3. Manufacturer: : Submit Proposals
4. Tested in accordance with: BS 476-22: 1987.
BS EN 1634-1: 2000/ 2008.
BS EN 1363-1: 1999.
DD 171.
EN 1191.
EN 1192.
EN 947.
EN 949.
EN 950.
5. Door leaf::
 - 5.1. Material:: Three layer particleboard to match Global Certification of door assembly/doorset
 - 5.2. Thickness:: 54 mm.
 - 5.3. Acoustic performance :: 30dB for Offices & standard classrooms, 40dB for workshops
 - 5.4. Size:: As per site dimensions.
 - 5.5. Glazing:: To match Global Certification of door assembly/doorset.
 - 5.6. Hinges: : To match Global Certification of door assembly/doorset.
 - 5.7. Locking: : To match Global Certification of door assembly/doorset.

- 5.8. Lipping:: To match Global Certification of door assembly/doorset.
- 5.9. Accessories/ Other requirements: To match Global Certification of door assembly/doorset.
- 5.10. Ironmongery:: To match Global Certification of door assembly/doorset.
- 5.11. Seals: : To match Global Certification of door assembly/doorset.

481 External steel boiler-room doorset with ventilation louvres

- 1. Description: External steel doorset incorporating ventilation louvre/grille assemblies, providing secure access and permanent ventilation to boiler room.
- 2. Manufacturer: Submit proposals
 - 2.1. Product reference: Submit proposals
- 3. Door leaf:
 - 3.1. Material:: Steel suitable for external application.
 - 3.2. Construction:: Insulated, reinforced steel door leaf suitable for plant/boiler-room use and anticipated frequency of operation.
 - 3.3. Facing:: Galvanized, zinc-coated or otherwise corrosion-protected steel.
 - 3.4. Core:: Manufacturer's selection to achieve specified performance.
 - 3.5. Edges:: Reinforced and suitably protected against impact, moisture ingress and corrosion.
 - 3.6. Reinforcement: : Provide internally as required for hinges, closers, locks, louvres and other ironmongery.
 - 3.7. Durability: : Door construction to remain dimensionally stable and serviceable under anticipated external exposure and operating conditions.
 - 3.8. Finish as delivered: Manufacturers standard paint finish
- 4. Wind Resistance:: Wind load class 3: P1 = 1200 Pa, P2 = 600 Pa, P3 = 1800 Pa to IS EN 12211:2016.
- 5. Water Tightness:: Class 5A to BS EN 12208:2000.
- 6. Ironmongery: Refer to P21.

All locking systems to be corrosion resistant three point single lever locking system with strike plate to be incorporated in all opening doors, to BS EN 1670:2007.

- 7. Perimeter seals: EPDM weatherseal
- 8. Thermal performance (U-value maximum): 1.8 W/m²K
- 9. Ventilation louvres/grilles:
 - 9.1. Description:: Permanent ventilation louvre/grille assembly incorporated within door leaf/leaves.
 - 9.2. Purpose:: Provide permanent ventilation to boiler room.
 - 9.3. Location & Number:: As indicated on drawings and coordinated with Mechanical Engineer's requirements. As required to achieve specified ventilation performance.
 - 9.4. Material: : Corrosion-resistant metal suitable for external exposure and compatible with door construction.
 - 9.5. External face: : Weather-resistant louvre arrangement designed to limit direct rain penetration.
 - 9.6. Blade arrangement: : Designed to provide required ventilation while restricting direct line-of-sight and rain penetration as appropriate.
 - 9.7. Insect/vermin mesh: : Provide where required by project conditions, without reducing effective free ventilation area below specified requirement.
 - 9.8. Finish: : To match or coordinate with doorset.
 - 9.9. Edges/openings: : Factory formed and adequately reinforced to prevent distortion or reduction in door strength.

10. **Other requirements:** • Low rise accessible threshold profile with thermal break.
 - Burglar resistance to Class RC3.
 - All entrance doors to meet Universal Design requirements.
11. **Fixing:** Through pre-drilled holes in frame. Installation to be carried out using best building practices and in conjunction with recommendations of the manufacturer.

All straps, clips, brackets, lugs, screws, nuts, bolts, rivets, metal washers, shims and other fixings shall be manufactured from one of the following:

- stainless steel grade A2, A4 or F1 conforming to BS EN ISO 3506-1:2020 or BS EN ISO 3506-2:2020;
- steel which has been finished by one of the following methods: zinc plating in accordance with BS EN ISO 2081:2018, code Fe/Zn 12 or Fe/Zn 25, and chromate passivation in accordance with BS 6338:1982, ISO 4520-1981, class 2Cor 2D; hot dip galvanizing in accordance with BS EN ISO 1461:2022 to a minimum coating mass of 460 g/m²; spraying with a zinc coating in accordance with BS EN ISO 2063:2017, symbol Zn4; any other protective treatment of equivalent performance to those specified in 4.1
- Aluminium (a) to (c), of an alloy having mechanical strength properties at least equal to that of the frame.

Fixing devices should be capable of withstanding the design wind load (see BS EN 1991-1-4:2005+A1:2010) and any operating forces of the doors. Provision should also be made to prevent water penetrating any holes provided for the fixings.

12. **Verification:** : See Clause 110

613 Door bottom Seal

1. **Description:** Plant on smoke seal
2. **Manufacturer:** Submit proposals
3. **Length:** Check door length on site.

Execution

710 Protection of components

1. **General:** Do not deliver to site components that cannot be installed immediately or placed in clean, dry, floored and covered storage.
2. **Stored components:** Stacked on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

730 Priming/ sealing

1. **Wood surfaces inaccessible after installation:** Primed or sealed as specified before fixing components.

740 Corrosion protection

1. **Surfaces to be protected:** all in damp locations
2. **Protective coating:** Two coats of bitumen solution to BS 6949 or an approved mastic impregnated tape.
 - 2.1. **Timing of application:** Before fixing components.

760 Building in

1. **General:** Not permitted unless indicated on drawings.

790 Fixing of wood frames

1. **Spacing of fixings (frames not predrilled):** Maximum 150 mm from ends of each jamb and at 600 mm maximum centres.

809 Fire resisting and smoke control doors/ door assemblies/ doorsets/ roller shutters and curtains – accredited installer

1. **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 Fire resisting and smoke control doors/ door assemblies/ doorsets/ roller shutters and curtains – contractor installed

1. **Gaps between frames and supporting construction:** Filled as necessary in accordance with requirements for certification and/ or door/ doorset manufacturer's instructions.

820 Sealant to joints

1. **Sealant**
 - 1.1. **Manufacturer:** Submit proposals
 - 1.1.1. **Product reference:** Intumescent mastic
 - 1.2. **Colour:** White, unless otherwise specified
 - 1.3. **Application:** As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.

830 Fixing ironmongery generally

1. **Fasteners:** Supplied by ironmongery manufacturer.
 - 1.1. **Finish/ Corrosion resistance:** To match ironmongery.
2. **Holes for components:** No larger than required for satisfactory fit/ operation.
3. **Adjacent surfaces:** Undamaged.
4. **Moving parts:** Adjusted, lubricated and functioning correctly at completion.

840 Fixing ironmongery to fire resisting door assemblies

1. **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.
2. **Holes for through fixings and components:** Accurately cut.
 - 2.1. **Clearances:** Not more than 8 mm unless protected by intumescent paste or similar.
 - 2.2. **Lock/ Latch cases for fire doors requiring**
 - 2.2.1. **≥ 60 minutes integrity performance:** Coated with intumescent paint or paste before installation.

850 Location of hinges

1. **Primary hinges:** Where not specified otherwise, positioned with centre lines 250 mm from top and bottom of door leaf.
2. **Third hinge:** Where specified, positioned Where specified, positioned with centre line 250 mm below centre line of top hinge .
3. **Hinges for fire resisting doors:** Positioned in accordance with door leaf manufacturer's recommendations.

860 Installation of emergency exit devices

1. **Standard:** Unless specified otherwise, install panic bolts/ latches in accordance with BS EN 1125.

Ω End of Section

M50

Rubber/ plastics/ cork/ lino/ carpet tiling/ sheeting

Types of covering

130 Carpet tiling

1. Location: As per AFEC drawings.
2. Base: Raised access floor.
 - 2.1. Preparation: Remove existing damaged carpet tiles from corridors.
3. Carpet tiles
 - 3.1. Standards: To BS EN 14041 and BS EN 1307.
 - 3.1.1. Evidence of compliance: Submit.
 - 3.2. Reaction to fire classification: Class A2fl or better
 - 3.3. Manufacturer: Submit proposals
 - 3.4. Type: to match existing.
 - 3.5. BS EN 1307 classification
 - 3.5.1. Levels of use class: 33
 - 3.6. Recycled content: Submit proposals
 - 3.7. Size: To match existing
 - 3.8. Colour/ pattern: to match existing.
4. Method of laying: Fully adhere all tiles with release adhesive recommended by tile manufacturer.
5. Accessories: Edging strip at thresholds as clause 740

General requirements

220 Samples

1. Covering samples: Before placing orders, submit representative sample of each type.

330 Commencement

1. Required condition of works prior to laying materials
 - 1.1. Building is weathertight and well dried out.
 - 1.2. Wet trades have finished work.
 - 1.3. Paintwork is finished and dry.
 - 1.4. Conflicting overhead work is complete.
 - 1.5. Floor service outlets, duct covers and other fixtures around which materials are to be cut are fixed.
2. Notification: Submit not less than 48 hours before commencing laying.

350 Environment

1. Temperature and humidity: Before, during and after laying, maintain approximately at levels which will prevail after building is occupied.
2. Ventilation: Before during and after laying, maintain adequate provision.

Preparing bases

420 Existing bases

1. **Notification:** Before commencing work, confirm that existing bases will, after preparation, be suitable to receive coverings.
2. **Suitability of bases and conditions within any area:** Commencement of laying of coverings will be taken as acceptance of suitability.

470 Bases from which existing floor coverings have been removed

1. **Substrate:** Clear of covering and as much adhesive as possible.

Laying coverings

640 Adhesive fixing generally

1. **Adhesive type:** As specified, as recommended by covering/ underlay, manufacturer or as approved.
2. **Primer:** Type and usage as recommended by adhesive manufacturer.
3. **Application:** As necessary to achieve good bond.
4. **Finished surface:** Free from trowel ridges, high spots caused by particles on the substrate, and other irregularities.

650 Seams

1. **Patterns:** Matched.
2. **Joints:** Tight without gaps.

720 Doorways

1. **Joint location:** On centre line of door leaf.

740 Edgings and cover strips

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals
2. **Material/ finish:** PVC.
3. **Fixing:** Secure with edge of covering gripped. Use matching fasteners where exposed to view

780 Trafficking after laying

1. **Covering types:** All
2. **Traffic free period:** As recommended by covering manufacturers.

Completion

880 Waste

1. **Spare covering material:** Retain suitable material for patching. On completion submit pieces for selection. Hand over selected pieces to Employer.

Ω End of Section

M60

Painting/clear finishing

Coating systems

110 Emulsion paint

1. Description: To be compatible with existing coating.
2. Manufacturer: Submit proposals
 - 2.1. Product reference: Submit proposals
3. Surfaces: Previously coated and uncoated.
 - 3.1. Preparation: As clauses 400, 440, 580 and 590.
4. Initial coats: 10% thinned coat of emulsion.
5. Number of coats: One
6. Undercoats: None
 - 6.1. Number of coats: Not applicable.
7. Finishing coats: Washable matt vinyl.
 - 7.1. Number of coats: Two
 - 7.2. Colours:: To match existing.

150 Eggshell/ satin paint to internal plastered surfaces, exposed wood and MDF

1. Description: To be compatible with existing coating.
2. Manufacturer: Submit proposals
 - 2.1. Product reference: Submit proposals
3. Surfaces: Previously coated and uncoated.
 - 3.1. Preparation: As clauses 400, 440, 461, 471 and 481.
4. Initial coats: Primer to uncoated wood and MDF only.
 - 4.1. Number of coats: One
5. Undercoats: 10% thinned coat of eggshell/ satin.
 - 5.1. Number of coats: One
6. Finishing coats: Eggshell/ satin.
 - 6.1. Number of coats: Two.
 - 6.2. Colours: To match existing.

160 Decorative woodstain/ varnish/ preservative

1. Description: To external walls of Community Centre.
2. Manufacturer: Crown Paints Ltd, or equal approved.
 - 2.1. Product reference: Sadolin, or equal approved.
3. Surfaces: Existing and new Western Red Cedar.
 - 3.1. Preparation: As clauses 400, 440, 461 and 481.
4. Initial coats: Sadolin Classic Wood Protection.
 - 4.1. Number of coats: 1
 - 4.2. Colour:: To be approved.
5. Finishing coats: Sadolin Classic Wood Protection.
 - 5.1. Number of coats: 2

5.2. Colour:: To be approved.

176 Protective coating to exposed steel components

1. Description: To be compatible with existing coating.
2. Manufacturer: Submit proposals.
 - 2.1. Product reference: Submit proposals.
3. Surfaces: Existing and new steel.
 - 3.1. Preparation: As clauses 400, 440, 490 and 521.
4. Initial coats: Quick drying primer.
 - 4.1. Number of coats: 1
5. Undercoats: None
6. Finishing coats: Metal paint with satin sheen.
7. Application: Brush
 - 7.1. Number of coats: 2
 - 7.2. Colour: : To match existing.

Generally

210 Coating materials

1. Manufacturers: Obtain materials from any of the following:
2. Dulux Trade, or equivalent..
3. Selected manufacturers: Submit names before commencement of coating work.

215 Handling and storage

1. Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
2. Materials from more than one batch: Store separately. Allocate to distinct parts or areas of the work.

220 Compatibility

1. Coating materials selected by contractor
 - 1.1. Recommended by their manufacturers for the particular surface and conditions of exposure.
 - 1.2. Compatible with each other.
 - 1.3. Compatible with and not inhibiting performance of preservative/fire-retardant pretreatments.

240 Surfaces not to be coated

1. Radiator valves and stop valves.

280 Protection

1. 'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public, and to prevent damage to freshly applied coatings.

300 Control samples

1. Sample areas of finished work: Carry out, including preparation, as follows:
2. Types of coating Location
3. M60/160: 5 sqm in agreed location.
4. Approval of appearance: Obtain before commencement of general coating work.

Preparation

400 Preparation generally

1. **Standard:** In accordance with BS 6150.
2. **Refer to any pre-existing CDM Health and Safety File.**
3. **Refer to CDM Construction Phase Plan where applicable.**
4. **Suspected existing hazardous materials:** Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
5. **Preparation materials:** Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
6. **Substrates:** Sufficiently dry in depth to suit coating.
7. **Efflorescence salts:** Remove.
8. **Dirt, grease and oil:** Remove. Give notice if contamination of surfaces/ substrates has occurred.
9. **Surface irregularities:** Remove.
10. **Joints, cracks, holes and other depressions:** Fill flush with surface, to provide smooth finish.
11. **Dust, particles and residues from preparation:** Remove and dispose of safely.
12. **Water based stoppers and fillers**
 - 12.1. Apply before priming unless recommended otherwise by manufacturer.
 - 12.2. If applied after priming: Patch prime.
13. **Oil based stoppers and fillers:** Apply after priming.
14. **Doors, opening windows and other moving parts**
 - 14.1. Ease, if necessary, before coating.
 - 14.2. Prime resulting bare areas.

425 Ironmongery

1. **Removal:** Before commencing work: Remove ironmongery from surfaces to be coated.
2. **Hinges:** Do not remove
3. **Replacement:** Refurbishment as necessary; refit when coating is dry.

430 Existing ironmongery

1. **Refurbishment:** Remove old coating marks. Clean and polish.

440 Previously coated surfaces generally

1. **Preparation:** In accordance with BS 6150, clause 11.5.
2. **Contaminated or hazardous surfaces:** Give notice of:
 - 2.1. Coatings suspected of containing lead.
 - 2.2. Substrates suspected of containing asbestos or other hazardous materials.
 - 2.3. Significant rot, corrosion or other degradation of substrates.
3. **Suspected existing hazardous materials:** Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
4. **Removing coatings:** Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
5. **Loose, flaking or otherwise defective areas:** Carefully remove to a firm edge.
6. **Alkali affected coatings:** Completely remove.
7. **Retained coatings**

- 7.1. Thoroughly clean to remove dirt, grease and contaminants.
- 7.2. Gloss-coated surfaces: Provide key.
8. Partly removed coatings
 - 8.1. Additional preparatory coats: Apply to restore original coating thicknesses.
 - 8.2. Junctions: Provide flush surface.
9. Completely stripped surfaces: Prepare as for uncoated surfaces.

461 Previously coated wood

1. Degraded or weathered surface wood: Take back to provide suitable substrate.
2. Degraded substrate wood: Repair with sound material of same species.
3. Exposed resinous areas and knots: Apply two coats of knotting.

471 Preprimed wood

1. Areas of defective primer: Take back to bare wood and reprime.

481 Uncoated wood

1. General: Provide smooth, even finish with arrises and moulding edges lightly rounded or eased.
2. Heads of fasteners: Countersink sufficient to hold stoppers/fillers.
3. Resinous areas and knots: Apply two coats of knotting.

490 Previously coated steel

1. Defective paintwork: Remove to leave a firm edge and clean bright metal.
2. Sound paintwork: Provide key for subsequent coats.
3. Corrosion and loose scale: Take back to bare metal.
4. Residual rust: Treat with a proprietary removal solution.
5. Bare metal: Apply primer as soon as possible.
6. Remaining areas: Degrease.

500 Preprimed steel

1. Areas of defective primer, corrosion and loose scale: Take back to bare metal. Reprime as soon as possible.

511 Galvanized, sherardized and electroplated steel

1. White rust: Remove.
2. Pretreatment: Apply one of the following:
 - 2.1. Mordant solution to blacken whole surface.
 - 2.2. Etching primer recommended by coating system manufacturer.

521 Uncoated steel – manual cleaning

1. Oil and grease: Remove.
2. Corrosion, loose scale, welding slag and spatter: Remove.
3. Residual rust: Treat with a proprietary removal solution.
4. Primer: Apply as soon as possible.

541 Uncoated aluminium/ copper/ lead

1. Surface corrosion: Remove and lightly key surface.

2. Pretreatment: Etching primer if recommended by coating system manufacturer.

570 Uncoated masonry/ Rendering

1. Loose and flaking material: remove.

580 Uncoated plaster

1. Nibs, trowel marks and plaster splashes: Scrape off.
2. Overtrowelled 'polished' areas: Key lightly.

590 Uncoated plasterboard

1. Depressions around fixings: Fill with stoppers/ fillers

601 Uncoated plasterboard – to receive textured coating

1. Joints: Fill, tape and feather out with materials recommended by textured coating manufacturer.

622 Organic growths

1. Dead and loose growths and infected coatings: Scrape off and remove from site.
2. Treatment biocide: Apply appropriate solution to growth areas and surrounding surfaces.
3. Residual effect biocide: Apply appropriate solution to inhibit re-establishment of growths.

640 External pointing to existing frames

1. Defective sealant pointing: Remove.
2. Joint depth: Approximately half joint width; adjust with backing strip if necessary.
3. Sealant
 - 3.1. Manufacturer: Contractor's choice
 - 3.1.1. Product reference: Contractor's choice
 - 3.2. Preparation and application: As section Z22.

645 Sealing of internal movement joints

1. General: To junctions of walls and ceilings with architraves, skirtings and other trims.
2. Sealant: Waterborne acrylic.
 - 2.1. Manufacturer: Contractor's choice
 - 2.1.1. Product reference: Contractor's choice
 - 2.2. Preparation and application: As section Z22.

Application

711 Coating generally

1. Application standard: In accordance with BS 6150, clause 9.
2. Conditions: Maintain suitable temperature, humidity and air quality during application and drying.
3. Surfaces: Clean and dry at time of application.
4. Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.
5. Overpainting: Do not paint over intumescent strips or silicone mastics.
6. Priming coats
 - 6.1. Thickness: To suit surface porosity.
 - 6.2. Application: As soon as possible on same day as preparation is completed.

7. Finish

- 7.1. Even, smooth and of uniform colour.
- 7.2. Free from brush marks, sags, runs and other defects.
- 7.3. Cut in neatly.
- 8. **Doors, opening windows and other moving parts:** Ease before coating and between coats.

720 Priming joinery

- 1. **Preservative treated timber:** Retreat cut surfaces with two flood coats of a suitable preservative before priming.
- 2. **End grain:** Coat liberally allow to soak in, and recoat.

Ω End of Section

N10

General fixtures/ furnishings/ equipment

Products

240 Blinds

1. Description: To match existing.
2. Standard: To [BS EN 13120](#).
3. Manufacturer: Submit proposals
 - 3.1. Product reference: Submit proposals
4. Type: Vertical roller
5. Dimensions: To fit existing window and door openings.
6. Material: Fabric, 70% PVC and 30% polyester, 0.68 mm thick, weighing 480 gsm, with 1% screening, 8% light transmittance, 99% ultraviolet protection, 39% absorption, 49% heat reflectance and 4.5 colour fastness.
 - 6.1. Finish/ Colour: Light grey
7. Operation: Manual, stainless steel ball chain
8. Operating effort: Class 1
9. Testing: Not required
10. Mechanism endurance: Class 3
11. Accessories/ Other requirements: Aluminium bottom bar, fabric covered.

240 EX Standard blinds: Existing product for clause 240

1. Standard: To [BS EN 13120](#).
2. Manufacturer: Shadetech.
 - 2.1. Product reference: ShadeTECH R40 Premium Sidewinder.
3. Type: Vertical roller
4. Dimensions: To fit existing window and door openings.
5. Material: ShadeTECH Roe FR Fabric 1%.
 - 5.1. Finish/ Colour: Light grey
6. Operation: Manual, stainless steel ball chain
7. Operating effort: Class 1
8. Testing: Not required
9. Mechanism endurance: Class 3
10. Accessories/ Other requirements: Aluminium bottom bar, fabric covered.

Execution - Not Used

Completion - Not Used

Ω End of Section

N15

Internal fire and safety signage systems

General

110 Fire and safety signage systems

1. Description: FOR ESCAPE ROUTE
2. System manufacturer: Submit proposals
 - 2.1. System reference: Submit proposals
3. Locations and layout: Where survey has noted deficiencies on site.
 - 3.1. Language: English.
4. Material: Submit proposals
 - 4.1. Other properties: Refer to M&E specification for maintained systems.

System performance

205 Design of internal signage systems

1. Description: as required
2. Design: Complete detailed design and submit before commencing work.
3. Content: Signs including facing information, components, inserts, accessories and fixings necessary to complete the system.
4. Proposals: Submit drawings, schedules, technical information, calculations and manufacturer's literature before commencing work.

210 General requirements

1. Signage and way guiding system design: Submit proposals
 - 1.1. For fire escape and evacuation signage: In accordance with: BS 5499-4 or BS ISO 16069.
 - 1.2. For way guiding systems: In accordance with BS ISO 16069.
 - 1.3. For safety signs other than escape route signage: In accordance with: BS 5499-10.
2. Comply with the requirements of: Building Operation Report

220 Sign design and format

1. Description: Submit proposals
2. Format: In accordance with BS EN ISO 7010
3. Geometric shapes, colours and layout: In accordance with BS ISO 3864-1.
4. Design principles for graphical symbols: In accordance with BS ISO 3864-3.
5. Colorimetric and photometric properties of safety sign materials: In accordance with BS ISO 3864-4.

270 Fire reaction

1. Description: OF FIRE ESCAPE SIGNAGE SYSTEM
2. Non flammable surface
 - 2.1. Standard: Class 1 to BS 476-7 To Building Regulations TGD B

290 Signage samples

1. Sign type: Fire escape to Building regulations TGD B
 - 1.1. Action: Submit labelled samples.

- 1.2. **Conformity:** Retain samples on site for the duration of the contract or until instructed to remove.
- 1.3. **Delivered products:** To conform with labelled samples.

Products - Not Used

Execution

610 Fixing signs generally

1. **Installation:** Secure, plumb and level.
2. **Fasteners and adhesives:** As section Z20.
3. **Strength of fasteners:** Sufficient to support live and dead loads.
4. **Fixings showing on surface of sign:** Must not detract from the message being displayed.

Completion

910 Documentation

1. **Submit**
 - 1.1. **Manufacturer's maintenance instructions.**
 - 1.2. **Guarantees, warranties, test certificates, record schedules and logbooks.**

Ω End of Section

P10

Sundry insulation/ proofing work

Types of insulation

310 Vapour control layer

1. Description: To timber studs.
2. Manufacturer: Submit proposals.
 - 2.1. Product reference: Submit proposals.
3. Material: Composite of polypropylene, polyethylene and aluminium foil.
4. Minimum vapour resistance: 10,000 MN s/g.
5. Installation requirements
 - 5.1. Setting out: Joints minimized.
 - 5.2. Method of fixing: Staples at 250 mm centres maximum along all timber frames and supports; membrane not sagging.
 - 5.3. Joints: At supports only, lapped 150 mm minimum.
 - 5.4. Openings: Membrane fixed to reveals.
 - 5.5. Joints and edges: Sealed with double sided tape with vapour resistivity not less than the vapour control layer.
6. Penetrations: Sealed.
7. Other requirements: 75 x 25 mm metalized tape and compatible sealant.

311 Polymer-based adhesive air tightness sealant tapes Type A

1. Manufacturer: Submit proposals
2. Material: Specially coated, paper-based water repelling carrier.
3. Bond: Single-sided UV stable, moisture resistant, acrylic adhesive.
4. Air permeability: Air tight.
5. Size: 60 mm wide.
6. Colour: White/ purple.
7. Temperature resistance: -40°C to 80°C.
8. Sd value: To EN ISO 12572, 2.

321 Breather membrane - Fire retardant

1. Manufacturer: Submit proposals.
 - 1.1. Product reference: Submit proposals.
2. Installation requirements
 - 2.1. Setting out: Joints minimized. Membrane to form a continuous barrier to prevent water, snow and wind blown dust reaching the substrate.
 - 2.2. Method of fixing:
 - 2.3. Joints: Lapped 100 mm minimum horizontally and 150 mm minimum vertically.
 - 2.4. Openings: Membrane fixed to reveals.
 - 2.5. Bottom edges: Membrane lapped over flashings, sills, etc. to allow free drainage to the exterior.
3. Penetrations: Sealed.

435 Ventilated cavity barriers

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals
 2. **Material:** Rockwool stone wool
 3. **Size:** To manufacturers recommendations for cavity size.
 4. **Thickness:** To manufacturers recommendations for cavity size.
 5. **Fire resistance rating:** To BS EN 13501-2, EI 60.
 6. **Free air provision:** 25 mm
 7. **Installation requirements:** Continuous, with minimum joints.
 - 7.1. **Fasteners:** Stainless steel self drilling screws in selvage at 300 mm centres, to manufacturers installation recommendations, fixing method to be submitted for approval
 8. **Other requirements:** Contractor to assess existing structure for adequate fixing locations.
- Ω End of Section

P12 Fire-stopping systems

General

130 Fire-stopping system to individual services penetrations

1. Description: Through fire rated walls.
2. Fire resistance: As per fire remediation drawings
3. Penetration seal: Flexible intumescent gap sealer, as clause 330
 - 3.1. Size: varies
4. Gap sealer: Flexible intumescent gap sealer, as clause 330, max 10 mm
5. Capping sealant: intumescent
 - 5.1. Colour: White unless otherwise agreed

160 Linear gap sealing

1. Description: In fire-resisting walls
2. Fire resistance: As per fire remediation drawings
3. Gap width or height (nominal): 15 mm
4. Gap filler: Flexible intumescent gap sealer, as clause 330. Submit Proposals.
5. Capping sealant: Fire-resisting silicone, as clause 390
 - 5.1. Colour: White unless otherwise agreed
6. Environmental performance::
 - 6.1. Environmental rating::
To be less than 12.5 kg CO₂ per kg for global warming potential (GWP) stages A1–C4 as verified in the EPD
 - 6.2. Volatile organic compounds (VOC) emissions level (maximum):: To be no greater than 0.3 mg/m².

System performance

210 Design

1. Design: Complete the design of the fire-stopping system.
2. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

240 Fire performance

1. Description: Compartment floors
2. Resistance to fire: To BS EN 13501-2, EI 60 or better
3. Reaction to fire: To BS EN 13501-1, Class A1
4. Smoke resistance
 - 4.1. Air leakage rate (maximum): Not applicable

260 Design life

1. Effective design life: 30 years

Products

305 Product certification

1. **Certification:** For products specified generically, submit evidence of compliance with the specification.
2. **Acceptable evidence:** Declaration of Performance (DoP)

310 Boards

1. **Description:** Calcium silicate fibre reinforced board
2. **Manufacturer:** Core board, Submit proposals
 - 2.1. **Product reference:** Submit proposals

310 Boards Type A

1. **Description:** Exfoliated vermiculite board
2. **Manufacturer:** Encasement board, Submit proposals
 - 2.1. **Product reference:** Submit proposals

310 Boards Type B

1. **Description:** Mineral-bound lightweight board
2. **Manufacturer:** Shaft wall/ceiling board, Submit proposals
 - 2.1. **Product reference:** Submit proposals

330 Flexible intumescent gap sealer

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals
2. **Strip width:** Wider than joint width to manufacturers guidance
3. **Approval:** Declaration of Performance (DoP)

338 Intumescent mastic

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Fire resistant Silicone sealant.

340 Intumescent mortar

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals

342 Fire-resisting mortar

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals.

345 Intumescent pillows

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals
2. **Composition:** Sealed polyethylene bags containing graphite and vermiculite granules treated with fire activated chemicals.
3. **Integral reinforced eyelets:** Required.
4. **Linking cable:** Non-corrosive cotton-coated wire.

350 Intumescent putty pads

1. Manufacturer: Submit proposals
 - 1.1. Product reference: Submit proposals

360 Mineral wool batts

1. Standard: To BS EN 13501-1.
2. Surface treatment: Unfaced
3. Manufacturer: Submit proposals
 - 3.1. Product reference: Stone mineral wool 100kg per m3, Euroclass A1
4. Recycled content: None permitted

361 Fire Protection Board Type 1

1. Standard: To BS EN 13501-2.
2. Surface treatment: Ablative coating
3. Manufacturer: Submit proposals
 - 3.1. Product reference: Stone mineral wool 160 kg per m3, Euroclass A1 .
4. Recycled content: None permitted
5. Moisture Resistance: High vapour and water resistance
6. Environmental Condition: Type X

362 Mineral wool batts Type 2

1. Standard: To BS EN 13501-1.
2. Surface treatment: Unfaced
3. Manufacturer: Submit proposals
 - 3.1. Product reference: Stone mineral wool 140kg per m3, Euroclass 1
4. Recycled content: None permitted

370 Pipe collar

1. Type: Surface mounted intumescent pipe collar
2. Manufacturer: Submit Proposals
 - 2.1. Product reference: Submit Proposals

371 Pipe sleeve

1. Type: Concealed intumescent pipe sleeve
2. Manufacturer: Submit Proposals
 - 2.1. Product reference: Submit Proposals

372 Pipe box

1. Type: Semi-recessed intumescent pipe box
2. Manufacturer: Submit Proposals
 - 2.1. Product reference: Submit Proposals

373 Fire Wrap

1. Type:: Graphite-based product pipe closure device.
2. Manufacturer: Submit proposals

- 2.1. Product reference: Submit proposals

Execution

435 Ventilated cavity barriers

1. Manufacturer: Submit proposals
 - 1.1. Product reference: Submit proposals
2. Material: Rockwool stone wool
3. Size: To manufacturers recommendations for cavity size.
4. Thickness: To manufacturers recommendations for cavity size.
5. Fire resistance rating: To BS EN 13501-2, EI 60.
6. Free air provision: 25 mm
7. Installation requirements: Continuous, with minimum joints.
 - 7.1. Fasteners: Stainless steel self drilling screws in selvage at 300 mm centres, to manufacturers installation recommendations, fixing method to be submitted for approval
8. Other requirements: Contractor to assess existing structure for adequate fixing locations.

610 Third-party-certified installer

1. Certification: For the technical competency of the installer of the evidence of compliance with a third-party installation certification scheme.
2. Acceptable evidence: FIRAS Installer Certification

620 Workmanship generally

1. Gaps: Seal between building elements and services, to provide effective resistance to fire and the passage of smoke. Allow for capping sealants where required. Finish flush with surrounds.
2. Adjacent surfaces: Prevent overrun of filler, sealant or mortar on to finished surfaces.

730 Fixing pipe collars

1. Collar fixing: Plugged and screwed as recommended by fire stopping manufacturer.
2. Gap around collar: Seal with gap filler and sealant.
3. Length of wraps: Not applicable

731 Fixing pipe sleeves

1. Sleeve fixing: Push fit.
2. Gap around sleeve: Seal with gap filler and sealant

732 Fixing pipe box

1. Box fixing: As recommended by fire stopping manufacturer.
2. Gap around box: Seal with gap filler and sealant.

Completion

910 Cleaning

1. Masking tapes: Remove.
2. Cleaning: Clean off splashes and droppings. Wipe down finishes.

920 Inspection

1. Notice for inspection (minimum): Five working days

930A Fire stopping schedule

1. **Requirements :** Prepare a schedule listing all of the Fire stopping systems installed, their location, the design numbers, model and type, date of installation and name address and contact details of the Approved Fire Proofing Contractor. Provide two copies to the Employer's Representative, one paper and one electronic copy upon final inspection and third party certified approval of the installed fire proofing. Refer also to the Preliminaries Specification for additional requirements for fire stopping/proofing installation and inspection requirements.

Ω End of Section

P20

Unframed isolated trims/ skirtings/ sundry items

To be read with preliminaries/ general conditions

120 Hardwood Architraves

1. Description: Hardwood architraves to internal door openings.
2. Quality of wood and fixing: To BS 1186-3.
 - 2.1. Species: Hardwood suitable for internal joinery, selected to provide a sound, durable and stable finished component appropriate to the location and specified finish.
3. Moisture content at time of fixing: Appropriate to the environmental conditions at the time of installation and anticipated conditions in service.
4. Reaction to fire rating: Where associated with fire-resisting doorsets, architraves, associated components and installation are not to compromise the tested or assessed performance of the complete doorset.
5. Profile: To drawings and schedules. Provide consistent profile throughout corresponding areas.
 - 5.1. Finished size: To drawings and door schedules. Finished sizes to be maintained within normal joinery tolerances.
6. Finish as delivered: Suitable to receive specified decorative finish. Where clear finished, timber to be selected for consistent appearance, grain and colour.
7. Fixing: Appropriate to substrate and loading. Conceal fixings where practicable. Fixing materials to be compatible with the timber and specified finish

121 Hardwood Skirting

1. Description: Hardwood architraves to internal door openings.
2. Quality of wood and fixing: To BS 1186-3.
 - 2.1. Species: Hardwood suitable for internal joinery, selected to provide a sound, durable and stable finished component appropriate to the location and specified finish.
3. Moisture content at time of fixing: Appropriate to the environmental conditions at the time of installation and anticipated conditions in service.
4. Profile: To drawings and schedules. Provide consistent profile throughout corresponding areas.
 - 4.1. Finished size: To drawings and door schedules. Finished sizes to be maintained within normal joinery tolerances.
5. Finish as delivered: Suitable to receive specified decorative finish. Where clear finished, timber to be selected for consistent appearance, grain and colour.
6. Fixing: Appropriate to substrate and loading. Conceal fixings where practicable. Fixing materials to be compatible with the timber and specified finish

150 Metal window boards

1. Material: Aluminium.
 - 1.1. Thickness: 2 mm
2. Finish: Polyester powder coating as section Z31, colour/ texture RAL 9010/ Matt.
3. Fixing: Adhesive as section Z20
4. Metalwork: As section Z11.

200 Medium-density fibreboard

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Contractor's choice

2. Standard: To BS EN 622-5.
 - 2.1. Type: MDF
 - 2.2. Formaldehyde class: To BS EN 622-1, class E1.
3. Reaction to fire rating: Class 0 as defined in Building Regulations.
4. Thickness: Site dimensions x 25 mm thick.
5. Edges: To match existing.
6. Finish: Prepared and primed, as section M60
7. Recycled content: Contractor's choice
8. Support/ Fixing: Fix to softwood grounds with lost head nails at 600 mm centres.

201 Medium density fibreboard skirting boards

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Contractor's choice
2. Standard: To BS EN 622-5.
 - 2.1. Type: MDF
 - 2.2. Formaldehyde class: To BS EN 622-1, class E1.
3. Reaction to fire rating: Class 0 as defined in Building Regulations.
4. Thickness: To match existing.
5. Edges: To match existing.
6. Finish: Prepared and primed, as section M60
7. Recycled content: Contractor's choice
8. Support/ Fixing: Fix to softwood grounds with lost head nails at 600 mm centres.

202 Medium density fibreboard architraves

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Contractor's choice
2. Standard: To BS EN 622-5.
 - 2.1. Type: MDF
 - 2.2. Formaldehyde class: To BS EN 622-1, class E1.
3. Reaction to fire rating: Class 0 as defined in Building Regulations.
4. Thickness: To match existing.
5. Edges: To match existing.
6. Finish: Prepared and primed, as section M60
7. Recycled content: Contractor's choice
8. Support/ Fixing: Fix to softwood grounds with lost head nails at 600 mm centres.

450 Proprietary cappings to sheathing board

1. Manufacturer: Grommets Ltd, or equivalent.
 - 1.1. Product reference: Grommets Tapered Bung, reference G11-TB220-200-230, or equivalent
2. Type/ Size: 22 x 20 x 32 mm.
3. Finish/Colour: Black.
4. Fixing: Push fit.

Execution

510 Installation generally

1. Joinery workmanship: As section Z10.
2. Metal workmanship: As section Z11.
3. Methods of fixing and fasteners: As section Z20 where not specified.
4. Straight runs: To be in one piece, or in long lengths with as few joints as possible.
5. Running joints: Location and method of forming to be agreed where not detailed.
6. Joints at angles:
7. Position and level: To be agreed where not detailed.

Ω End of Section

P21

Door/ window ironmongery

Pre-tender

10 Quantities and locations

1. Quantities and locations of ironmongery are in the door and ironmongery schedules .
2. Fixing: As sections L10 and L20.

64 Door viewers / peepholes

1. Description:: To entrance doors where indicated on door/ironmongery schedule.
2. Manufacturer:: Contractor to submit proposals.
3. Product reference:: Contractor to submit proposals.
4. Type:: Security door viewer / peephole, wide-angle type.
5. Viewing angle:: Minimum 180°.
6. Door thickness:: To suit door leaf thickness.
7. Material/ finish:: Satin stainless steel, grade 316, to match adjacent door ironmongery.
8. Accessibility:: Viewing height and arrangement to comply with applicable accessibility requirements and as indicated on drawings/door schedule.
9. Fire-rated doors:: Where fitted to a fire-resisting door, door viewer to be suitable for the required fire-resistance rating and included within, or otherwise supported by, the door assembly's Global Fire Resistance Assessment / certification.
10. Fixing:: Through-fixed in accordance with manufacturer's recommendations.

General

120 Ironmongery range selected by Contractor

1. Source: Single co-ordinated range.
2. Notification: Submit details of selected range, manufacturer and/ or supplier.
3. Principal material/ finish: Satin anodized aluminium, colour silver.
4. Items unavailable within selected range: Submit proposals.

141 Sample boards

1. General: Before placing orders with suppliers submit a sample board, containing labelled samples of ironmongery and showing methods of fixing.
2. Range: Include
 - 2.1. Conformity: Retain board on site in an approved location for the duration of the Contract. Ensure conformity of ironmongery as delivered with labelled samples.

170 Ironmongery for fire doors

1. Relevant products: Ironmongery fixed to, or morticed into, the component parts of a fire resisting door assembly.
2. Compliance: Ironmongery included in successful tests to BS 476-22 or BS EN 1634-1 on door assemblies similar to those proposed.
 - 2.1. Certification: Submit CERTIFIRE certificates
3. Melting point of components (except decorative non-functional parts): 800°C minimum.

180 Strength class or category of duty for door ironmongery

1. Requirement: To BS EN 1192, Class 3-4
2. General: Durability of ironmongery components to be compatible with stated category of duty of each door leaf.
 - 2.1. Exclusions: Ironmongery with specific duty or 'category of use' defined elsewhere.
 - 2.2. Documentation: Before placing orders with suppliers submit documentation showing product compliance with stated category of duty.

Door hanging devices

313 Intumescent Hinge Protector

1. Description: Intumescent hinge protector to internal fire rated doors
2. Type: Fire rated Intumescent Hingeplate Protector
3. Size: As per hinge/global fire resistance assessment for fire doors /door manufacturer requirements
4. Material/ finish: Black finish
5. Other requirements:
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Contractor to submit proposals

315 Performance specification for single axis door hinges Type A

1. Description: To internal fire doors
2. Standard: To BS EN 1935.
 - 2.1. Hinges to doors on escape routes and fire/ smoke control doors: CE marked.
3. Minimum classification grades
 - 3.1. Category of use: 4
 - 3.2. Durability: 7
 - 3.3. Test door mass: 6, As recommended Global Fire Resistance Assessment for Fire Door and door manufacturer
 - 3.4. Suitability for use on fire/ smoke doors: 1
 - 3.5. Safety: 1.
 - 3.6. Corrosion resistance: 4
 - 3.7. Security - Burglar resistance: 0
 - 3.8. Hinge grade: 13
4. Type: Ball bearing hinge, as recommended by Global Fire Resistance Assessment for Fire Door
5. Size: 102 x 76 mm, as recommended by global certificate
6. Material/ finish: grade 316 satin stainless steel
7. Other requirements:
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Contractor to submit proposals

316 Performance specification for single axis door hinges Type B

1. Description: To internal non fire rated doors
2. Standard: To BS EN 1935.
 - 2.1. Hinges to doors on escape routes and fire/ smoke control doors: CE marked.
3. Minimum classification grades

- 3.1. Category of use: 4
- 3.2. Durability: 7
- 3.3. Test door mass: 6, as recommended by door manufacturer
- 3.4. Suitability for use on fire/ smoke doors: 0
- 3.5. Safety: 1.
- 3.6. Corrosion resistance: 4
- 3.7. Security - Burglar resistance: 0
- 3.8. Hinge grade: 13
4. Type: Ball bearing hinge
5. Size: 102 x 76 mm, as recommended by manufacturer
6. Material/ finish: grade 316 satin stainless steel.
7. Other requirements:
 - Contractor to submit proposals

Window hanging devices - Not Used

Door operating devices

409 Intumescent overhead door closer protector

1. Description: intumescent overhead protector to internal fire rated doors
2. Type: Fire rated Intumescent protector for overhead door closer
3. Size: As per overhead door closer/global fire resistance assessment for fire doors/door manufacturer and overhead closer requirements
4. Material/ finish: Black finish
5. Other requirements:
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Contractor to submit proposals

412 Performance specification for overhead door closers Type A

1. Description: To internal fire doors
2. Standard: To BS EN 1154.
 - 2.1. Door closing devices to fire/ smoke control doors: CE marked.
3. Minimum classification grades
 - 3.1. Category of use: 4
 - 3.2. Durability: 8.
 - 3.3. Door closer power size: min 3, as recommended by door manufacturer, Global Fire Resistance Assessment for Fire Door and door leaf width
 - 3.4. Suitability for use on fire/ smoke doors: 1
 - 3.5. Safety: 1.
 - 3.6. Corrosion resistance: 3
4. Type: Overhead Face fixed, as per Global Fire Resistance Assessment for Fire Door
5. Other functions: Back check
6. Casing finish: grade 316 satin stainless steel
7. Operational adjustment
 - 7.1. Variable power: Matched to the sizes and weights of doors.
 - 7.2. Latched doors: Override latches and/ or door seals when fitted.

- 7.3. Unlatched doors: Hold shut under normal working conditions.
- 7.4. Closing against smoke seals of fire doors: Positive. No gaps.
- 8. Other requirements:
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Third party test evidence to demonstrate their ability to produce low opening forces and help doorsets meet the requirements of TGD M, BS8300 and ADM
 - Contractor to submit proposals

413 Performance specification for overhead door closers Type B

- 1. Description: To internal non fire rated doors
- 2. Standard: To BS EN 1154.
 - 2.1. Door closing devices to fire/ smoke control doors: CE marked.
- 3. Minimum classification grades
 - 3.1. Category of use: 4
 - 3.2. Durability: 8.
 - 3.3. Door closer power size: 3, as recommended by door manufacturer and door leaf width
 - 3.4. Suitability for use on fire/ smoke doors: 0
 - 3.5. Safety: 1.
 - 3.6. Corrosion resistance: 3
- 4. Type: Overhead Face fixed
- 5. Other functions: Back check
- 6. Casing finish: grade 316 satin stainless steel
- 7. Operational adjustment
 - 7.1. Variable power: Matched to the sizes and weights of doors.
 - 7.2. Latched doors: Override latches and/ or door seals when fitted.
 - 7.3. Unlatched doors: Hold shut under normal working conditions.
 - 7.4. Closing against smoke seals of fire doors: Positive. No gaps.
- 8. Other requirements:
 - Third party test evidence to demonstrate their ability to produce low opening forces and help doorsets meet the requirements of TGD M, BS8300 and ADM
 - Contractor to submit proposals

449 Intumescent floor spring protector

- 1. Description: Intumescent floor spring protector to internal fire rated doors
- 2. Type: Fire Rated Intumescent floor spring protector
- 3. As per floor spring/global fire resistance assessment for fire doors/ door manufacturer and floor spring requirements
- 4. Material/ finish: Black finish
- 5. Other requirements:
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Contractor to submit proposals

452 Performance specification for floor springs Type A

- 1. Description: To internal fire doors
- 2. Standard: To BS EN 1154.
 - 2.1. Door closing devices to fire/ smoke control doors: CE marked.

3. Minimum classification grades
 - 3.1. Category of use: 4
 - 3.2. Durability: 8.
 - 3.3. Door closer power size: min 3, as recommended by door manufacturer, Global Fire Resistance Assessment for Fire Door and door leaf width
 - 3.4. Suitability for use on fire/ smoke doors: 1
 - 3.5. Safety: 1.
 - 3.6. Corrosion resistance: 3
4. Other functions: Back check
5. Material/ finish: grade 316 satin stainless steel
6. Operational adjustment
 - 6.1. Variable power: Matched to size, weight and location of doors.
 - 6.2. Latched doors: Override latches and/ or door seals when fitted.
 - 6.3. Unlatched doors: Hold shut under normal working conditions.
7. Other requirements:
 - Suitable for fire doors
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Contractor to submit proposals

453 Performance specification for floor springs Type B

1. Description: To internal non fire rated doors
2. Standard: To BS EN 1154.
 - 2.1. Door closing devices to fire/ smoke control doors: CE marked.
3. Minimum classification grades
 - 3.1. Category of use: 4
 - 3.2. Durability: 8.
 - 3.3. Door closer power size: min 3, as recommended by door manufacturer, Global Fire Resistance Assessment for Fire Door and door leaf width
 - 3.4. Suitability for use on fire/ smoke doors: 0
 - 3.5. Safety: 1.
 - 3.6. Corrosion resistance: 3
4. Other functions: Back check
5. Material/ finish: grade 316 satin stainless steel
6. Operational adjustment
 - 6.1. Variable power: Matched to size, weight and location of doors.
 - 6.2. Latched doors: Override latches and/ or door seals when fitted.
 - 6.3. Unlatched doors: Hold shut under normal working conditions.
7. Other requirements:
 - Suitable for fire doors
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Contractor to submit proposals

472 Performance specification for electromagnetic hold open/ swing Free devices Type A

1. Description: To internal fire doors
2. Standard: To BS EN 1155.

- 2.1. Electromagnetic devices to fire/ smoke control doors: CE marked.
3. Type: Door retaining magnet, separate wall mounted
4. Minimum classification grades
 - 4.1. Category of use: 3.
 - 4.2. Durability: 8
 - 4.3. Hold open power size: min 3, as recommended by door supplier and door leaf width
 - 4.4. Suitability for use on fire/ smoke doors: 1.
 - 4.5. Safety: 1.
 - 4.6. Corrosion resistance: 3
5. Material/ finish: grade 316 satin stainless steel
6. Means of release: Alarm system and/ or failure of power supply.
7. Test switch: Located in a convenient position adjacent to door.
8. Operational adjustment of integral closer
 - 8.1. Variable power: Matched to size, weight and location of doors.
 - 8.2. Latched doors: Override latches and/ or door seals when fitted.
 - 8.3. Unlatched doors: Hold shut under normal working conditions.
9. Other requirements: Contractor to submit proposals to AFEC Electrical specification

473 Performance specification for electromagnetic hold open/ swing Free devices Type B

1. Description: To internal non fire rated doors
2. Standard: To BS EN 1155.
 - 2.1. Electromagnetic devices to fire/ smoke control doors: CE marked.
3. Type: Door retaining magnet, separate wall mounted
4. Minimum classification grades
 - 4.1. Category of use: 3.
 - 4.2. Durability: 8
 - 4.3. Hold open power size: min 3, as recommended by door supplier and door leaf width
 - 4.4. Suitability for use on fire/ smoke doors: 0
 - 4.5. Safety: 1.
 - 4.6. Corrosion resistance: 3
5. Material/ finish: grade 316 satin stainless steel
6. Means of release: Alarm system and/ or failure of power supply.
7. Test switch: Located in a convenient position adjacent to door.
8. Operational adjustment of integral closer
 - 8.1. Variable power: Matched to size, weight and location of doors.
 - 8.2. Latched doors: Override latches and/ or door seals when fitted.
 - 8.3. Unlatched doors: Hold shut under normal working conditions.
9. Other requirements: Contractor to submit proposals

Door securing devices

513 Intumescent lock protector

1. Description: Intumescent lock protector to internal fire rated doors
2. Type: Fire Rated Intumescent Lock Protector

3. Size: As per lock/global fire resistance assessment for fire doors/door manufacturer and lock requirements
4. Material/finish: Black finish
5. Other requirements:
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Contractor to submit proposals

515 Door locks (Sashlock case) Type A

1. Description: To fire rated doors
2. Standard: To BS EN 12209.
3. Manufacturer: Contractor to submit proposals
 - 3.1. Product reference: Contractor to submit proposals
4. Type: Mortice Sashlock case
5. Backset: 55, 60, as recommended by door manufacturer
6. Material/ finish: grade 316 satin stainless steel.
7. Keying: n/a
8. Other requirements:
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Contractor to submit proposals

516 Door locks (Sashlock case) Type B

1. Description: To non fire rated doors
2. Standard: To BS EN 12209.
3. Manufacturer: Contractor to submit proposals
 - 3.1. Product reference: Contractor to submit proposals
4. Type: Mortice Sashlock case
5. Backset: 55, 60, as recommended by door manufacturer
6. Material/ finish: grade 316 satin stainless steel.
7. Keying: n/a
8. Other requirements:
 - Contractor to submit proposals

517 Door locks (Deadlock case) Type A

1. Description: To fire rated doors
2. Standard: To BS EN 12209.
3. Manufacturer: Contractor to submit proposals
 - 3.1. Product reference: Contractor to submit proposals
4. Type: Mortice Deadlock case
5. Backset: 55, 60, as recommended by door manufacturer
6. Material/ finish: grade 316 satin stainless steel
7. Keying: n/a
8. Other requirements: In compliance with Global Fire Resistance Assessment for Fire Door

518 Door locks (Deadlock case) Type B

1. Description: To non fire rated doors

2. Standard: To BS EN 12209.
3. Manufacturer: Contractor to submit proposals
 - 3.1. Product reference: Contractor to submit proposals
4. Type: Mortice Deadlock case
5. Backset: 55, 60, as recommended by door manufacturer
6. Material/ finish: grade 316 satin stainless steel
7. Keying: n/a
8. Other requirements: n/a

519 Door locks (Single & Turn Cylinder Locks) Type A

1. Description: To fire rated doors
2. Standard: To BS EN 1303
3. Manufacturer: Contractor to submit proposals
 - 3.1. Product reference: Contractor to submit proposals
4. Type: Single and Turn Cylinder
5. Size: To match door, as per recommendations of door manufacturer
6. Material/ finish: grade 316 satin stainless steel.
7. Keying: In master keyed suite
8. Other requirements: In compliance with Global Fire Resistance Assessment for Fire Door

520 Door locks (Single & Turn Cylinder Locks) Type B

1. Description: To non fire rated doors
2. Standard: To BS EN 1303
3. Manufacturer: Contractor to submit proposals
 - 3.1. Product reference: Contractor to submit proposals
4. Type: Single and Turn Cylinder
5. Size: To match door, as per recommendations of door manufacturer
6. Material/ finish: grade 316 satin stainless steel.
7. Keying: In master keyed suite
8. Other requirements: n/a

521 Door locks (Single Cylinder Locks) Type A

1. Description: To fire rated doors
2. Standard: To BS EN 1303
3. Manufacturer: Contractor to submit proposals
 - 3.1. Product reference: Contractor to submit proposals
4. Type: Single Cylinder
5. Size: To match door, as per recommendations of door manufacturer
6. Material/ finish: grade 316 satin stainless steel.
7. Keying: In master keyed suite
8. Other requirements: In compliance with Global Fire Resistance Assessment for Fire Door

522 Door locks (Single Cylinder Locks) Type B

1. Description: To non fire rated doors
2. Standard: To BS EN 1303

3. Manufacturer: Contractor to submit proposals
 - 3.1. Product reference: Contractor to submit proposals
4. Type: Single Cylinder
5. Size: To match door, as per recommendations of door manufacturer
6. Material/ finish: grade 316 satin stainless steel.
7. Keying: In master keyed suite
8. Other requirements: n/a

525 Performance specification for door locks and latches Type A

1. Description: To internal fire doors
2. Standard: To BS EN 12209.
3. Minimum classification grades
 - 3.1. Category of use: 3
 - 3.2. Durability: S
 - 3.3. Door mass and closing force: 8
 - 3.4. Suitability for use on fire/ smoke doors: 1
 - 3.5. Safety: 0.
 - 3.6. Corrosion resistance and temperature: F
 - 3.7. Security and drill resistance: 2
 - 3.8. Field of door application: B
 - 3.9. Type of key operation and locking: C
 - 3.10. Type of spindle operation: 2
 - 3.11. Key identification requirement: 0
4. Backset: 55, 60, as per manufacturer supplier
5. Material/ finish: grade 316 satin stainless steel
6. Keying: In master keyed suite
7. Other requirements:
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Intumescent lock casings to be fitted to door locks installed in fire doors, in accordance with Global Fire Resistance Assessment for fire doors and fire certificate for lock
 - Contractor to submit proposals
 - Thumb turn devices to have large turning knobs

525 Performance specification for door locks and latches Type B

1. Description: To external doors.
2. Standard: To BS EN 12209.
3. Minimum classification grades
 - 3.1. Category of use: 3
 - 3.2. Durability: R.
 - 3.3. Door mass and closing force: Consult door manufacturer.
 - 3.4. Suitability for use on fire/ smoke doors: 1
 - 3.5. Safety: 0.
 - 3.6. Corrosion resistance and temperature: D
 - 3.7. Security and drill resistance: 5
 - 3.8. Field of door application: Submit proposals.

- 3.9. Type of key operation and locking: C.
- 3.10. Type of spindle operation: 3
- 3.11. Key identification requirement: E.
- 4. Backset: Consult lockset manufacturer.
- 5. Material/ finish: Stainless steel faceplate.
- 6. Keying: In master keyed suite

526 Performance specification for door locks and latches Type B

- 1. Description: To internal non fire rated doors
- 2. Standard: To BS EN 12209.
- 3. Minimum classification grades
 - 3.1. Category of use: 3
 - 3.2. Durability: S
 - 3.3. Door mass and closing force: 8
 - 3.4. Suitability for use on fire/ smoke doors: 0
 - 3.5. Safety: 0.
 - 3.6. Corrosion resistance and temperature: F
 - 3.7. Security and drill resistance: 2
 - 3.8. Field of door application: B
 - 3.9. Type of key operation and locking: C
 - 3.10. Type of spindle operation: 2
 - 3.11. Key identification requirement: 0
- 4. Backset: 55, 60, as per manufacturer supplier
- 5. Material/ finish: As per CPA specification
- 6. Keying: In master keyed suite
- 7. Other requirements:
- 8.
 - Contractor to submit proposals
 - Thumb turn devices to have large turning knobs

527 Performance specification for cylinder locks Type A

- 1. Description: To internal fire doors
- 2. Standard: To BS EN 1303
- 3. Minimum classification grades
 - 3.1. Category of use: 3
 - 3.2. Durability: 6
 - 3.3. Door mass and closing force: 0
 - 3.4. Suitability for use on fire/ smoke doors: 1
 - 3.5. Safety: 0.
 - 3.6. Corrosion resistance and temperature: C
 - 3.7. Key related security: 6
 - 3.8. Attach resistance: 0
- 4. Material/ finish: grade 316 satin stainless steel
- 5. Keying: In master keyed suite
- 6. Other requirements:

- In compliance with Global Fire Resistance Assessment for Fire Door
- Contractor to submit proposals
- Thumb turn devices to have large turning knobs

528 Performance specification for cylinder locks Type B

1. Description: To internal non fire rated doors
2. Standard: To BS EN 1303
3. Minimum classification grades
 - 3.1. Category of use: 3
 - 3.2. Durability: 6
 - 3.3. Door mass and closing force: 0
 - 3.4. Suitability for use on fire/ smoke doors: 0
 - 3.5. Safety: 0.
 - 3.6. Corrosion resistance and temperature: C
 - 3.7. Key related security: 6
 - 3.8. Attach resistance: 0
4. Material/ finish: grade 316 satin stainless steel
5. Keying: In master keyed suite
6. Other requirements:
 - Contractor to submit proposals
 - Thumb turn devices to have large turning knobs

529 Performance specification for cylinder locks Type C

1. Description: To external doors.
2. Standard: To BS EN 12209.
3. Minimum classification grades
 - 3.1. Category of use: 3
 - 3.2. Durability: R
 - 3.3. Door mass and closing force: Consult door manufacturer.
 - 3.4. Suitability for use on fire/ smoke doors: 1
 - 3.5. Safety: 0.
 - 3.6. Corrosion resistance and temperature: D
 - 3.7. Security and drill resistance: 5
 - 3.8. Field of door application: Submit proposals.
 - 3.9. Type of key operation and locking: C
 - 3.10. Type of spindle operation: 3
 - 3.11. Key identification requirement: E
4. Backset: Consult lockset manufacturer.
5. Material/ finish: Stainless steel faceplate
6. Keying: In master keyed suite

578 Performance specification for panic exit devices

1. Description: To final exits and escape routes
2. Standard: To BS EN 1125.
 - 2.1. Panic exit devices for locked doors on escape routes: CE marked.

3. Minimum classification grades
 - 3.1. Category of use: 3.
 - 3.2. Durability: 7
 - 3.3. Door mass: 5-6, as recommended by door manufacturer and door leaf width
 - 3.4. Suitability for use on fire/ smoke doors: 0
 - 3.5. Safety: 1.
 - 3.6. Corrosion resistance: 4
 - 3.7. Security: 2.
 - 3.8. Projection of bar: 2
 - 3.9. Type of bar operation: A: Push bar operation
4. Material/ finish: To be approved
5. Additional requirements:
 - External locking attachment with lever handle to be suited with other locks and security alarmed; 'PUSH BAR TO OPEN' marked on bars

583 Intumescent Flushbolt Protector

1. Description: Intumescent flushbolt protector installed on fire rated doors
2. Standard: No harmonised European Norm
3. Other Test Evidence: EN1634-1: 30 & 60 minutes
4. Manufacturer: Contractor to submit proposals
 - 4.1. Product reference: Contractor to submit proposals
5. Type: Fire rated Graphite Based Intumescent Flushbolt protector
6. Size: D2 mm
7. Material/ finish: Black, self adhesive
8. Additional requirements:
 - Suits radius and square forend
 - In compliance with Global Fire Resistance Assessment for Fire Door

584 Performance specification for door bolts (Lever Action Flush Bolt, Type A)

1. Description: To internal fire doors, to passive leaf of double doors or cat and kitten doors
2. Standard: To BS EN 12051.
3. Minimum classification grades
 - 3.1. Category of use: 3
 - 3.2. Number of test cycles: 4
 - 3.3. Door mass: - (no classification).
 - 3.4. Fire safety: 1
 - 3.5. Safety in use: 1
 - 3.6. Corrosion resistance: 1
 - 3.7. Security: 1
4. Type: Lever Action Flush Bolt
5. Size: 200 mm
6. Material/ finish: grade 316 satin stainless steel
7. Additional requirements:
 - Dirt excluding receivers
 - Contractor to submit proposals

- In compliance with Global Fire Resistance Assessment for Fire Door
- Intumescent materials tested to be fitted to fire door bolts as per Global Fire Resistance Assessment for fire doors

585 Performance specification for door bolts (Lever Action Flush Bolt, Type B)

1. **Description:** To internal non fire rated doors, to passive leaf of double doors or cat and kitten doors
2. **Standard:** To BS EN 12051.
3. **Minimum classification grades**
 - 3.1. **Category of use:** 3
 - 3.2. **Number of test cycles:** 4
 - 3.3. **Door mass:** - (no classification).
 - 3.4. **Fire safety:** 0
 - 3.5. **Safety in use:** 1
 - 3.6. **Corrosion resistance:** 1
 - 3.7. **Security:** 1
4. **Type:** Lever Action Flush Bolt
5. **Size:** 200 mm
6. **Material/ finish:** grade 316 satin stainless steel
7. **Additional requirements:**
 - Dirt excluding receivers
 - Contractor to submit proposals

586 Performance specification for door bolts (Flush slide)

1. **Description:** To internal fire doors to electrical/services rooms
2. **Standard:** To BS EN 12051.
3. **Minimum classification grades**
 - 3.1. **Category of use:** 3
 - 3.2. **Number of test cycles:** 4
 - 3.3. **Door mass:** - (no classification).
 - 3.4. **Fire safety:** 1
 - 3.5. **Safety in use:** 1
 - 3.6. **Corrosion resistance:** 1
 - 3.7. **Security:** 1
4. **Type:** Flush slide
5. **Size:** As recommended by door manufacturer
6. **Material/ finish:** grade 316 satin stainless steel
7. **Additional requirements:**
 - Contractor to submit proposals
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Intumescent materials tested to be fitted to fire door bolts as per Global Fire Resistance Assessment for fire doors

Window securing devices - Not Used

Door furniture

622 Performance specification for lever handle sets Type A

1. Description: To internal fire doors
2. Standard: To BS EN 1906 and TGD M
3. Minimum classification grades
 - 3.1. Category of use: 4
 - 3.2. Durability: 7
 - 3.3. Door mass: - (no classification).
 - 3.4. Fire resistance: B
 - 3.5. Safety: 1
 - 3.6. Corrosion resistance: 3
 - 3.7. Security: 0
 - 3.8. Type of operation: U
4. Style: Round Bar Return to Door
5. Size: 19 mm diameter
6. Material/ finish: grade 316 satin stainless steel
7. Mounting: Woodscrews or bolt thorough fixings
8. Additional requirements:
 - Unsprung Rose
 - Contractor to submit proposals
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Intumescent materials tested to be fitted to fire door handle, as per Global Fire Resistance Assessment for fire doors

623 Performance specification for lever handle sets Type B

1. Description: To internal non fire rated doors
2. Standard: To BS EN 1906 and TGD M
3. Minimum classification grades
 - 3.1. Category of use: 4
 - 3.2. Durability: 7
 - 3.3. Door mass: - (no classification).
 - 3.4. Fire resistance: 0
 - 3.5. Safety: 1
 - 3.6. Corrosion resistance: 3
 - 3.7. Security: 0
 - 3.8. Type of operation: U
4. Style: Round Bar Return to Door
5. Size: 19 mm diameter
6. Material/ finish: grade 316 satin stainless steel
7. Mounting: Woodscrews or bolt thorough fixings
8. Additional requirements:
 - Unsprung Rose
 - Contractor to submit proposals

651 Performance specification for pull handles Type A

1. Description: To internal fire rated doors
2. Standard: To BS 8424. and TGD M
3. Minimum classification grades
 - 3.1. Category of use: 4
 - 3.2. Durability: 2.
 - 3.3. Door mass: - (no classification).
 - 3.4. Suitability for use on fire/ smoke doors: 1
 - 3.5. Safety: 1.
 - 3.6. Corrosion resistance: 3
4. Shape: D handle
5. Diameter: 19 mm
6. Distance between centres: 650 mm
7. Material/ finish: satin anodized aluminium, colour silver
8. Mounting: Screw fixed
9. Additional requirements :
 - Contractor to submit proposals
 - In compliance with Global Fire Resistance Assessment for Fire Door
 - Intumescent materials tested to be fitted to fire door handle, as per Global Fire Resistance Assessment for fire doors

652 Performance specification for pull handles Type B

1. Description: To internal non fire rated doors
2. Standard: To BS 8424. and TGD M
3. Minimum classification grades
 - 3.1. Category of use: 4
 - 3.2. Durability: 2.
 - 3.3. Door mass: - (no classification).
 - 3.4. Suitability for use on fire/ smoke doors: 0
 - 3.5. Safety: 1.
 - 3.6. Corrosion resistance: 3
4. Shape: D handle
5. Diameter: 19 mm
6. Distance between centres: 650 mm
7. Material/ finish: satin anodized aluminium, colour silver
8. Mounting: Screw fixed
9. Additional requirements :
 - Contractor to submit proposals

652 Performance specification for pull handles Type C

1. Description: To external doors
2. Standard: To BS 8424. and TGD M
3. Minimum classification grades
 - 3.1. Category of use: 3.

- 3.2. Durability: 2.
- 3.3. Door mass: - (no classification).
- 3.4. Suitability for use on fire/ smoke doors: 1.
- 3.5. Safety: 1.
- 3.6. Corrosion resistance: 3.
- 4. Shape: Cranked.
- 5. Diameter: 25 mm
- 6. Distance between centres: As schedule
- 7. Material/ finish: satin anodized aluminium, colour silver
- 8. Mounting: Face fixed

653 Performance specification for circular flush handles

- 1. Description: To internal fire rated doors
- 2. Minimum classification grades
 - 2.1. Category of use: 4
 - 2.2. Durability: 2.
 - 2.3. Door mass: - (no classification).
 - 2.4. Suitability for use on fire/ smoke doors: 1
 - 2.5. Safety: 1.
 - 2.6. Corrosion resistance: 3
- 3. Type: Circular Flush Pull Handle
- 4. Material/ finish: satin anodized aluminium, colour silver
- 5. Mounting: As per manufacturer's
- 6. Additional requirements :
 - Contractor to submit proposals
 - In compliance with Global Fire Resistance Assessment for Fire Door

670 Push plates

- 1. Description: To internal fire rated and non fire rated doors, as per schedule
- 2. Manufacturer: Contractor to submit proposals
 - 2.1. Product reference: Contractor to submit proposals
- 3. Size: To match existing
- 4. Material/ finish: grade 316 satin stainless steel
- 5. Mounting: Wood screw
- 6. Additional requirements:
 - Contractor to submit proposals
 - In compliance with Global Fire Resistance Assessment for Fire Doors

690 Kick plates

- 1. Description: To internal fire rated and non fire rated doors, as per schedule
- 2. Manufacturer: Contractor to submit proposals
 - 2.1. Product reference: Contractor to submit proposals
- 3. Size: As per schedule, to suit door
- 4. Material/ finish: grade 316 satin stainless steel
- 5. Mounting: Wood screw, plates to be drilled and countersunk screw fixed

6. Additional requirements:

- Rounded edges and radiused - corners
- Screw heads colour matched to plate
- In compliance with Global Fire Resistance Assessment for Fire Doors

710 Escutcheons (Euro cylinder)

1. Description: To internal fire rated and non fire rated doors, as per schedule
2. Manufacturer: Contractor to submit proposals
 - 2.1. Product reference: Contractor to submit proposals
3. Material/ finish:

As per CPA specification
4. Keyhole type: grade 316 satin stainless steel
5. Usage: Cylinder locks generally, where no handle backplate is specified to be fitted
6. Other requirements:
 - Contractor to submit proposals

711 Escutcheons (Euro cylinder pull)

1. Description: To internal fire rated and non fire rated doors to services, as per schedule
2. Manufacturer: Contractor to submit proposals
 - 2.1. Product reference: Contractor to submit proposals
3. Material/ finish:

grade 316 satin stainless steel
4. Keyhole type: Euro cylinder pull
5. Usage: Service rooms as per schedule
6. Size: 82 x 50 x 21 mm
7. Mounting: Bolt through with roses
8. Other requirements:
 - Contractor to submit proposals

720 Door stops

1. Manufacturer: Contractor to submit proposals
 - 1.1. Product reference: Contractor to submit proposals
2. Type: To match existing:
 - Floor mounted door stop
 - Wall mounted, face fixed, SAA finish, 75 mm projection
3. Usage: To doors opening against walls

750 Limiting door stays

1. Description: To external doors, as per schedule
2. Manufacturer: Contractor to submit proposals
 - 2.1. Product reference: Contractor to submit proposals
3. Type: Surface fix friction stay without hold open
4. Size: To suit door width
5. Material/ finish: Satin stainless steel, grade 1.4401 (316)

6. Features: None

811 Door mounted coat hooks

1. Manufacturer: Contractor to submit proposals
 - 1.1. Product reference: Contractor to submit proposals
2. Type: Buffered Hat and Coat Hook
3. Material/ finish: grade 316 satin stainless steel
4. Fixings: Wood screw

820 Signs

1. Manufacturer: Contractor to submit proposals
 - 1.1. Product reference: Contractor to submit proposals
2. Type: A: Fire Exit Keep Clear.
3. Material/ finish: Satin anodized aluminium/ white letters on blue background.

860 Smoke door seals

1. Description: Smoke seals to internal fire rated doors
2. Manufacturer: Contractor to submit proposals
 - 2.1. Product reference: Contractor to submit proposals
3. Type: Brush
4. Size: To suit door, as manufacturer's recommendations and Global Fire Resistance Assessment for Fire Doors
5. Material/ finish: Submit proposals
6. Other requirements:
 - Contractor to submit proposals
 - In compliance with Global Fire Resistance Assessment for Fire Doors

861 Intumescent Door Seals

1. Description: Intumescent seals to internal fire rated doors
2. Manufacturer: Contractor to submit proposals
 - 2.1. Product reference: Contractor to submit proposals
3. Type: Intumescent seal
4. Size: To suit door, as manufacturer's recommendations and Global Fire Resistance Assessment for Fire Doors
5. Material/ finish: Submit proposals
6. Other requirements:
 - Contractor to submit proposals
 - In compliance with Global Fire Resistance Assessment for Fire Doors

862 Acoustic Door Seals

1. Description: Door seals for acoustic
2. Manufacturer: Contractor to submit proposals
 - 2.1. Product reference: Contractor to submit proposals
3. Type: To match existing
4. Size: To suit door, as manufacturer's recommendations
5. Material/ finish: To match existing

6. Other requirements:

- Contractor to submit proposals

870 Door Signage

1. Description: To internal fire doors
2. Standard: BS ISO 3864-1:2011
3. Manufacturer: Contractor to submit proposals
 - 3.1. Product reference: Contractor to submit proposals
4. Type:
 - Type A: "Fire Door Keep Shut" Round Door Symbol
 - Type B: "Fire Door Keep Locked" Round Door Symbol
 - Type C: "Automatic Fire Door Keep Clear" Round Door Symbol
5. Size: 76 mm dia x 1.5 mm thickness
6. Material/ finish: submit proposals
7. Fixings: Wood Screws

Window furniture

980 Demonstration:

1. The Contractor shall demonstrate efficacy of all mechanical hardware and electrical, and electronic hardware systems, including adjustment and maintenance procedures, to satisfaction of the Employer's Locksmith

Ω End of Section

Z20

Fixings and adhesives

Products

310 Fasteners generally

1. **Materials:** To have:
 - 1.1. Bimetallic corrosion resistance appropriate to items being fixed.
 - 1.2. Atmospheric corrosion resistance appropriate to fixing location.
2. **Appearance:** Submit samples on request.

320 Packings

1. **Materials:** Noncompressible, corrosion proof.
2. **Area of packings:** Sufficient to transfer loads.

330 Nailed timber fasteners

1. **Nails**
 - 1.1. **Steel:** To BS 1202-1 or BS EN 10230-1.
 - 1.2. **Copper:** To BS EN 1202-2.
 - 1.3. **Aluminium:** To BS 1202-3.

340 Masonry fixings

1. **Light duty:** Plugs and screws.
2. **Heavy duty:** Expansion anchors or chemical anchors.

350 Plugs

1. **Type:** Proprietary types to suit substrate, loads to be supported and conditions expected in use.

360 Anchors

1. **Types**
 - 1.1. **Expansion:** For use in substrate strong enough to resist forces generated by expansion of anchor.
 - 1.2. **Adhesive or chemical**
 - 1.2.1. For use in substrate where expansion of anchor would fracture substrate.
 - 1.2.2. For use in irregular substrate where expansion anchors cannot transfer load on anchor.
 - 1.3. **Cavity:** For use where the anchor is retained by toggles of the plug locking onto the inside face of the cavity.

370 Wood screws

1. **Type**
 - 1.1. Wood screws (traditional pattern).
 - 1.1.1. **Standard:** To BS 1210.
 - 1.2. Wood screws.
 - 1.2.1. **Pattern:** Parallel, fully threaded shank or twin thread types.
2. **Washers and screw cups:** Where required are to be of same material as screw.

380 Miscellaneous screws

1. Type: To suit the fixing requirement of the components and substrate.
 - 1.1. Pattern: Self-tapping, metallic drive screws, or power driven screws.
2. Washers and screw cups: Where required to be of same material as screw.

390 Adhesives

1. Standards
 - 1.1. Hot-setting phenolic and aminoplastic: To BS 1203.
 - 1.2. Thermosetting wood adhesives: To BS EN 12765.
 - 1.3. Thermoplastic adhesives: To BS EN 204.

410 Powder actuated fixing systems

1. Types of fastener, accessories and consumables: As recommended by tool manufacturer.

Execution

610 Fixing generally

1. 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.
2. Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.
3. Appearance: Fixings to be in straight lines at regular centres.

620 Fixing through finishes

1. Penetration of fasteners and plugs into substrate: To achieve a secure fixing.

630 Fixing packings

1. Function: To take up tolerances and prevent distortion of materials and components.
2. Limits: Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.
3. Locations: Not within zones to be filled with sealant.

640 Fixing cramps

1. Cramp positions: Maximum 150 mm from each end of frame sections and at 600 mm maximum centres.
2. Fasteners: Fix cramps to frames with screws of same material as cramps.
3. Fixings in masonry work: Fully bed in mortar.

650 Nailed timber fixing

1. Penetration: Drive fully in without splitting or crushing timber.
2. Surfaces visible in completed work: Punch nail heads below wrot surfaces.
3. Nailed timber joints: Two nails per joint (minimum), opposed skew driven.

660 Screw fixing

1. Finished level of countersunk screw heads
 - 1.1. Exposed: Flush with timber surface.
 - 1.2. Concealed (holes filled or stopped): Sink minimum 2 mm below surface.

670 Pelleted countersunk screw fixing

1. Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
2. Pellets: Cut from matching timber, match grain and glue in to full depth of hole.
3. Finished level of pellets: Flush with surface.

680 Plugged countersunk screw fixing

1. Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
2. Plugs: Glue in to full depth of hole.
3. Finished level of plugs: Projecting above surface.

690 Using powder actuated fixing systems

1. Powder actuated fixing tools: To BS 4078-2 and Kitemark certified.
2. Operatives: Trained and certified as competent by tool manufacturer.

700 Applying adhesives

1. Surfaces: Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.
2. Support and clamping during setting: Provide as necessary. Do not mark surfaces of or distort components being fixed.
3. Finished adhesive joints: Fully bonded. Free of surplus adhesive.

Ω End of Section

Z21 Mortars

Cement gauged mortars

110 Cement gauged mortar mixes

1. **Specification:** Proportions and additional requirements for mortar materials are specified elsewhere.

120 Sand for site made cement gauged masonry mortars

1. **Standard:** To BS EN 13139.
2. **Grading:** 0/2 (FP or MP).
 - 2.1. **Fines content** where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: 5-6):
 - 2.1.1. **Lower proportion of sand:** Use category 3 fines.
 - 2.1.2. **Higher proportion of sand:** Use category 2 fines.
3. **Sand for facework mortar:** Maintain consistent colour and texture. Obtain from one source.

131 Ready-Mixed lime:sand for cement gauged masonry mortars

1. **Standard:** To BS EN 998-2.
2. **Lime:** Nonhydraulic to BS EN 459-1.
 - 2.1. **Type:** CL 90S.
3. **Pigments for coloured mortars:** To BS EN 12878.

135 Site made lime:sand for cement gauged masonry mortars

1. **Permitted use:** Where a special colour is not required and in lieu of factory made ready-mixed material.
2. **Lime:** Nonhydraulic to BS EN 459-1.
 - 2.1. **Type:** CL 90S.
3. **Mixing:** Thoroughly mix lime with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least 16 hours before using.

160 Cements for mortars

1. **Cement:** To BS EN 197-1 and CE marked.
 - 1.1. **Types:** Portland cement, CEM I.
 - 1.1.1. **Portland limestone cement,** CEM II/A-L or CEM II/A-LL.
2. **Portland slag cement,** CEM II/B-S.
3. **Portland fly ash cement,** CEM II/B-V.
 - 3.1. **Strength class:** 32.5, 42.5 or 52.5.
4. **White cement:** To BS EN 197-1 and CE marked.
 - 4.1. **Type:** Portland cement, CEM I.
 - 4.2. **Strength class:** 52.5.
5. **Sulfate resisting Portland cement**
 - 5.1. **Type:** To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.
6. **To BS EN 197-1 fly ash cement,** CEM II/B-V and CE marked.
 - 6.1. **Strength class:** 32.5, 42.5 or 52.5.

7. Masonry cement: To BS EN 413-1 and CE marked.
 - 7.1. Class: MC 12.5.

180 Admixtures for site made cement gauged mortars

1. Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
2. Other admixtures: Submit proposals.
3. Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

190 Retarded ready to use cement gauged mortar

1. Standard: To BS EN 998-2.
2. Lime for cement:lime:sand mortars: Nonhydraulic to BS EN 459-1.
 - 2.1. Type: CL 90S.
3. Pigments for coloured mortars: To BS EN 12878.
4. Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
 - 4.1. Retempering: Restore workability with water only within prescribed time limits.

200 Storage of cement gauged mortar materials

1. Sands and aggregates: Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.
2. Factory made ready-mixed lime:sand/ ready to use retarded mortars: Keep in covered containers to prevent drying out or wetting.
3. Bagged cement/ hydrated lime: Store off the ground in dry conditions.

210 Making cement gauged mortars

1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
 - 1.1. Mix proportions: Based on dry sand. Allow for bulking of damp sand.
2. Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
 - 2.1. Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.
3. Working time (maximum): Two hours at normal temperatures.
4. Contamination: Prevent intermixing with other materials.

Lime:sand mortars - Not Used

Ω End of Section

Z22 Sealants

Products

310 Joints

1. Description: Generally.
2. Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.

Execution

610 Suitability of joints

1. Presealing checks
 - 1.1. Joint dimensions: Within limits specified for the sealant.
 - 1.2. Substrate quality: Surfaces regular, undamaged and stable.
2. Joints not fit to receive sealant:

620 Preparing joints

1. Surfaces to which sealant must adhere
 - 1.1. Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
 - 1.2. Clean using materials and methods recommended by sealant manufacturer.
2. Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
3. Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.
4. Protection: Keep joints clean and protect from damage until sealant is applied.

630 Applying sealants

1. Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
2. Environmental conditions: Do not dry or raise temperature of joints by heating.
3. Sealant application: Fill joints completely and neatly, ensuring firm adhesion to substrates.
4. Sealant profiles
 - 4.1. Butt and lap joints: Slightly concave.
 - 4.2. Fillet joints: Flat or slightly convex.
5. Protection: Protect finished joints from contamination or damage until sealant has cured.

Ω End of Section

