CFPMRF

Cox Freeman Limited

Clegg Food Projects

Coventry MRF

Coventry MRF

18-11-2021

Contents

B13
Modular buildings

Tendering

10 Information to be provided with tender

1. General structural requirements in accordance with clause: Refer to Structural Engineer's details and specification.
2. Any information pertinent to any existing Access Statement.

Types of modules

110 A Prefabricated modular gatehouse

1. Description: Prefabricated modular gatehouse.
2. Manufacturer: Glasdon U.K. Ltd or similar approved.
   2.1. Product reference: Submit proposals to suit requirements and agree final type with Client. Allow for Beacon Building range.
3. Module type: Gatehouse unit with integral W.C.
4. Size: Refer to Cox Freeman Ltd. general arrangement drawings for layout. Allow for 9.76m x 3.05m unit size and agree with Client.
5. Module support
   5.1. Location: As required by Manufacturer.
   5.2. Type: As required by Manufacturer.
6. Internal walls: Manufacturer's standard internal insulated wall panel construction. Agree finish and colour with Client.
7. Doors: Manufacturer's standard internal and external doorsets. Agree finish and colour with Client.
8. Windows: Manufacturer's standard window unit with sliding panel where required. Agree finish, colour and locations with Client.
9. Skirtings, coverbeads, window sills and trims: Manufacturer's standard. Agree finish and colour with Client.
10. External finishes
    10.1. Outer leaf: Manufacturer's standard external insulated wall panel construction. Agree finish and colour with Client.
        10.1.1. Support from module: Full support.
    10.2. Roof: Manufacturer's standard insulated pitched roof panel construction complete with perimeter fascia and integral rainwater gutter and down-spout arrangement with decorative suspended ceiling to underside. Agree finish and colour with Client.
        10.2.1. Form: Prefabricated.
11. Internal finishes
    11.1. Location:
        11.1.1. Floor: Manufacturer's standard internal 2mm thick heavy duty vinyl floor covering. Agree finish and colour with Client.
        11.1.2. Walls: Agree finish, colour and locations with Client.
        11.1.3. Ceiling: Agree finish, colour and locations with Client.
12. Services
    12.1. Heating/ Cooling: Submit proposals for agreement with Client.
    12.2. Ventilation:

1. Opening lights and trickle vents to windows.
2. Wall mounted extract fans to kitchen and toilets.
3. Submit proposals for agreement with Client.

12.3. Electrical: Submit proposals for agreement with Client.

13. Fittings
    13.1. Location: Gatehouse
        13.1.1. Item:
            1. Worktop throughout.
            2. Stainless steel sink and drainer complete with mixer taps etc.
14. Fittings / furniture / equipment:
    14.1. Location: Gatehouse
        14.1.1. Item:
            1. Worktop throughout.
            2. Stainless steel sink and drainer complete with mixer taps etc.
    14.2. Location: W.C. Room
        14.2.1. Item:
            1. Ceramic W.C pan, cistern, seat etc.
            2. Handwash.
            3. Mirror.
            4. Toilet roll holder.
            5. Bin.
15. Other options: Submit proposals.
16. Other requirements:
    1. Manufacturer / Specialist Sub-contractor to supply detailed drawings and specifications of prefabricated modular building for comments prior to manufacturing.
    2. Prefabricated modular building to be installed in full accordance with Manufacturer's details and recommendations.
    3. Contractor to provide literature and samples of proposed prefabricated modular building to Client for approval prior to ordering.
    4. Final details, sizes etc. are to be agreed with Client prior to ordering any items.

Performance

212 Structural design provided

1. Description:
2. Requirements
    2.1. Generally: As section B50.
    2.2. Additional requirements:
3. Production/ Execution records:

220 Sub-contractor's design

1. Description: Provide detailed design of prefabricated modular building and all associated items and works.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.

2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.

3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

241 Thermal insulation

1. Required U-values
    1.1. External walls: To meet the requirements of Approved Document L2A.
        1.1.1. Windows: To meet the requirements of Approved Document L2A.
        1.1.2. Doors: To meet the requirements of Approved Document L2A.
    1.2. Floors: To meet the requirements of Approved Document L2A.
    1.3. Roof: To meet the requirements of Approved Document L2A.
        1.3.1. Rooflights: To meet the requirements of Approved Document L2A.

245 Durability

1. Minimum life span
    1.1. Structure
        1.1.1. Element: Submit proposals.
        1.1.2. Required life span: Submit proposals.
    1.2. External finishes
        1.2.1. Element: Submit proposals.
        1.2.2. Required life span: Submit proposals.
    1.3. Internal finishes
        1.3.1. Element: Submit proposals.
        1.3.2. Required life span: Submit proposals.

251 Water penetration

1. Requirement: Under site exposure conditions moisture must not penetrate onto internal surfaces, or into cavities not designed to be wetted.

257 Condensation risk in accordance with BS 5250

1. Requirement: Determine interstitial condensation risk of roofs and external walls using the notional psychrometric data given in BS 5250, Annex D. If calculations indicate a likelihood of interstitial condensation occurring, submit proposals.

261 Condensation risk in accordance with BS EN ISO 13788

1. Requirement: Determine surface condensation risk of external walls using the method described in BS EN ISO 13788.
    1.1. Temperature factor (fmin): Provide satisfactory value.
    1.2. Thermal insulation: Increase if necessary.
2. Damage and nuisance from surface condensation: Ensure this does not occur.

265 Additional security

1. Windows, doors, shutters
    1.1. Standard: To BS EN 1627.
        1.1.1. Required resistance class: Submit proposals for agreement with Client.

267 Accessible design

1. Standard: In accordance with BS 8300-2.

Fabrication

510 Information from manufacturer

1. Prior to fabrication of modules, manufacturer to provide
    1.1. Drawings showing all construction details, including connections and manufactured tolerances.
    1.2. Risk assessments for the installation.
    1.3. Installation instructions including training requirements for installers.

Execution

710 Transportation

1. General: Handling, lifting and transportation must not cause damage to, or impair the intended performance of the module when subsequently positioned.
2. Restrictions:

740 Supporting structure

1. Survey: Before commencing installation, carry out survey sufficient to verify that required accuracy can be achieved.
2. Tolerances: As required for installation.

750 Erection

1. Lifting, positioning, fixing
    1.1. Do not drag units.
    1.2. Lift units from manufacturer's designated points only.
    1.3. Provide temporarily support, as required.

760 Assembly

1. Fixings: Size and pattern as determined by structural calculation.
2. Anchor bolts and straps: Correctly positioned at all locations shown on the drawings.

770 Accuracy of erection

1. Alignment of modules: Offsets on plan or section to vary by not more than …….
2. Finished appearance: Notwithstanding specified tolerances, modules must be square, regular, true to line, level and plane.

Completion

910 Documentation

1. Manuals: Provide manuals detailing possible repair and modification of the erected components and level of expertise required to carry out modifications.

Ω End of Section

F10
Brick/ block walling

Types of walling

360 MA01 Blockwork to achieve 120 minutes fire resistance from both sides

1. Description: Blockwork walls and infill panels to waste recycling building to achieve 120 minutes fire resistance.
2. Blocks: To BS EN 771-4.
   - 2.1. Manufacturer: Submit proposals.
     - 2.1.1. Product reference: Fair faced blocks. Submit proposals.
   - 2.2. Configuration: Group 1.
   - 2.3. Mean compressive strength (minimum): 7.3 N/mm².
     - 2.3.1. Category: I.
   - 2.4. Thermal conductivity (maximum): Not applicable.
   - 2.5. Recycled content: Submit proposals.
   - 2.6. Work sizes (length x width x height): 440mm x 140mm x 215mm.
     - 2.6.1. Tolerance category: GPLM.
   - 2.7. Special shapes: As required to meet design.
   - 2.8. Additional requirements: To achieve 120 minutes fire resistance from both sides of wall.
3. Mortar: As section Z21.
   - 3.1. Standard: To BS EN 998-2.
   - 3.2. Mix: To suit application and location of use.
   - 3.3. Additional requirements: To suit application and location of use.
4. Bond: Half lap stretcher.
5. Other requirements:
   1. Install blockwork where shown on general arrangement drawings to achieve required fire performance and provide all necessary fire stopping to adjacent surfaces.
   2. Blockwork restraints to Structural Engineer's details.

Testing

410 Compressive strength of mortar for each walling type

1. Testing authority: A UKAS Accredited laboratory
2. Test method: To BS EN 1015-11.
3. Preliminary tests procedure: As follows:
   - 3.1. Specimens
     - 3.1.1. Number of specimens: 6.
     - 3.1.2. Type: 40 x 40 x 160 mm prism.
     - 3.1.3. Preparation: At least six weeks before walling commences.
   - 3.2. Specimen testing: Half of specimens at 7 days. Remainder at 28 days.
     - 3.2.1. Retarded mixes: Extend curing periods to include retardation period.
   - 3.3. Response to result: If mean compressive strength at 28 days is not within the range given below repeat tests with more suitable sand or next higher …….
4. Site tests procedure: As follows.
   - 4.1. Number of specimens: Six per 150m² of walling or per storey whichever the more frequent.

4.2. Specimen types: As preliminary test, but prepared during construction.

4.3. Specimen testing: Half of specimens at 7 days. Remainder at 28 days.

4.3.1. Retarded mixes: Extend curing periods to include retardation period.

5. Required test mean compressive strength at 28 days (N/mm²): To be within the following range:

5.1. Walling type:

5.1.1. Preliminary tests minimum (N/mm²):

5.1.2. Preliminary tests maximum (N/mm²):

5.1.3. Site tests minimum (N/mm²):

5.1.4. Site tests maximum (N/mm²):

6. Results: Submit.

Workmanship generally

420 Sub-contractor's design

1. Description: Provide detailed design of blockwork walls including all necessary calculations.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

440 Conditioning of concrete bricks/ blocks

1. Autoclaved concrete bricks/ blocks delivered warm from manufacturing process: Do not use.
2. Age of nonautoclaved concrete bricks/ blocks: Do not use until at least four weeks old.
3. Avoidance of suction in concrete bricks/ blocks: Do not wet.

3.1. Use of water retaining mortar admixture: Submit details.

460 Mortar designations

1. Mix proportions: For a specified designation select a mix from the following:

1.1. Designation (i) (BS EN 998-2 M12 equivalent)

1.1.1.1:0-¼:3 (Portland cement:lime:sand with or without air entraining additive).

1.1.2.1:3 (Portland cement:sand and air entraining additive).

1.2. Designation (ii) (BS EN 998-2 class M6 equivalent)

1.2.1.1:½:4-5 (Portland cement:lime:sand with or without air entraining additive).

1.2.2.1:3 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).

1.2.3.1:2½-3½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).

1.2.4.1:3-4 (Portland cement:sand and air entraining additive).

1.3. Designation (iii) (BS EN 998-2 class M4 equivalent)

1.3.1.1:1:5-6 (Portland cement:lime:sand with or without air entraining additive).

1.3.2.1:3½-4 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).

1.3.3.1:4-5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).

1.3.4.1:5-6 (Portland cement:sand and air entraining additive).

1.4. Designation (iv) (BS EN 998-2 class M2 equivalent)

1.4.1.1:2:8-9 (Portland cement:lime:sand with or without air entraining additive).

1.4.2.1:4½ (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).

1.4.3.1:5½-6½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).

1.4.4.1:7-8 (Portland cement:sand and air entraining additive).

2. Batching: Mix proportions by volume.
3. Mortar type: Continuous throughout any one type of masonry work.

500 Laying generally

1. Mortar joints: Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.
2. AAC block thin mortar adhesive and gypsum block adhesive joints: Fill vertical joints. Lay blocks on a full bed.
3. Clay block joints
   3.1. Thin layer mortar: Lay blocks on a full bed.
   3.2. Interlocking perpends: Butted.
4. Bond where not specified: Half lap stretcher.
5. Vertical joints in brick and concrete block facework: Even widths. Plumb at every fifth cross joint.

520 Accuracy

1. Courses: Level and true to line.
2. Faces, angles and features: Plumb.
3. Permissible deviations
   3.1. Position in plan of any point in
4. relation to the specified building
5. reference line and/ or point at
6. the same level ± 10 mm.
   6.1. Straightness in any 5 m length ± 5 mm.
   6.2. Verticality up to 3 m height ± 10 mm.

6.3. Verticality up to 7 m height ± 14 mm.
6.4. Overall thickness of walls ± 10 mm.
6.5. Level of bed joints up to 5 m
7. (brick masonry) ± 11 mm.
7.1. Level of bed joints up to 5 m
8. (block masonry) ± 13 mm.

595 Lintels

1. Bearing: Ensure full length masonry units occur immediately under lintel ends.

635 Jointing

1. Profile: Consistent in appearance.

645 Accessible joints not exposed to view

1. Jointing: Struck flush as work proceeds.

665 Pointing

1. Description:
2. Joint preparation: Remove debris. Dampen surface.
3. Mortar: As section Z21.
3.1. Standard:
3.2. Mix:
3.3. Additional requirements:
4. Profile:

671 Fire stopping

1. Avoidance of fire and smoke penetration: Fit tightly between cavity barriers and masonry. Leave no gaps.

690 Adverse weather

1. General: Do not use frozen materials or lay on frozen surfaces.
2. Air temperature requirements: Do not lay bricks/ blocks:
2.1. In cement gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
2.2. In hydraulic lime:sand mortars when at or below 5°C and falling or below 3°C and rising, or as manufacturer's/ supplier's recommendations.
2.3. In thin layer mortars when outside the limits set by the mortar manufacturer.
3. Temperature of walling during curing: Above freezing until hardened.
4. Newly erected walling: Protect at all times from:
4.1. Rain and snow.
4.2. Drying out too rapidly in hot conditions and in drying winds.

Additional requirements for facework

710 The term facework

1. Definition: Applicable in this specification to brick/ block walling finished fair.
1.1. Painted facework: The only requirement to be waived is that relating to colour.

750 Colour consistency of masonry units

1. Colour range: Submit proposals of methods taken to ensure that units are of consistent and even appearance within deliveries.
2. Conformity: Check each delivery for consistency of appearance with previous deliveries and with approved reference panels; do not use if variation is excessive.
3. Finished work: Free from patches, horizontal stripes and racking back marks.

760 Appearance

1. Brick/ block selection: Do not use units with damaged faces or arrises.
2. Cut masonry units: Where cut faces or edges are exposed cut with table masonry saw.
3. Quality control: Lay masonry units to match relevant reference panels.
   3.1. Setting out: To produce satisfactory junctions and joints with built-in features and components.
   3.2. Coursing: Evenly spaced using gauge rods.
4. Lifts: Complete in one operation.
5. Methods of protecting facework: Submit proposals.

780 Ground level

1. Commencement of facework: Not less than 150 mm below finished level of adjoining ground or external works level.

790 Putlog scaffolding

1. Use: Not permitted in facework.

800 Toothed bond

1. New and existing facework in same plane: Bond together at every course to achieve continuity.

830 Cleanliness

1. Facework: Keep clean.
2. Mortar on facework: Allow to dry before removing with stiff bristled brush.
3. Removal of marks and stains: Rubbing not permitted.

Ω End of Section

H31
Metal profiled/ flat sheet self-supporting cladding/ roof covering

Types of cladding/ covering system

120 RS01 Built-up roof cladding system to waste recycling

1. Description: Built-up roof cladding system to waste recycling.
2. Humidity load: BS EN ISO 13788: To be confirmed by Specialist Sub-contractor to suit conditions and use of building.
3. Support structure: Galvanised steel roof purlins on main structural frame to Structural Engineer's details and specification.
    3.1. Bearing width (minimum): Minimum 60mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
    3.2. Pitch: Refer to Cox Freeman Ltd relevant drawings. Minimum 4° after deflection.
4. Cladding/ covering system type: Euroclad Elite Plus Quattro 2 built-up roof cladding system or similar approved.
5. Overall system performance:
    5.1. U-Value: 0.25W/m2K calculated using the method required by the Building Regulations Part L2 (England & Wales).
    5.2. Air leakage: 3m3/hr/m2 at 50Pa.
6. External sheets to BS EN 14782:
    6.1. Material: Steel to BS EN 508-1, pre-finished
    6.2. Manufacturer: Euroclad Group Ltd or similar approved
    Wentloog Corporate Park,
    Wentloog Road,
    Cardiff, CF3 2ER.
    www.euroclad.com
    6.3. Product reference: 32/1000F Forward profile.
    6.4. Composition: Substrate to be Galvalloy® metallic coating based on a zinc (95%): aluminium (5%) eutectic alloy manufactured to BS EN 10346: 2009 S220GD.
    6.5. Thickness (nominal): 0.7 mm.
    6.6. Finish side 1 (outer): Colorcoat HPS200® Ultra.
    6.7. Thickness: Manufacturer's recommendation.
    6.8. Colour: To be agreed with Client.
    6.9. Finish side 2 (inner): High performance polyester standard backing coat.
    6.10. Thickness: Manufacturer's recommendation.
    6.11. Colour: Light grey as standard.
7. Accessories:
    1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
    2. Profile fillers as clause 300 PF01.
    3. External cold rolled accessories as clause 310A.
    4. Internal cold rolled accessories as clause 311A.
    5. Panel labelling as clause 570.

6. Insulated back gutter as clause 243 IG01.
7. Eaves gutter as clause R10 /332 EG02.
8. Rain water pipes as clause R10 /395 RW02
9. Roof lights as clause 160 RL01.
10. Guided fall arrest system as section N25.

8. Primary cladding/ covering sheet fasteners: Stainless steel Self driller Hex head 5.5mm dia x min. 25mm long with moulded colour cap with washer (Supplied by Euroclad) as required by Cladding Manufacturer to Specialist Sub-contractor design.
   8.1. Fastener profile location: Profile valley.
   8.2. Number of fasteners per sheet width
      8.2.1. Eaves and end laps: Every corrugation, minimum 30mm from sheet ends as required by Cladding Manufacturer to Specialist Sub-contractor design.
      8.2.2. Intermediate supports: Every other corrugation as required by Cladding Manufacturer to Specialist Sub-contractor design.
9. End laps size (minimum): 150mm (recommended lap arranged centred over support) as required by Cladding Manufacturer to Specialist Sub-contractor design.
10. Sealing laps
   10.1. End laps: 2 x runs of 6 x 5mm Class A mastic, 1 above and 1 below fixing, sealants must be within 75mm either side of fixing position as required by Cladding Manufacturer to Specialist Sub-contractor design.
   End lap sealant positioned in continuous beads and between 10mm & 15mm from the edges of sheets.
   10.2. Side laps: Continuous bead 6 x 5mm Class A mastic should be positioned outside the fixing position on the crown of the underlap sheet rib as required by Cladding Manufacturer to Specialist Sub-contractor design.
   Side and end lap tapes should meet to provide continuity of seal.
11. Stitching laps
   11.1. Side laps:
      1. At maximum 450mm centres as required by Cladding Manufacturer to Specialist Sub-contractor design.
      2. Stainless steel Stitcher Moulded head washer as required by Cladding Manufacturer to Specialist Sub-contractor design.
12. Spacers: Euroclad Quattro spacer system with 300mm brackets fitted typically at 1.2M centres as required by Cladding Manufacturer to Specialist Sub-contractor design.
   12.1. Fasteners:
      1. Fixing to Cold Rolled purlins from 1.5mm thick: Spacer to purlin: Standard method: Stainless steel self driller Hex head min 5.5mm dia x min 25mm long with washer 2 x per bracket diagonally opposite (4 x per bracket for bracket heights =/> 260mm). NB: where fixings are required to drill through more than a total of 3mm steel, consult with Elite Sales for details.
      2. Rail to bracket fix: Stainless steel self driller Hex head 5.5mm dia x min. 25mm long and washer. 1 number through rail into bracket at beginning and end of each run of Rail.
      3. Final fixing details as required by Cladding Manufacturer to Specialist Sub-contractor design.
13. Breather membrane: Cladding Manufacturer / Specialist Sub-contractor to advise if breather membrane is required as part of cladding system.
14. Thermal insulation: As clause 271 MW01.
15. Vapour control layer: As clause 261 A.

16. Lining sheets: As clause 241 LS01.
17. Fire performance: To meet the requirements of approved document part B.
    17.1. Walkability: Roof and Lining sheets to be walkable in accordance with BS 5427.
    17.2. Fragility to ACR(M)001: Class B.
18. Warranty requirements:
    1. Euroclad Elite Plus 25 year guarantee.
    2. Confidex® Guarantee for Colorcoat HPS200 Ultra including cut edge corrosion protection for the full guarantee period.
    3. Submit details of all warranties and guarantees for agreement with Client.
19. Additional requirements:
    1. Roof cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. The Cladding Sub-contractor is to check suitability of steelwork to achieve the required minimum pitch for the external sheet at the end laps prior to installing the system.
    3. The Contractor is to register the project via Euroclad as required for the Confidex® guarantee.
    4. System must be fitted by a Euroclad Elite Systems Recommended Installer.
    5. All specified components supplied through Euroclad operating ISO 9001 Quality management, BS EN 6001 Sustainable Sourcing, ISO 14001 Environmental management and 18001 Occupational health & safety management systems.
    6. Flashings, Rainwater Goods, Fabricated details and trims by Euroclad Architectural.
    7. Penetrations such as flues, vents and access hatches to be weather proofed by liquid applied membrane system by a Euroclad recommended supplier.
    8. PV modules to be compatible with roofing system.
    9. Fall Arrest Systems, walkways and guard rail systems to be provided by a Euroclad recommended supplier.
    10. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    11. Specialist Sub-contractor to provide fastener calculations in accordance with BS EN 1991-1-4: 2005.
    12. Specialist Sub-contractor to provide roof drainage calculations in accordance with BS EN 12056: 2000.
    13. Specialist Sub-contractor supplied informational clause 166.

120 RS02 Built-up roof cladding system to offices

1. Description: Built-up roof cladding system to offices.
2. Humidity load: BS EN ISO 13788: To be confirmed by Specialist Sub-contractor to suit conditions and use of building.
3. Support structure: Galvanised steel roof purlins on main structural frame to Structural Engineer's details and specification.
    3.1. Bearing width (minimum): Minimum 60mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
    3.2. Pitch: Refer to Cox Freeman Ltd relevant drawings. Minimum 4° after deflection.
4. Cladding/ covering system type: Euroclad Elite Plus Quattro 2 built-up roof cladding system or similar approved.
5. Overall system performance:

5.1. U-Value: 0.15W/m2K calculated using the method required by the Building Regulations Part L2 (England & Wales).

5.2. Air leakage: 3m3/hr/m2 at 50Pa.

6. External sheets to BS EN 14782:

6.1. Material: Steel to BS EN 508-1, pre-finished

6.2. Manufacturer: Euroclad Group Ltd or similar approved
Wentloog Corporate Park,
Wentloog Road,
Cardiff, CF3 2ER.
www.euroclad.com

6.3. Product reference: 32/1000F Forward profile.

6.4. Composition: Substrate to be Galvalloy® metallic coating based on a zinc (95%): aluminium (5%) eutectic alloy manufactured to BS EN 10346: 2009 S220GD.

6.5. Thickness (nominal): 0.7 mm.

6.6. Finish side 1 (outer): Colorcoat HPS200® Ultra.

6.7. Thickness: Manufacturer's recommendation.

6.8. Colour: To be agreed with Client.

6.9. Finish side 2 (inner): High performance polyester standard backing coat.

6.10. Thickness: Manufacturer's recommendation.

6.11. Colour: Light grey as standard.

7. Accessories:

1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
2. Profile fillers as clause 300 PF01.
3. External cold rolled accessories as clause 310A.
4. Internal cold rolled accessories as clause 311A.
5. Panel labelling as clause 570.
6. Insulated back gutter as clause 243 IG01.
7. Eaves gutter as clause R10 /332 EG02.
8. Rain water pipes as clause R10 /395 RW02
9. Roof lights as clause 160 RL01.
10. Guided fall arrest system as section N25.

8. Primary cladding/ covering sheet fasteners: Stainless steel Self driller Hex head 5.5mm dia x min. 25mm long with moulded colour cap with washer (Supplied by Euroclad) as required by Cladding Manufacturer to Specialist Sub-contractor design.

8.1. Fastener profile location: Profile valley.

8.2. Number of fasteners per sheet width

8.2.1. Eaves and end laps: Every corrugation, minimum 30mm from sheet ends as required by Cladding Manufacturer to Specialist Sub-contractor design.

8.2.2. Intermediate supports: Every other corrugation as required by Cladding Manufacturer to Specialist Sub-contractor design.

9. End laps size (minimum): 150mm (recommended lap arranged centred over support) as required by Cladding Manufacturer to Specialist Sub-contractor design.

10. Sealing laps

10.1. End laps: 2 x runs of 6 x 5mm Class A mastic, 1 above and 1 below fixing, sealants must be within 75mm either side of fixing position as required by Cladding Manufacturer to Specialist

Sub-contractor design.
End lap sealant positioned in continuous beads and between 10mm & 15mm from the edges of sheets.

10.2. Side laps: Continuous bead 6 x 5mm Class A mastic should be positioned outside the fixing position on the crown of the underlap sheet rib as required by Cladding Manufacturer to Specialist Sub-contractor design.
Side and end lap tapes should meet to provide continuity of seal.

11. Stitching laps

11.1. Side laps:

1. At maximum 450mm centres as required by Cladding Manufacturer to Specialist Sub-contractor design.
2. Stainless steel Stitcher Moulded head washer as required by Cladding Manufacturer to Specialist Sub-contractor design.

12. Spacers: Euroclad Quattro spacer system with 300mm brackets fitted typically at 1.2M centres as required by Cladding Manufacturer to Specialist Sub-contractor design.

12.1. Fasteners:

1. Fixing to Cold Rolled purlins from 1.5mm thick: Spacer to purlin: Standard method: Stainless steel self driller Hex head min 5.5mm dia x min 25mm long with washer 2 x per bracket diagonally opposite (4 x per bracket for bracket heights =/> 260mm). NB: where fixings are required to drill through more than a total of 3mm steel, consult with Elite Sales for details.
2. Rail to bracket fix: Stainless steel self driller Hex head 5.5mm dia x min. 25mm long and washer. 1 number through rail into bracket at beginning and end of each run of Rail.
3. Final fixing details as required by Cladding Manufacturer to Specialist Sub-contractor design.

13. Breather membrane: Cladding Manufacturer / Specialist Sub-contractor to advise if breather membrane is required as part of cladding system.
14. Thermal insulation: As clause 271 MW02.
15. Vapour control layer: As clause 261 A.
16. Lining sheets: As clause 241 LS01.
17. Fire performance: To meet the requirements of approved document part B.

17.1. Walkability: Roof and Lining sheets to be walkable in accordance with BS 5427.

17.2. Fragility to ACR(M)001: Class B.

18. Warranty requirements:

1. Euroclad Elite Plus 25 year guarantee.
2. Confidex® Guarantee for Colorcoat HPS200 Ultra including cut edge corrosion protection for the full guarantee period.
3. Submit details of all warranties and guarantees for agreement with Client.

19. Additional requirements:

1. Roof cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
2. The Cladding Sub-contractor is to check suitability of steelwork to achieve the required minimum pitch for the external sheet at the end laps prior to installing the system.
3. The Contractor is to register the project via Euroclad as required for the Confidex® guarantee.
4. System must be fitted by a Euroclad Elite Systems Recommended Installer.

5. All specified components supplied through Euroclad operating ISO 9001 Quality management, BS EN 6001 Sustainable Sourcing, ISO 14001 Environmental management and 18001 Occupational health & safety management systems.
6. Flashings, Rainwater Goods, Fabricated details and trims by Euroclad Architectural.
7. Penetrations such as flues, vents and access hatches to be weather proofed by liquid applied membrane system by a Euroclad recommended supplier.
8. PV modules to be compatible with roofing system.
9. Fall Arrest Systems, walkways and guard rail systems to be provided by a Euroclad recommended supplier.
10. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
11. Specialist Sub-contractor to provide fastener calculations in accordance with BS EN 1991-1-4: 2005.
12. Specialist Sub-contractor to provide roof drainage calculations in accordance with BS EN 12056: 2000.
13. Specialist Sub-contractor supplied informational clause 166.

120 WS01 Built-up wall cladding system to waste recycling

1. Description: Built-up wall cladding system to waste recycling.
2. Humidity load: BS EN ISO 13788: To be confirmed by Specialist Sub-contractor to suit conditions and use of building.
3. Support structure: Galvanised steel cladding rails on main structural frame to Structural Engineer's details and specification.
   3.1. Bearing width (minimum): Minimum 60mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
   3.2. Pitch: Refer to Cox Freeman Ltd relevant drawings. Vertical installation.
4. Cladding/ covering system type: Euroclad Elite Plus Quattro 52 built-up wall cladding system or similar approved.
5. Overall system performance:
   5.1. U-Value: 0.35W/m2K calculated using the method required by the Building Regulations Part L2 (England & Wales).
   5.2. Air leakage: 3m3/hr/m2 at 50Pa.
6. External sheets to BS EN 14782:
   6.1. Material: Steel to BS EN 508-1, pre-finished
   6.2. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   6.3. Product reference: MW5 reverse profile to be agreed with Client.
   6.4. Composition: Substrate to be Galvalloy® metallic coating based on a zinc (95%): aluminium (5%) eutectic alloy manufactured to BS EN 10346: 2009 S220GD.
   6.5. Thickness (nominal): 0.5 mm.
   6.6. Finish side 1 (outer): Colorcoat HPS200® Ultra.
   6.7. Thickness: Manufacturer's recommendation.
   6.8. Colour: To be agreed with Client.
   6.9. Finish side 2 (inner): High performance polyester standard backing coat.

6.10. Thickness: Manufacturer's recommendation.

6.11. Colour: Light grey as standard.

7. Accessories:
    1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
    2. Profile fillers as clause 300 PF01.
    3. External cold rolled accessories as clause 310A.
    4. Internal cold rolled accessories as clause 311A.
    5. Panel labelling as clause 570.
8. Primary cladding/ covering sheet fasteners: Stainless steel Self driller Hex head 5.5mm dia x min. 25mm long with moulded colour cap with washer (Supplied by Euroclad) as required by Cladding Manufacturer to Specialist Sub-contractor design.

    8.1. Fastener profile location: Profile valley.

    8.2. Number of fasteners per sheet width

    8.2.1. Sheet ends and end laps: Every corrugation as required by Cladding Manufacturer to Specialist Sub-contractor design.

    8.2.2. Intermediate supports: Fixing in each sidelap and subsequently in alternate troughs. as required by Cladding Manufacturer to Specialist Sub-contractor design.
9. End laps size (minimum): 100mm as required by Cladding Manufacturer to Specialist Sub-contractor design.
10. Sealing laps

    10.1. End laps: As required by Cladding Manufacturer to Specialist Sub-contractor design.

    10.2. Side laps: Lay away from prevailing wind where possible and as required by Cladding Manufacturer to Specialist Sub-contractor design.
11. Stitching laps

    11.1. Side laps: To be determined by by Cladding Manufacturer / Specialist Sub-contractor to suit exposure.
12. Spacers: Euroclad Quattro spacer system with 20mm brackets fitted typically at 1.167m centres as required by Cladding Manufacturer to Specialist Sub-contractor design.

    12.1. Fasteners: Fixing to Cold Rolled sheeting rails from 1.5 - 2.2mm thick:
        1. Spacer to sheeting rails: Standard method: Stainless steel self driller Hex head min 5.5mm dia x min 25mm long with washer 2 x per bracket diagonally opposite (4 x per bracket for bracket heights =/> 260mm). NB: where fixings are required to drill through more than a total of 3mm steel, consult with Elite Sales for details.
        2. Rail to bracket fix: Stainless steel self driller Hex head 5.5mm dia x min. 25mm long and washer. 1 number through rail into bracket at beginning and end of each run of Rail.
        3. Final fixing details as required by Cladding Manufacturer to Specialist Sub-contractor design.
13. Breather membrane: Cladding Manufacturer / Specialist Sub-contractor to advise if breather membrane is required as part of cladding system.
14. Thermal insulation: As clause 271 MW03.
15. Vapour control layer: As clause 261 A.
16. Lining sheets: As clause 241 LS02.
17. Fire performance: To meet the requirements of approved document part B.
18. Warranty requirements:
    1. Euroclad Elite Plus 25 year guarantee.

2. Confidex® Guarantee for Colorcoat HPS200 Ultra including cut edge corrosion protection for the full guarantee period.
3. Submit details of all warranties and guarantees for agreement with Client.

19. Additional requirements:
    1. Wall cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. The Cladding Sub-contractor is to check suitability of steelwork to achieve the required minimum pitch for the external sheet at the end laps prior to installing the system.
    3. The Contractor is to register the project via Euroclad as required for the Confidex® guarantee.
    4. System must be fitted by a Euroclad Elite Systems Recommended Installer.
    5. All specified components supplied through Euroclad operating ISO 9001 Quality management, BS EN 6001 Sustainable Sourcing, ISO 14001 Environmental management and 18001 Occupational health & safety management systems.
    6. Flashings, Rainwater Goods, Fabricated details and trims by Euroclad Architectural.
    7. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    8. Specialist Sub-contractor to provide fastener calculations in accordance with BS EN 1991-1-4: 2005.
    9. Specialist Sub-contractor supplied informational clause 166.

120 WS02 Built-up wall cladding system to offices

1. Description: Built-up wall cladding system to waste office.
2. Humidity load: BS EN ISO 13788: To be confirmed by Specialist Sub-contractor to suit conditions and use of building.
3. Support structure: Galvanised steel cladding rails on main structural frame to Structural Engineer's details and specification.
    3.1. Bearing width (minimum): Minimum 60mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
    3.2. Pitch: Refer to Cox Freeman Ltd relevant drawings. Vertical installation.
4. Cladding/ covering system type: Euroclad Elite Plus Quattro 52 built-up wall cladding system or similar approved.
5. Overall system performance:
    5.1. U-Value: 0.21W/m2K calculated using the method required by the Building Regulations Part L2 (England & Wales).
    5.2. Air leakage: 3m3/hr/m2 at 50Pa.
6. External sheets to BS EN 14782:
    6.1. Material: Steel to BS EN 508-1, pre-finished
    6.2. Manufacturer: Euroclad Group Ltd or similar approved
    Wentloog Corporate Park,
    Wentloog Road,
    Cardiff, CF3 2ER.
    www.euroclad.com
    6.3. Product reference: MW5 reverse profile to be agreed with Client.
    6.4. Composition: Substrate to be Galvalloy® metallic coating based on a zinc (95%): aluminium (5%) eutectic alloy manufactured to BS EN 10346: 2009 S220GD.
    6.5. Thickness (nominal): 0.5 mm.

6.6. Finish side 1 (outer): Colorcoat HPS200® Ultra.

6.7. Thickness: Manufacturer's recommendation.

6.8. Colour: To be agreed with Client.

6.9. Finish side 2 (inner): High performance polyester standard backing coat.

6.10. Thickness: Manufacturer's recommendation.

6.11. Colour: Light grey as standard.

7. Accessories:
    1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
    2. Profile fillers as clause 300 PF01.
    3. External cold rolled accessories as clause 310A.
    4. Internal cold rolled accessories as clause 311A.
    5. Panel labelling as clause 570.
8. Primary cladding/ covering sheet fasteners: Stainless steel Self driller Hex head 5.5mm dia x min. 25mm long with moulded colour cap with washer (Supplied by Euroclad) as required by Cladding Manufacturer to Specialist Sub-contractor design.

    8.1. Fastener profile location: Profile valley.

    8.2. Number of fasteners per sheet width

    8.2.1. Sheet ends and end laps: Every corrugation as required by Cladding Manufacturer to Specialist Sub-contractor design.

    8.2.2. Intermediate supports: Fixing in each sidelap and subsequently in alternate troughs. as required by Cladding Manufacturer to Specialist Sub-contractor design.
9. End laps size (minimum): 100mm as required by Cladding Manufacturer to Specialist Sub-contractor design.
10. Sealing laps

    10.1. End laps: As required by Cladding Manufacturer to Specialist Sub-contractor design.

    10.2. Side laps: Lay away from prevailing wind where possible and as required by Cladding Manufacturer to Specialist Sub-contractor design.
11. Stitching laps

    11.1. Side laps: To be determined by by Cladding Manufacturer / Specialist Sub-contractor to suit exposure.
12. Spacers: Euroclad Quattro spacer system with 20mm brackets fitted typically at 1.167m centres as required by Cladding Manufacturer to Specialist Sub-contractor design.

    12.1. Fasteners: Fixing to Cold Rolled sheeting rails from 1.5 - 2.2mm thick:
        1. Spacer to sheeting rails: Standard method: Stainless steel self driller Hex head min 5.5mm dia x min 25mm long with washer 2 x per bracket diagonally opposite (4 x per bracket for bracket heights =/> 260mm). NB: where fixings are required to drill through more than a total of 3mm steel, consult with Elite Sales for details.
        2. Rail to bracket fix: Stainless steel self driller Hex head 5.5mm dia x min. 25mm long and washer. 1 number through rail into bracket at beginning and end of each run of Rail.
        3. Final fixing details as required by Cladding Manufacturer to Specialist Sub-contractor design.
13. Breather membrane: Cladding Manufacturer / Specialist Sub-contractor to advise if breather membrane is required as part of cladding system.
14. Thermal insulation: As clause 271 MW04.
15. Vapour control layer: As clause 261 A.

16. Lining sheets: As clause 241 LS02.
17. Fire performance: To meet the requirements of approved document part B.
18. Warranty requirements:
    1. Euroclad Elite Plus 25 year guarantee.
    2. Confidex® Guarantee for Colorcoat HPS200 Ultra including cut edge corrosion protection for the full guarantee period.
    3. Submit details of all warranties and guarantees for agreement with Client.
19. Additional requirements:
    1. Wall cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. The Cladding Sub-contractor is to check suitability of steelwork to achieve the required minimum pitch for the external sheet at the end laps prior to installing the system.
    3. The Contractor is to register the project via Euroclad as required for the Confidex® guarantee.
    4. System must be fitted by a Euroclad Elite Systems Recommended Installer.
    5. All specified components supplied through Euroclad operating ISO 9001 Quality management, BS EN 6001 Sustainable Sourcing, ISO 14001 Environmental management and 18001 Occupational health & safety management systems.
    6. Flashings, Rainwater Goods, Fabricated details and trims by Euroclad Architectural.
    7. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    8. Specialist Sub-contractor to provide fastener calculations in accordance with BS EN 1991-1-4: 2005.
    9. Specialist Sub-contractor supplied informational clause 166.

120 WS03 Built-up wall cladding system to waste recycling - Fire rated FR30

1. Description: Built-up wall cladding system to waste recycling to achieve fire rated construction to boundary walls where required.
2. Humidity load: BS EN ISO 13788: To be confirmed by Specialist Sub-contractor to suit conditions and use of building.
3. Support structure: Galvanised steel cladding rails on main structural frame to Structural Engineer's details and specification in conjunction with Cladding Manufacturer's requirements to support fire rated cladding system.
    3.1. Bearing width (minimum): Minimum 60mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
    3.2. Pitch: Refer to Cox Freeman Ltd relevant drawings. Vertical installation.
4. Cladding/ covering system type: Euroclad Elite Plus Quattro 52 Fr30 fire rated built-up wall cladding system or similar approved.
5. Overall system performance:
    5.1. U-Value: 0.35W/m2K calculated using the method required by the Building Regulations Part L2 (England & Wales).
    5.2. Air leakage: 3m3/hr/m2 at 50Pa.
    5.3. Fire performance:
        1. Wall cladding system to be installed to achieve a FR30 (2 hours fire integrity and 30 minutes fire insulation) rated construction to meet the requirements of approved document part B for external walls.
        2. As clause 203.

6. External sheets to BS EN 14782:
   6.1. Material: Steel to BS EN 508-1, pre-finished
   6.2. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   6.3. Product reference: MW5 reverse profile to be agreed with Client.
   6.4. Composition: Substrate to be Galvalloy® metallic coating based on a zinc (95%): aluminium (5%) eutectic alloy manufactured to BS EN 10346: 2009 S220GD.
   6.5. Thickness (nominal): 0.5 mm.
   6.6. Finish side 1 (outer): Colorcoat HPS200® Ultra.
   6.7. Thickness: Manufacturer's recommendation.
   6.8. Colour: To be agreed with Client.
   6.9. Finish side 2 (inner): High performance polyester standard backing coat.
   6.10. Thickness: Manufacturer's recommendation.
   6.11. Colour: Light grey as standard.
7. Accessories:
   1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
   2. Profile fillers as clause 300 PF01.
   3. External cold rolled accessories as clause 310A.
   4. Internal cold rolled accessories as clause 311A.
   5. Panel labelling as clause 570.
8. Primary cladding/ covering sheet fasteners: Stainless steel Self driller Hex head 5.5mm dia x min. 25mm long with moulded colour cap with washer (Supplied by Euroclad) as required by Cladding Manufacturer to Specialist Sub-contractor design.
   8.1. Fastener profile location: Profile valley.
   8.2. Number of fasteners per sheet width
      8.2.1. Sheet ends and end laps: Every corrugation as required by Cladding Manufacturer to Specialist Sub-contractor design.
      8.2.2. Intermediate supports: Fixing in each sidelap and subsequently in alternate troughs. as required by Cladding Manufacturer to Specialist Sub-contractor design.
9. End laps size (minimum): 100mm as required by Cladding Manufacturer to Specialist Sub-contractor design.
10. Sealing laps
   10.1. End laps: As required by Cladding Manufacturer to Specialist Sub-contractor design.
   10.2. Side laps: Lay away from prevailing wind where possible and as required by Cladding Manufacturer to Specialist Sub-contractor design.
11. Stitching laps
   11.1. Side laps: To be determined by by Cladding Manufacturer / Specialist Sub-contractor to suit exposure.
12. Spacers: Euroclad Quattro spacer system with 20mm brackets fitted typically at 1.167m centres as required by Cladding Manufacturer to Specialist Sub-contractor design.
   12.1. Fasteners: Fixing to Cold Rolled sheeting rails from 1.5 - 2.2mm thick:
      1. Spacer to sheeting rails: Standard method: Stainless steel self driller Hex head min 5.5mm dia x min 25mm long with washer 2 x per bracket diagonally opposite (4 x

per bracket for bracket heights =/> 260mm). NB: where fixings are required to drill through more than a total of 3mm steel, consult with Elite Sales for details.

2. Rail to bracket fix: Stainless steel self driller Hex head 5.5mm dia x min. 25mm long and washer. 1 number through rail into bracket at beginning and end of each run of Rail.
3. Final fixing details as required by Cladding Manufacturer to Specialist Sub-contractor design.

13. Breather membrane: Cladding Manufacturer / Specialist Sub-contractor to advise if breather membrane is required as part of cladding system.
14. Thermal insulation: As clause 271 MW05.
15. Vapour control layer: As clause 261 A.
16. Lining sheets: As clause 241 LS02.
17. Warranty requirements:
    1. Euroclad Elite Plus 25 year guarantee.
    2. Confidex® Guarantee for Colorcoat HPS200 Ultra including cut edge corrosion protection for the full guarantee period.
    3. Submit details of all
    4. LPCB certification for fire wall.
18. Additional requirements:
    1. Wall cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. The Cladding Sub-contractor is to check suitability of steelwork to achieve the required minimum pitch for the external sheet at the end laps prior to installing the system.
    3. The Contractor is to register the project via Euroclad as required for the Confidex® guarantee.
    4. System must be fitted by a Euroclad Elite Systems Recommended Installer.
    5. All specified components supplied through Euroclad operating ISO 9001 Quality management, BS EN 6001 Sustainable Sourcing, ISO 14001 Environmental management and 18001 Occupational health & safety management systems.
    6. Flashings, Rainwater Goods, Fabricated details and trims by Euroclad Architectural.
    7. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    8. Specialist Sub-contractor to provide fastener calculations in accordance with BS EN 1991-1-4: 2005.
    9. Specialist Sub-contractor supplied informational clause 166.
    10. Provide certification of fire wall installation on completion.

120 WS04 Built-up wall cladding system to offices - Fire rated FR30

1. Description: Built-up wall cladding system to offices to achieve fire rated construction to boundary walls where required.
2. Humidity load: BS EN ISO 13788: To be confirmed by Specialist Sub-contractor to suit conditions and use of building.
3. Support structure: Galvanised steel cladding rails on main structural frame to Structural Engineer's details and specification in conjunction with Cladding Manufacturer's requirements to support fire rated cladding system.
    3.1. Bearing width (minimum): Minimum 60mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.

3.2. Pitch: Refer to Cox Freeman Ltd relevant drawings. Vertical installation.

4. Cladding/ covering system type: Euroclad Elite Plus Quattro 52 Fr30 fire rated built-up wall cladding system or similar approved.
5. Overall system performance:
   5.1. U-Value: 0.21W/m2K calculated using the method required by the Building Regulations Part L2 (England & Wales).
   5.2. Air leakage: 3m3/hr/m2 at 50Pa.
   5.3. Fire performance:
      1. Wall cladding system to be installed to achieve a FR30 (2 hours fire integrity and 30 minutes fire insulation) rated construction to meet the requirements of approved document part B for external walls.
      2. As clause 203.
6. External sheets to BS EN 14782:
   6.1. Material: Steel to BS EN 508-1, pre-finished
   6.2. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   6.3. Product reference: MW5 reverse profile to be agreed with Client.
   6.4. Composition: Substrate to be Galvalloy® metallic coating based on a zinc (95%): aluminium (5%) eutectic alloy manufactured to BS EN 10346: 2009 S220GD.
   6.5. Thickness (nominal): 0.5 mm.
   6.6. Finish side 1 (outer): Colorcoat HPS200® Ultra.
   6.7. Thickness: Manufacturer's recommendation.
   6.8. Colour: To be agreed with Client.
   6.9. Finish side 2 (inner): High performance polyester standard backing coat.
   6.10. Thickness: Manufacturer's recommendation.
   6.11. Colour: Light grey as standard.
7. Accessories:
      1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
      2. Profile fillers as clause 300 PF01.
      3. External cold rolled accessories as clause 310A.
      4. Internal cold rolled accessories as clause 311A.
      5. Panel labelling as clause 570.
8. Primary cladding/ covering sheet fasteners: Stainless steel Self driller Hex head 5.5mm dia x min. 25mm long with moulded colour cap with washer (Supplied by Euroclad) as required by Cladding Manufacturer to Specialist Sub-contractor design.
   8.1. Fastener profile location: Profile valley.
   8.2. Number of fasteners per sheet width
      8.2.1. Sheet ends and end laps: Every corrugation as required by Cladding Manufacturer to Specialist Sub-contractor design.
      8.2.2. Intermediate supports: Fixing in each sidelap and subsequently in alternate troughs. as required by Cladding Manufacturer to Specialist Sub-contractor design.
9. End laps size (minimum): 100mm as required by Cladding Manufacturer to Specialist Sub-contractor design.

10. Sealing laps
    10.1. End laps: As required by Cladding Manufacturer to Specialist Sub-contractor design.
    10.2. Side laps: Lay away from prevailing wind where possible and as required by Cladding Manufacturer to Specialist Sub-contractor design.
11. Stitching laps
    11.1. Side laps: To be determined by by Cladding Manufacturer / Specialist Sub-contractor to suit exposure.
12. Spacers: Euroclad Quattro spacer system with 20mm brackets fitted typically at 1.167m centres as required by Cladding Manufacturer to Specialist Sub-contractor design.
    12.1. Fasteners: Fixing to Cold Rolled sheeting rails from 1.5 - 2.2mm thick:
        1. Spacer to sheeting rails: Standard method: Stainless steel self driller Hex head min 5.5mm dia x min 25mm long with washer 2 x per bracket diagonally opposite (4 x per bracket for bracket heights =/> 260mm). NB: where fixings are required to drill through more than a total of 3mm steel, consult with Elite Sales for details.
        2. Rail to bracket fix: Stainless steel self driller Hex head 5.5mm dia x min. 25mm long and washer. 1 number through rail into bracket at beginning and end of each run of Rail.
        3. Final fixing details as required by Cladding Manufacturer to Specialist Sub-contractor design.
13. Breather membrane: Cladding Manufacturer / Specialist Sub-contractor to advise if breather membrane is required as part of cladding system.
14. Thermal insulation: As clause 271 MW06.
15. Vapour control layer: As clause 261 A.
16. Lining sheets: As clause 241 LS02.
17. Warranty requirements:
    1. Euroclad Elite Plus 25 year guarantee.
    2. Confidex® Guarantee for Colorcoat HPS200 Ultra including cut edge corrosion protection for the full guarantee period.
    3. Submit details of all
    4. LPCB certification for fire wall.
18. Additional requirements:
    1. Wall cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. The Cladding Sub-contractor is to check suitability of steelwork to achieve the required minimum pitch for the external sheet at the end laps prior to installing the system.
    3. The Contractor is to register the project via Euroclad as required for the Confidex® guarantee.
    4. System must be fitted by a Euroclad Elite Systems Recommended Installer.
    5. All specified components supplied through Euroclad operating ISO 9001 Quality management, BS EN 6001 Sustainable Sourcing, ISO 14001 Environmental management and 18001 Occupational health & safety management systems.
    6. Flashings, Rainwater Goods, Fabricated details and trims by Euroclad Architectural.
    7. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    8. Specialist Sub-contractor to provide fastener calculations in accordance with BS EN 1991-1-4: 2005.
    9. Specialist Sub-contractor supplied informational clause 166.

10. Provide certification of fire wall installation on completion.

160 RL01 Profiled GRP rooflights

1. Description: Profiled, triple skin GRP roof lights compatible with roofing system.
2. Support structure: As clause 120 RP01.
3. System type: Triple skin - double skin factory assembled insulated rooflight (FAIR) with single skin weather sheet. Rooflight to suit roof cladding system profiles.
4. Material to BS EN 1013: GRP.
5. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
6. Product reference: Euroclad profiled in plane triple skin GRP lights.
   6.1. Fire performance
      6.1.1. Reaction to fire – rooflight outer surface: DRoof(t4) to BS EN 13501-5.
      6.1.2. Reaction to fire performance rating – rooflight inner surface: Class B-s1,d0.
7. Safety:
   7.1. Fragility to ACR(M)001: Class B.
8. Accessories: All necessary accessories including trims, flashing, PVC spacers, ledger angles, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
9. Primary sheet fasteners: As required by Cladding Manufacturer and to Specialist Sub- contractor design.
   9.1. Fastener profile location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
   9.2. Number of fasteners per sheet width
      9.2.1. Eaves and end laps: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
      9.2.2. Intermediate supports: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
10. End laps size (minimum): As required by Cladding Manufacturer and to Specialist Sub- contractor design.
11. Side laps stitching: As required by Cladding Manufacturer and to Specialist Sub- contractor design.
12. Sealing laps: As clause 550 and as follows:
    12.1. Sheets overlapped by metal: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
    12.2. Sheets underlapped by metal: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
    12.3. Sheets lapped by plastics: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
13. Special features: As required by Cladding Manufacturer and to Specialist Sub- contractor design.
14. U-value (plane): 1.3 W/m2K to waste recycling building.
15. Air leakage: 3m3/hr/m2 at 50Pa.
16. Humidity load (to BS EN ISO 13788): To be determined by Specialist Sub-contractor to suit Client's requirements and building usage.
17. Additional requirements:

1. Roof light system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
2. Any joints in the secondary steel frame supporting cladding and which are forming part of the building air seal line to be fully sealed to Specialist Sub-contractor's details.
3. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
4. Specialist Sub-contractor to provide fastener calculations in accordance with BS EN 1991-1-4: 2005.
5. Specialist Sub-contractor to provide roof drainage calculations in accordance with BS EN 12056: 2000.
6. Specialist Sub-contractor supplied informational clause 166.

General requirements

166 Sub-contractor's design

1. Description: Provide detailed design of all cladding types complete with all associated items and accessories.
2. Design responsibility: Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
3. Design standard: In accordance with BS 5427.
4. Product specification and requirements:
    1. To BS EN 14782 for metal sheet.
    2. To BS EN 1013 for translucent plastic profiles rooflight/ wall sheet.
    3. All other relevant standards.
5. Structural and fire requirements
    5.1. Generally: As shown on general arrangement drawings and to Structural Engineer's details and specification.
    5.2. Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
6. Functional requirements:
    1. As specified in this section of the NBS specification.
    2. As specified in section A33.
    3. As required by Cladding Manufacturer including any certified details.
7. Additional requirements:
    1. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    2. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
8. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.

2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.

9. Timing of submissions:
    1. Giving reasonable time for checking and commenting on submitted information.

172 Thermal performance/ Bridging

1. Requirement: Complete the thermal design of the cladding/ covering system to avoid excessive thermal bridging.
    1.1. Standard: BS 5427 and BS EN ISO 10211.

175 Product samples

1. General: Before commencing detailed design, submit labelled samples of the following: All cladding types, colours, flashings, fasteners etc..

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.
    1.1. Verifying authority: Submit proposals.

187 Deflection of metal cladding/ roof covering

1. Roof covering: Maximum permitted deflection under distributed loads as a multiple of span and due to:
    1.1. Permanent load: To Structural Engineer's requirements.
    1.2. Permanent and imposed loads (or undrifted snow load): To Structural Engineer's requirements.
    1.3. Permanent and wind loads: To Structural Engineer's requirements.
2. Wall cladding: Maximum permitted deflection under distributed loads as a multiple of span and due to:
    2.1. Wind loads: To Structural Engineer's requirements.

192 Sound transmittance of cladding/ roof covering system – weighted

1. Location: Through Roof and external walls.
2. Requirement: Measure within 100 to 3150 Hz frequency range to BS 5821-3.
    2.1. Minimum weighted sound reduction index (Rw): In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.

193 Sound transmittance of cladding/ roof covering system – frequency specific

1. Location: Through Roof and exteral wall.
2. Requirement: Measure to BS EN ISO 10140-2.
    2.1. Minimum sound reduction index (R): In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.
        2.1.1. For one third octave band centre frequency (Hz) of: In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.

194 Internal sound absorption of cladding/ roof covering system

1. Location: Through roof and external walls.
2. Requirement: Measure to BS EN ISO 354.
    2.1. Minimum sound absorption coefficient (alpha S): In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.
        2.1.1. For one third octave band centre frequency (Hz) of: In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.

196 Integrity of cladding/ roof covering

1. Requirement:
   Determine profiles, sizes and thicknesses of sheets, the sizes, number and spacing of fixings, 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 EN 1991 and with reference to BS 5427.
2. Primary fasteners:
   Not to be subjected to any bending moment.
3. Wind loads:
   Calculate to NA to BS EN 1991-1-4:2005+A1 appropriate to location, exposure, height, building shape and size, taking account of existing and known future adjacent structures.
   Imposed roof load (no access): As determined from BS EN 1991 and with reference to BS 5427.
   Permanent imposed roof loads: To Structural Engineer's requirements.
   Temporary imposed roof loads: To Structural Engineer's requirements.

198 Water penetration

1. Requirement: Under site exposure conditions, moisture must not penetrate onto internal surfaces, or into cavities not designed to be wetted.

200 Avoidance of interstitial condensation

1. Requirement: Determine interstitial condensation risk of cladding/ covering system using the method described in BS 5250, Annex D. If necessary, provide a vapour control layer and/ or revise thermal insulation to ensure that damage and nuisance from interstitial condensation does not occur.
2. Outdoor psychrometric conditions (notional)
    2.1. Temperature: To be determined by Specialist Sub-contractor.
    2.2. Relative humidity: To be determined by Specialist Sub-contractor.
    2.3. Vapour pressure: To be determined by Specialist Sub-contractor.
3. Indoor psychrometric conditions (notional): As follows:
    3.1. Temperature: To be determined by Specialist Sub-contractor..°C

3.2. Relative humidity: To be determined by Specialist Sub-contractor.

3.3. Vapour pressure: To be determined by Specialist Sub-contractor.

202 Avoidance of surface condensation

1. Requirement: Determine surface condensation risk of cladding/ covering system using the method described in BS EN ISO 13788. If necessary, revise thermal insulation to provide satisfactory temperature factor (fmin). Ensure that damage and nuisance from surface condensation does not occur.

203 Fire performance of external wall cladding

1. Reaction to fire: FR30 - 12 minutes fire integrity and 30 minutes fire insulation where required.
2. Combustibility: Non-combustible, as defined in Building Regulations Approved Documents B2, paragraph 8 and Table A6 (England and Wales)

204 Fire performance of roof sheeting

1. Reaction to fire: Class Broof(t4) to BS EN 13501-5
2. Combustibility: Non-combustible, as defined in Building Regulations Approved Documents B2, paragraph 8 and Table A6 (England and Wales)

205 Fire performance of inner lining/ ventilated cavities

1. Spread of flame/Reaction to fire: To BS EN 13501-1, Class A1
2. Internal (cavity) surfaces: To BS EN 13501-1, Class A1.
3. Fire resistance to BS EN 13501-2: Wall EI30 where required by boundary condition.

206 Fire performance of cavity barriers

1. Standard: To BS EN 13501-2
2. Requirement: To resist the passage of flame and smoke for not less than 30 minutes' integrity, 15 minutes' insulation.

207 Insurance and warranties

1. Requirements and testing: Submit proposals.
2. Additional requirements: Submit proposals.

Fixing cladding/ roof covering

215 Painting structure

1. Sequence: Paint outer surface of supporting structure before fixing cladding/ covering.

219 Fasteners

1. Unspecified fasteners: Recommended for the purpose by the cladding/ covering manufacturer.

221 Fittings and accessories

1. Unspecified fittings and accessories: Recommended for the purpose by the cladding/ covering manufacturer.

223 Prevention of electrolytic action

1. Isolating tape: Type recommended by cladding/ covering manufacturer.

1.1. Location: To contact surfaces of supports and sheets of dissimilar metals.

234 IG01 Membrane lined insulated back gutter

1. Description: Insulated back gutter as part of built-up roofing system.
2. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   2.1. Product reference: Euroclad Raintite membrane lined insulated gutter system or similar approved.
3. Sizes: Gutter is to be sized by Specialist Roofing Subcontractor to suit location of use and to be designed to accommodate continuous storm intensity in accordance with BS EN 12056 to the general size and shape illustrated on Cox Freeman Ltd. drawings / required complete with all necessary stop ends, overflows, gutter supports etc. Calculations are to be submitted to support the actual sizing and numbers and types of outlets required to comply with the code(s) using rainfall rates accurately interpolated from graphs within BS EN 12056 - to comply with designated required life of building (30 years) ie. not taken to next highest graph O/A for calculation purposes.
4. Material: Galvanized mild steel to BS EN 10346 with zinc coating as Manufacturer's details.
   4.1. Gauge/ Thickness: 1.5mm thick or as necessary to ensure gutter is walk-on.
   4.2. External finish: 1.2mm thick single ply membrane.
5. Insulation: Nominal 87mm thick Polyisocyanurate (PIR) insulation with Factory Mutual (FM Global) and LPCB approval.
6. Internal liner sheet: 0.7mm Colorcoat finished galvanised liner to match roof liner sheet in colour and finish.
7. Jointing method: As recommended by Manufacturer and to Sub-contractor's details.
8. Fixing method: As recommended by Manufacturer and to Sub-contractor's details.
9. Accessories: All necessary accessories required to allow installation of gutter to Manufacturer's details and recommendations in locations shown including all internal and external corners, stop ends, T-sections, sumps, overflows and weirs, joints, outlet details.
10. Thermal transmittance (U-value): 0.3 W/m2K when calculated using the method required by the Building Regulations Part L2A 2010 (England & Wales).
11. Performance Requirements: ACR[M]001:2005 for non-fragility and achieved Class B.
12. Other:
    1. Gutters to have a waterface membrane of no less that 165mm deep.
    2. Gutters are to be installed and jointed in full accordance with Manufacturer's details and recommendations.
    3. Gutter support brackets are to be provide where required to Specialist Roofing Sub-contractor's details in conjunction with Gutter Manufacturer's recommendations to suit loadings, locations etc.
    4. Membrane Coated Snorkel and Letterbox type weir overflows are to be included where necessary to provide effective evacuation(s) at all times and should be of the same material as the gutters and externally flashed, trimmed, finished and coated to Specialist Roofing Contractors details. Overflow openings to be located maximum 75mm above gutter sole. Specialist Sub-contractor to determine size, extent and locations. Allow for providing 1 number with each gutter stop end.
    5. Specialist sub-contractor is to determine the number, diameter and locations of all rain water outlets required to drain gutter. Gutter design is to incorporate tapered rain water outlets complete with leaf guards etc. to Specialist Sub-contractors details in accordance with Manufacturer's recommendations.
    6. RWP's to be as section R10, colour to be confirmed, and all to include access/rodding hatches, swan necks, support clips etc as required to complete the installation to Specialist Roofing Sub-contractors details. RWP locations to be determined in

conjunction with the Structural Engineer to suit below ground drainage / column positions etc.

7. Refer to Cox Freeman Ltd. drawings for indicative details of gutter.

13. Gutter testing: Block all outlets, fill gutters to overflow level and after 5 minutes closely inspect for leakage and rectify as required.
14. Maintenance: Building owner to consider any future maintenance of the gutters and associated rainwater drainage system as part of their own risk assessment, using specialist cleaning contractors with their own access equipment.

241 LS01 Lining sheet to built-up roofing system RS01 and RS02

1. Manufacturer: Euroclad Group Ltd or similar approved
Wentloog Corporate Park,
Wentloog Road,
Cardiff, CF3 2ER.
www.euroclad.com
   1.1. Product reference: Euroclad MW5 liner.
      1.1.1. Material: Galvanized steel to BS EN 10346, grade S220GD+Z with designation 275 coating.
      1.1.2. Thickness: 0.7mm as required by Cladding Manufacturer to Specialist Sub-contractor's details.
2. Finish/ Colour: Colorcoat Lining Enamel. Colour to be agreed with Client.
3. Primary sheet fasteners: Fixing arrangement tested to non-fragile Class B rating in accordance with ACR(M)001:2005 at all purlin centres up to 2.1M, on straight sheet, curved sheet and at hips:
   1. Intermediate supports: Stainless steel 5.5mm dia x min 25mm long self driller Hex head with min 15mm dia washer every other corrugation as required by Cladding Manufacturer to Specialist Sub-contractor design.
   2. Endlaps and sheet ends: Stainless steel 5.5mm dia x min 25mm long self driller Hex head with min 15mm dia washer every corrugation. Fix so that there is a minimum edge distance of 30mm from the fixings to the sheet edge as required by Cladding Manufacturer to Specialist Sub-contractor design. Note: where fixings are required to drill through more than a total of 3mm steel, consult with Elite Sales for details.
   3. Also refer to Euroclad drawing number FR3
4. End laps size (minimum): 60mm (see note above) as required by Cladding Manufacturer to Specialist Sub-contractor design.
5. End and side lap sealing:
   5.1. End laps: Continuous run of 4mm diameter Class A mastic. Positioned above fixing positions as required by Cladding Manufacturer to Specialist Sub-contractor design, see clause 554A.
   5.2. Side laps: 50mm x 1mm Liner Sealing Tape positioned centrally along the sidelap joint as required by Cladding Manufacturer to Specialist Sub-contractor design
6. Additional requirements: Roof lining sheets to be non-fragile and walkable in accordance with BS 5427.

241 LS02 Lining sheet to built-up wall cladding system WS01, WS02, WS03 and WS04

1. Manufacturer: Euroclad Group Ltd or similar approved
Wentloog Corporate Park,
Wentloog Road,
Cardiff, CF3 2ER.
www.euroclad.com

1.1. Product reference: Euroclad 19/1000 liner.

1.1.1. Material: Galvanized steel to BS EN 10346, grade S220GD+Z with designation 275 coating.

1.1.2. Thickness: 0.4mm as required by Cladding Manufacturer to Specialist Sub-contractor's details.

2. Finish/ Colour: Colorcoat Lining Enamel. Colour to be agreed with Client.

3. Primary sheet fasteners:

    1. Intermediate supports: ensure each trough adjacent to the sheet sidelap is fixed, with a further 2 troughs fixed across the sheet width (fixed Quattro brackets can be considered as fixings) as required by Cladding Manufacturer to Specialist Sub-contractor design. Fix in all troughs at sheet ends and end laps. Stainless steel 5.5mm dia x min 25mm long self driller Hex head with min 15mm dia washer as required by Cladding Manufacturer to Specialist Sub-contractor design.
    2. Endlaps and sheet ends: Stainless steel 5.5mm dia x min 25mm long self driller Hex head with washer every corrugation as required by Cladding Manufacturer to Specialist Sub-contractor design. Note: where fixings are required to drill through more than a total of 3mm steel, consult with Elite Sales for details.

4. End laps size (minimum): 100mm as required by Cladding Manufacturer to Specialist Sub-contractor design.

5. End and side lap sealing:

    5.1. End laps: Continuous run of 4mm diameter Class A mastic. Positioned above fixing positions as required by Cladding Manufacturer to Specialist Sub-contractor design, see clause 554A.

    5.2. Side laps: 50mm x 1mm Liner Sealing Tape positioned centrally along the sidelap joint as required by Cladding Manufacturer to Specialist Sub-contractor design

261 A Vapour control layer

1. General: Cladding Manufacturer / Specialist Sub-contractor to advise if vapour control layer is required as part of cladding system once building humidity class has been determined.

2. Building humidity classes to BS EN ISO 13788:

    2.1. Class 1 and 2: Sealed lining as per Clause 241 LS01.

    2.2. Class 3 and 4: Sealing to liners may be omitted and a separate VCL included as follows:
    Material: Euroclad Elite VCL
    Vapour resistance (minimum): 500 MNs/g.
    Tape: Euroclad Elite VCL Sealing Tape
    Size (width and thickness):Min: 12mm x 1.5mm
    Position: To warm side of thermal insulation

    2.3. Class 5: Material: Euroclad Elite HH VCL
    Vapour resistance (minimum): 30,000 MNs/g.
    Tape: Euroclad Elite HH VCL Sealing Tape
    Size (width and thickness):Min: 15mm x 2mm
    Position: To warm side of thermal insulation

3. Other: For swimming pools and polluted or aggressive internal environments consult with Euroclad for a more specialised specification including specialist fixings etc.

4. Material: Determined by building humidity class.

    4.1. Vapour resistance (minimum): Determined by building humidity class.

5. Continuity: No breaks and with the minimum of joints.

    5.1. Penetrations and abutments: Seal to vapour control membrane with tape. Achieve full bond.

    5.2. Laps: Not less than 150 mm, seal with tape. Use 2 rows for Class 5 applications. Achieve full bond.

6. Tape: Double sided sealant with vapour resistivity not less than the vapour control membrane.
   6.1. Size (width and thickness): Determined by building humidity class.
7. Repairs and punctures: Seal with lapped patch of vapour control membrane and continuous band of sealant tape along edges.
8. Other: For swimming pools and polluted or aggressive internal environments consult with Euroclad for a more specialised specification including specialist fixings etc.

271 MW01 Mineral wool thermal insulation to built-up roof cladding RS01

1. Standard: To BS EN 13162.
2. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   2.1. Product reference: Rockwool Quilt insulation (thermal transmittance value Lambda 90/90 0.040 W/mK).
3. Thickness (minimum): 200mm to give a 'U' value of 0.25 W/m²K where purlins are at average 1.5M centers (3 Dimensionally Modelled on software fully compatible with BS EN ISO 10211-1/10211-2. The calculations have been carried out in accordance with BR433 March 2006 and EN ISO 6946).
4. Recycled content: Submit proposals.
5. Installation: Continuous and not compressed between outer and lining sheets. Secure to prevent future movement or dislodgement.

271 MW02 Mineral wool thermal insulation to built-up roof cladding RS02

1. Standard: To BS EN 13162.
2. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   2.1. Product reference: Rockwool Quilt insulation (thermal transmittance value Lambda 90/90 0.040 W/mK).
3. Thickness (minimum): 300mm to give a 'U' value of 0.15 W/m²K where purlins are at average 1.5M centers (3 Dimensionally Modelled on software fully compatible with BS EN ISO 10211-1/10211-2. The calculations have been carried out in accordance with BR433 March 2006 and EN ISO 6946).
4. Recycled content: Submit proposals.
5. Installation: Continuous and not compressed between outer and lining sheets. Secure to prevent future movement or dislodgement.

271 MW03 Mineral wool thermal insulation to built-up wall cladding WS01

1. Standard: To BS EN 13162.
2. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   2.1. Product reference: Rockwool Quilt insulation (thermal transmittance value Lambda 90/90 0.040 W/mK).

3. Thickness (minimum): 120mm to give a 'U' value of 0.35 W/m²K where purlins are at average 1.5M centers (3 Dimensionally Modelled on software fully compatible with BS EN ISO 10211-1/10211-2. The calculations have been carried out in accordance with BR433 March 2006 and EN ISO 6946).
4. Recycled content: Submit proposals.
5. Installation: Continuous and not compressed between outer and lining sheets. Secure to prevent future movement or dislodgement.

271 MW04 Mineral wool thermal insulation to built-up wall cladding WS02

1. Standard: To BS EN 13162.
2. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   2.1. Product reference: Rockwool Quilt insulation (thermal transmittance value Lambda 90/90 0.040 W/mK).
3. Thickness (minimum): 200mm to give a 'U' value of 0.21 W/m²K where purlins are at average 1.5M centers (3 Dimensionally Modelled on software fully compatible with BS EN ISO 10211-1/10211-2. The calculations have been carried out in accordance with BR433 March 2006 and EN ISO 6946).
4. Recycled content: Submit proposals.
5. Installation: Continuous and not compressed between outer and lining sheets. Secure to prevent future movement or dislodgement.

271 MW05 Mineral wool thermal insulation to built-up wall cladding WS03

1. Standard: To BS EN 13162.
2. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   2.1. Product reference: Rockwool cladding roll, foil faced (thermal transmittance value Lambda 90/90 0.040 W/mK) to meet fire performance requirements of cladding system.
3. Thickness (minimum): 120mm to give a 'U' value of 0.35 W/m²K where purlins are at average 1.5M centers (3 Dimensionally Modelled on software fully compatible with BS EN ISO 10211-1/10211-2. The calculations have been carried out in accordance with BR433 March 2006 and EN ISO 6946).
4. Recycled content: Submit proposals.
5. Installation: Continuous and not compressed between outer and lining sheets. Secure to prevent future movement or dislodgement. Roll edges to be lapped to ensure no gaps.

271 MW06 Mineral wool thermal insulation to built-up wall cladding WS04

1. Standard: To BS EN 13162.
2. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   2.1. Product reference: Rockwool cladding roll, foil faced (thermal transmittance value Lambda 90/90 0.040 W/mK) to meet fire performance requirements of cladding system.

3. Thickness (minimum): 200mm to give a 'U' value of 0.21 W/m²K where purlins are at average 1.5M centers (3 Dimensionally Modelled on software fully compatible with BS EN ISO 10211-1/10211-2. The calculations have been carried out in accordance with BR433 March 2006 and EN ISO 6946).
4. Recycled content: Submit proposals.
5. Installation: Continuous and not compressed between outer and lining sheets. Secure to prevent future movement or dislodgement. Roll edges to be lapped to ensure no gaps.

300 PF01 Profile fillers to built-up cladding systems

1. General: To Cladding Manufacturer's requirements and Specialist Sub-contractor design.
2. Material: MP
3. Manufacturer: Euroclad Group Ltd or similar approved
   Wentloog Corporate Park,
   Wentloog Road,
   Cardiff, CF3 2ER.
   www.euroclad.com
   3.1. Product references: Large and Small Flute Fillers to suit Euroclad profiles. External profile fillers vented.
4. Colour: Submit proposals.
5. Thickness: To suit system profiles.
6. Fixing method: Secured between sheets and flashings/other elements. Internal fillers sealed to sheet and flashings/other elements using mastic.
   6.1. Requirement: To close cavities/ regulate air paths within the external envelope. Tight fit with no unintended gaps.

305 Fire resisting profile fillers

1. Location: Where required to meet fire performance requirements of cladding system.
2. Fire resistance: To match fire performance of cladding system.
3. Manufacturer: As recommended by Cladding Manufacturer.
4. Types: To accurately match sheet profile.
5. Fixing method: Adhesive recommended by profile filler manufacturer.
6. Material: As recommended by Cladding Manufacturer.

310 A Purpose-made cold formed external metal accessories

1. Material: Galvalloy hot-dip metallic coated steel substrate grade S220GD+ZA, and coating weight ZA255 to BS EN 10326.
   1.1. Thickness/ Gauge: 0.7mm.
   1.2. Finish/ Colour: Colorcoat HPS200® Ultra. Refer to Cox Freeman Ltd. drawings for colour references.
2. Fasteners
   2.1. Type: Fixings with matching colour coated heads, type as required by Cladding Manufacturer to Specialist Sub-contractor design.
   2.2. Location: As required by Cladding Manufacturer to Specialist Sub-contractor design.
   2.3. Fixing centres: As required by Cladding Manufacturer to Specialist Sub-contractor design.

311 A Purpose-made cold formed Internal metal accessories

1. Material: Galvalloy hot-dip metallic coated steel substrate grade S220GD+ZA, and coating weight ZA255 to BS EN 10326.

1.1. Thickness/ Gauge: 0.7mm.

1.2. Finish/ Colour: To match internal liner sheet finish and colour.

2. Fasteners

2.1. Type: Fixings with matching colour coated heads, type as required by Cladding Manufacturer to Specialist Sub-contractor design.

2.2. Location: As required by Cladding Manufacturer to Specialist Sub-contractor design.

2.3. Fixing centres: As required by Cladding Manufacturer to Specialist Sub-contractor design.

410 Fixing sheets generally

1. Cut edges: Clean true lines.
2. Penetrations: Openings to minimum size necessary.

2.1. Edge reinforcement: As recommended by Cladding Manufacturer.

3. Sheet orientation: Exposed joints of side laps away from prevailing wind unless shown otherwise on drawings.
4. Sheet ends, laps and raking cut edges: Fully supported and with fixings at top of lap.
5. Fasteners: Drill holes. Position at regular intervals in straight lines, centred on support bearings.

5.1. Position of fasteners in oversized drilled holes: Central.

5.2. Fasteners torque: Sufficient to correctly compress washers.

6. Debris: Remove dust and other foreign matter before finally fixing sheets.
7. Completion: Check fixings and sealants to ensure that they are watertight, and that fixing and sheets are secure with no buckling or distortion.
8. Cut edges: Paint to match face finish.

470 Structural movement joints

1. Type: Cover flashing fixed on one side over gap between sheets.
2. Location: Coincident with structural movement joint.
3. Width of gap: To match structural movement joint requirements.
4. Requirement: Weathertight.

480 A Flashings/ trims generally

1. Lap joint treatment

1.1. Vertical and sloping flashings/ trims: Vertical and sloping flashings/ trims: Butt joints as Clause 482A

1.2. Horizontal flashings/ trims: Butt joints as Clause 482A, sealed and where possible arranged with laps away from prevailing wind.

2. Method of fixing: To structure in conjunction with adjacent sheeting. Otherwise to sheeting.

2.1. Fasteners: As recommended by Cladding Manufacturer.

482 A Butt jointed flashings/ Trims

1. Locations: As clause 480 A.
2. Butt straps: 300 mm wide and made from sheet of same material and finish.
3. Butt joints: Seal.

540 Abutments

1. Junctions with flashings: Weathertight and neatly dressed down.

554 A Water vapour sealing at laps and penetrations in metal linings (where not using a separate vapour control layer)

1. General: As required by Cladding Manufacturer to Specialist Sub-contractor design.
2. Sealant tape: As clause 241 LS01 and LS02.
   2.1. Position : On Liner laps as clause 241 LS01 and LS02. At penetrations and abutments ensure an effective seal.
3. Seal quality: Effective, continuous and not overcompressed.

570 Identification and labelling of cladding panels

1. On completion of the cladding works, a label identifying the composition of the cladding types is to be fitted.
2. The label is to illustrate the type of panel fitted, including its core type, to assist Insurers, Fire Officers, Owners and Occupiers in identifying each panel type.
3. Final label type and location is to be agreed with the Client.

Ω End of Section

H43
Metal insulating sandwich panel cladding/ roof covering

Types of cladding/ roof covering system

120 RP01 Insulated roof cladding panel system to waste recycling building

1. Description: Trapezoidal composite roof cladding system.
2. Support structure: Galvanised steel roof purlins on main structural frame to Structural Engineer's details and specification.
   - 2.1. Bearing width (minimum): Minimum 50mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
   - 2.2. Pitch: Refer to Cox Freeman Ltd relevant drawings. Minimum 4° after deflection.
3. Panels - factory-assembled construction to BS EN 14509
   - 3.1. Manufacturer: Kingspan Insulated Panels or similar approved Manufacturer.
     - 3.1.1. Product reference: Kingspan KS 1000 RW composite roof cladding system or similar approved system.
       Proposed system is to be agreed with Client's Insurers.
   - 3.2. Panels reference: Kingspan KS 1000 RW - trapezoidal profiled composite roof cladding panels.
   - 3.3. Cover width: Nominal 1000mm.
   - 3.4. External facing material: Metallic protected steel to BS EN 10346: 2015.
     - 3.4.1. Profile: KS1000 RW trapezoidal profile.
     - 3.4.2. Thickness: Nominal 0.5mm.
     - 3.4.3. Finish: Kingspan XL Forté.
     - 3.4.4. Colour: Refer to Cox Freeman Ltd. drawings for colour references.
   - 3.5. Internal facing material: Metallic protected steel to BS EN 10346: 2015.
     - 3.5.1. Profile: Standard liner profile.
     - 3.5.2. Thickness: Nominal 0.4mm, to be confirmed by Manufacturer as being suitable periodic walk-on access for maintenance.
     - 3.5.3. Finish: Kingspan CLEANsafe 15, to be agreed with Client.
     - 3.5.4. Colour: White, to be agreed with Client.
   - 3.6. Core insulation: HCFC, CFC, HFC free LPCB certificated IPN - QuadCore hybrid insulation core.
   - 3.7. Panel thickness: 73mm core thickness, 104mm overall thickness to achieve required U-Value.
4. Joint type
   - 4.1. Side/ vertical: Overlapping to Cladding Manufacture's details and to Specialist Sub-contractor design.
   - 4.2. End/ horizontal: Overlapping to Cladding Manufacturer's details and to Specialist Sub-contractor design.
5. Primary fasteners: Grade 316 austenitic stainless steel with non-ferrous bonded washer and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match panels unless stated elsewhere.
   - 5.1. Number and location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
6. End laps size (minimum): 150mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
7. Sealing laps

7.1. End laps: Triple line of factory applied weather seals (FAWS) on underside of panel cut-back to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.

7.2. Side laps: Single line factory applied weather seal (FAWS) on underside of panel side-lap to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.

8. Stitching laps

8.1. Fasteners: Grade 316 austenitic stainless steel stitching screws with non-ferrous bonded washer and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match panels unless stated elsewhere.

8.2. End laps: As required by Cladding Manufacturer and to Specialist Sub-contractor design.

8.3. Side laps: As required by Cladding Manufacturer and to Specialist Sub-contractor design.

9. Fire performance

9.1. Spread of flame/ Reaction to fire: BS EN 13501-1, class B-s1,d0.

9.2. Combustibility: Limited Combustibility Non-combustible.

9.3. Fire resistance: Not required.

10. Insurance requirements:
    1. EXT-B to LPS 1181-1.
    2. FM 4471 Class 1 panel roofs.
    3. FM 4880 Class 1 fire rating of building panels or interior finish materials, unlimited height.
    4. FM 4882 Class 1 interior wall panels in smoke sensitive occupancies.
    5. Client to confirm any additional insurance requirements.
11. Warranty requirements:
    1. 40 year thermal performance guarantee.
    2. 40 year structural performance guarantee.
    3. 40 year maintenance and inspection free coating guarantee. Manufacturers coating guarantee to be available on project completion and be fully transferrable for future changes of building ownership.
12. U-value (plane): 0.25 W/m²K to main building.
13. Air leakage: 3m3/hr/m2 at 50Pa.
14. Humidity load (to BS EN ISO 13788): To be determined by Specialist Sub-contractor to suit Client's requirements and building usage.
15. Accessories:
    1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
    2. Profile fillers as clause 300A.
    3. External cold rolled accessories as clause 310A.
    4. Internal cold rolled accessories as clause 311A.
    5. Panel labelling as clause 570.
    6. Eaves gutter as clause R10 /332 EG01.
    7. Rain water pipes as clause R10 /395 RW01
    8. Roof lights as clause 160 RL01.
16. Special features: Guided fall arrest system as section N25.
17. Additional requirements::
    1. Roof cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.

2. Any joints in the secondary steel frame supporting cladding and which are forming part of the building air seal line to be fully sealed to Specialist Sub-contractor's details.
3. Specialist Cladding Subcontractor to determine the non-fragility requirement of the roof cladding system assembly in accordance with the ACR(M)001:2005 test for non-fragility to allow for periodic maintenance access to roofing areas and to provide test data to support the classification and specific information relating to maintenance of the products and which is relevant to non-fragility is provided for inclusion in the Health and Safety file.
4. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
5. Specialist Sub-contractor to provide fastener calculations in accordance with BS EN 1991-1-4: 2005.
6. Specialist Sub-contractor to provide roof drainage calculations in accordance with BS EN 12056: 2000.
7. Specialist Sub-contractor supplied informational clause 166.
8. The KS1000 RW insulated cladding panel has a single figure weighted sound reduction of Rw = 25dB. Agree rating is acceptable with Client / Local Authority prior to placing orders.

120 RP02 Insulated roof cladding panel system to office building

1. Description: Trapezoidal composite roof cladding system.
2. Support structure: Galvanised steel roof purlins on main structural frame to Structural Engineer's details and specification.
   2.1. Bearing width (minimum): Minimum 50mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
   2.2. Pitch: Refer to Cox Freeman Ltd relevant drawings. Minimum 4° after deflection.
3. Panels - factory-assembled construction to BS EN 14509
   3.1. Manufacturer: Kingspan Insulated Panels or similar approved Manufacturer.
      3.1.1. Product reference: Kingspan KS 1000 RW composite roof cladding system or similar approved system.
      Proposed system is to be agreed with Client's Insurers.
   3.2. Panels reference: Kingspan KS 1000 RW - trapezoidal profiled composite roof cladding panels.
   3.3. Cover width: Nominal 1000mm.
   3.4. External facing material: Metallic protected steel to BS EN 10346: 2015.
      3.4.1. Profile: KS1000 RW trapezoidal profile.
      3.4.2. Thickness: Nominal 0.5mm.
      3.4.3. Finish: Kingspan XL Forté.
      3.4.4. Colour: Refer to Cox Freeman Ltd. drawings for colour references.
   3.5. Internal facing material: Metallic protected steel to BS EN 10346: 2015.
      3.5.1. Profile: Standard liner profile.
      3.5.2. Thickness: Nominal 0.4mm, to be confirmed by Manufacturer as being suitable periodic walk-on access for maintenance.
      3.5.3. Finish: Kingspan CLEANsafe 15, to be agreed with Client.
      3.5.4. Colour: White, to be agreed with Client.
   3.6. Core insulation: HCFC, CFC, HFC free LPCB certificated IPN - QuadCore hybrid insulation core.
   3.7. Panel thickness: 120mm core thickness, 151mm overall thickness to achieve required U-Value.
4. Joint type

4.1. Side/ vertical: Overlapping to Cladding Manufacture's details and to Specialist Sub-contractor design.

4.2. End/ horizontal: Overlapping to Cladding Manufacturer's details and to Specialist Sub-contractor design.

5. Primary fasteners: Grade 316 austenitic stainless steel with non-ferrous bonded washer and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match panels unless stated elsewhere.

5.1. Number and location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.

6. End laps size (minimum): 150mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.

7. Sealing laps

7.1. End laps: Triple line of factory applied weather seals (FAWS) on underside of panel cut-back to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.

7.2. Side laps: Single line factory applied weather seal (FAWS) on underside of panel side-lap to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.

8. Stitching laps

8.1. Fasteners:: Grade 316 austenitic stainless steel stitching screws with non-ferrous bonded washer and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match panels unless stated elsewhere.

8.2. End laps: As required by Cladding Manufacturer and to Specialist Sub-contractor design.

8.3. Side laps: As required by Cladding Manufacturer and to Specialist Sub-contractor design.

9. Fire performance

9.1. Spread of flame/ Reaction to fire: BS EN 13501-1, class B-s1,d0.

9.2. Combustibility: Limited Combustibility.

9.3. Fire resistance: Not required.

10. Insurance requirements:

1. EXT-B to LPS 1181-1.
2. FM 4471 Class 1 panel roofs.
3. FM 4880 Class 1 fire rating of building panels or interior finish materials, unlimited height.
4. FM 4882 Class 1 interior wall panels in smoke sensitive occupancies.
5. Client to confirm any additional insurance requirements.

11. Warranty requirements:

1. 40 year thermal performance guarantee.
2. 40 year structural performance guarantee.
3. 40 year maintenance and inspection free coating guarantee. Manufacturers coating guarantee to be available on project completion and be fully transferrable for future changes of building ownership.

12. U-value (plane): 0.15 W/m²K to office building.

13. Air leakage: 3m3/hr/m2 at 50Pa.

14. Humidity load (to BS EN ISO 13788): To be determined by Specialist Sub-contractor to suit Client's requirements and building usage.

15. Accessories:

1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
2. Profile fillers as clause 300A.

3. External cold rolled accessories as clause 310A.
4. Internal cold rolled accessories as clause 311A.
5. Panel labelling as clause 570.
6. Eaves gutter as clause R10 /332 EG01.
7. Rain water pipes as clause R10 /395 RW01
8. Roof lights as clause 160 RL01.

16. Special features: Guided fall arrest system as section N25.
17. Additional requirements::
    1. Roof cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. Any joints in the secondary steel frame supporting cladding and which are forming part of the building air seal line to be fully sealed to Specialist Sub-contractor's details.
    3. Specialist Cladding Subcontractor to determine the non-fragility requirement of the roof cladding system assembly in accordance with the ACR(M)001:2005 test for non-fragility to allow for periodic maintenance access to roofing areas and to provide test data to support the classification and specific information relating to maintenance of the products and which is relevant to non-fragility is provided for inclusion in the Health and Safety file.
    4. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    5. Specialist Sub-contractor to provide fastener calculations in accordance with BS EN 1991-1-4: 2005.
    6. Specialist Sub-contractor to provide roof drainage calculations in accordance with BS EN 12056: 2000.
    7. Specialist Sub-contractor supplied informational clause 166.
    8. The KS1000 RW insulated cladding panel has a single figure weighted sound reduction of Rw = 25dB. Agree rating is acceptable with Client / Local Authority prior to placing orders.

120 WP01 Vertically spanning trapezoidal wall cladding panel system to waste recycling building

1. Description: Composite trapezoidal wall cladding system.
2. Support structure: Galvanised steel support frame on main structural frame to Structural Engineer's details and specification in conjunction with Cladding Manufacturer's requirements.
    2.1. Bearing width (minimum): Minimum 50mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
    2.2. Orientation: Vertically spanning panels.
3. Panels - factory-assembled construction to BS EN 14509
    3.1. Manufacturer: Kingspan Insulated Panels or similar approved Manufacturer.
        3.1.1. Product reference: Kingspan trapezoidal insulated wall cladding system or similar approved system.
        Proposed system is to be agreed with Client's Insurers.
    3.2. Panels reference: Kingspan KS 1000 RW.
    3.3. Cover width: Nominal 1000mm.
    3.4. External facing material: Metallic protected steel to BS EN 10346: 2015.
        3.4.1. Profile: KS 1000 RW - trapezoidal profile.
        3.4.2. Thickness: Nominal 0.5mm.
        3.4.3. Finish: Kingspan XL Forté.
        3.4.4. Colour: Refer to Cox Freeman Ltd. drawings for colour references.

3.5. Internal facing material: Metallic protected steel to BS EN 10346: 2015.

3.5.1. Profile: Standard liner profile.

3.5.2. Thickness: Nominal 0.4mm.

3.5.3. Finish: Kingspan CLEANsafe 15, to be agreed with Client.

3.5.4. Colour: White, to be agreed with Client.

3.6. Core insulation: HCFC, CFC, HFC free LPCB certificated IPN - QuadCore hybrid insulation core.

3.7. Panel thickness: 53mm core thickness thickness / 84mm overall thickness to achieve required U-Value.

4. Joint type

4.1. Side/ vertical: Overlapping to Cladding Manufacture's details and to Specialist Sub-contractor design.

4.2. End/ horizontal: Overlapping to Cladding Manufacture's details and to Specialist Sub-contractor design.

5. Primary fasteners: Grade 316 austenitic stainless steel with non-ferrous bonded washer and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design.

5.1. Number and location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.

6. Secondary fasteners: Grade 316 austenitic stainless steel stitching screws with non-ferrous bonded washers and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match colour of flashings unless stated elsewhere.

6.1. Number and location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.

7. End laps size (minimum): 100mm as required by Cladding Manufacturer and to Specialist Sub-contractor design.

8. Sealing laps

8.1. End laps: Single line of factory applied weather seals (FAWS) on underside of panel cut-back.

8.2. Side laps: Single line factory applied weather seal (FAWS) on underside of panel side-lap.

9. Fire performance

9.1. Spread of flame/ Reaction to fire: BS EN 13501-1, class B-s1,d0.

9.2. Combustibility: Limited Combustibility.

9.3. Fire resistance: Not required.

10. Insurance requirements:

1. EXT-B to LPS 1181-1.
2. Client to confirm any additional insurance requirements.

11. Warranty requirements:

1. 40 year thermal performance guarantee.
2. 40 year structural performance guarantee.
3. 40 year maintenance and inspection free coating guarantee. Manufacturers coating guarantee to be available on project completion and be fully transferrable for future changes of building ownership.

12. U-value (plane): 0.35 W/m²K to waste recycling.

13. Air leakage: 3m3/hr/m2 at 50Pa.

14. Humidity load (to BS EN ISO 13788): To be determined by Specialist Sub-contractor to suit Client's requirements and building usage.

15. Accessories:

1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
2. Single line of non-setting gun-grade, PremSeal CV or similar, site applied across panel side lap in line with internal air seal, located at head and cill locations.
3. Profile fillers as clause 300A.
4. External cold rolled accessories as clause 310B.
5. Internal cold rolled accessories as clause 311B.
6. Panel labelling as clause 570.

16. Special features: None
17. Additional requirements::
    1. Wall cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. Any joints in the secondary steel frame supporting cladding and which are forming part of the building air seal line to be fully sealed to Specialist Sub-contractor's details.
    3. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    4. Specialist Sub-contractor supplied informational clause 166.
    5. The KS1000 RW insulated cladding panel has a single figure weighted sound reduction of Rw = 25dB. Agree rating is acceptable with Client / Local Authority prior to placing orders.

120 WP02 Vertically spanning trapezoidal wall cladding panel system to office building

1. Description: Composite trapezoidal wall cladding system.
2. Support structure: Galvanised steel support frame on main structural frame to Structural Engineer's details and specification in conjunction with Cladding Manufacturer's requirements.
    2.1. Bearing width (minimum): Minimum 50mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
    2.2. Orientation: Vertically spanning panels.
3. Panels - factory-assembled construction to BS EN 14509
    3.1. Manufacturer: Kingspan Insulated Panels or similar approved Manufacturer.
        3.1.1. Product reference: Kingspan trapezoidal insulated wall cladding system or similar approved system.
        Proposed system is to be agreed with Client's Insurers.
    3.2. Panels reference: Kingspan KS 1000 RW.
    3.3. Cover width: Nominal 1000mm.
    3.4. External facing material: Metallic protected steel to BS EN 10346: 2015.
        3.4.1. Profile: KS 1000 RW - trapezoidal profile.
        3.4.2. Thickness: Nominal 0.5mm.
        3.4.3. Finish: Kingspan XL Forté.
        3.4.4. Colour: Refer to Cox Freeman Ltd. drawings for colour references.
    3.5. Internal facing material: Metallic protected steel to BS EN 10346: 2015.
        3.5.1. Profile: Standard liner profile.
        3.5.2. Thickness: Nominal 0.4mm.
        3.5.3. Finish: Kingspan CLEANsafe 15, to be agreed with Client.
        3.5.4. Colour: White, to be agreed with Client.

3.6. Core insulation: HCFC, CFC, HFC free LPCB certificated IPN - QuadCore hybrid insulation core.

3.7. Panel thickness: 80mm core thickness thickness / 111mm overall thickness to achieve required U-Value.

4. Joint type
   4.1. Side/ vertical: Overlapping to Cladding Manufacture's details and to Specialist Sub-contractor design.
   4.2. End/ horizontal: Overlapping to Cladding Manufacture's details and to Specialist Sub-contractor design.
5. Primary fasteners: Grade 316 austenitic stainless steel with non-ferrous bonded washer and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design.
   5.1. Number and location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
6. Secondary fasteners: Grade 316 austenitic stainless steel stitching screws with non-ferrous bonded washers and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match colour of flashings unless stated elsewhere.
   6.1. Number and location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
7. End laps size (minimum): 100mm as required by Cladding Manufacturer and to Specialist Sub-contractor design.
8. Sealing laps
   8.1. End laps: Single line of factory applied weather seals (FAWS) on underside of panel cut-back.
   8.2. Side laps: Single line factory applied weather seal (FAWS) on underside of panel side-lap.
9. Fire performance
   9.1. Spread of flame/ Reaction to fire: BS EN 13501-1, class B-s1,d0.
   9.2. Combustibility: Limited Combustibility.
   9.3. Fire resistance: Not required.
10. Insurance requirements:
    1. EXT-B to LPS 1181-1.
    2. Client to confirm any additional insurance requirements.
11. Warranty requirements:
    1. 40 year thermal performance guarantee.
    2. 40 year structural performance guarantee.
    3. 40 year maintenance and inspection free coating guarantee. Manufacturers coating guarantee to be available on project completion and be fully transferrable for future changes of building ownership.
12. U-value (plane): 0.23 W/m²K to offices.
13. Air leakage: 3m3/hr/m2 at 50Pa.
14. Humidity load (to BS EN ISO 13788): To be determined by Specialist Sub-contractor to suit Client's requirements and building usage.
15. Accessories:
    1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
    2. Single line of non-setting gun-grade, PremSeal CV or similar, site applied across panel side lap in line with internal air seal, located at head and cill locations.
    3. Profile fillers as clause 300A.
    4. External cold rolled accessories as clause 310B.

5. Internal cold rolled accessories as clause 311B.
6. Panel labelling as clause 570.

16. Special features: None
17. Additional requirements::
    1. Wall cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. Any joints in the secondary steel frame supporting cladding and which are forming part of the building air seal line to be fully sealed to Specialist Sub-contractor's details.
    3. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    4. Specialist Sub-contractor supplied informational clause 166.
    5. The KS1000 RW insulated cladding panel has a single figure weighted sound reduction of Rw = 25dB. Agree rating is acceptable with Client / Local Authority prior to placing orders.

120 WP03 Vertically spanning trapezoidal wall cladding panel system to waste recycling building EXT-A30

1. Description: Composite trapezoidal wall cladding system.
2. Support structure: Fire wall rail support frame on main structural frame to Structural Engineer's details and specification in conjunction with Cladding Manufacturer's requirements.
    2.1. Bearing width (minimum):
        1. In accordance with Cladding Manufacturer's recommendations tested and certified details to achieve fire rating.

    2.2. Orientation: Vertically spanning panels.
3. Panels - factory-assembled construction to BS EN 14509
    3.1. Manufacturer: Kingspan Insulated Panels or similar approved Manufacturer.
        3.1.1. Product reference: Kingspan trapezoidal insulated wall cladding system to LPS 1181 Grade EXT-A30 or similar approved system.
        Proposed system is to be agreed with Client's Insurers.
    3.2. Panels reference: Kingspan KS 1000 RW to LPS 1181 Grade EXT-A30. (77 minutes fire integrity / 30 minutes fire insulation).
    3.3. Cover width: Nominal 1000mm.
    3.4. External facing material: Metallic protected steel to BS EN 10346: 2015.
        3.4.1. Profile: KS 1000 RW - trapezoidal profile.
        3.4.2. Thickness: Nominal 0.5mm.
        3.4.3. Finish: Kingspan XL Forté.
        3.4.4. Colour: Refer to Cox Freeman Ltd. drawings for colour references.
    3.5. Internal facing material: Metallic protected steel to BS EN 10346: 2015.
        3.5.1. Profile: Standard liner profile.
        3.5.2. Thickness: Nominal 0.4mm.
        3.5.3. Finish: Kingspan CLEANsafe 15, to be agreed with Client.
        3.5.4. Colour: White, to be agreed with Client.
    3.6. Core insulation: HCFC, CFC, HFC free LPCB certificated IPN - QuadCore hybrid insulation core.

3.7. Panel thickness: 80mm core thickness thickness / 111mm overall thickness to achieve required U-Value and fire rating.

4. Joint type
   4.1. Side/ vertical: Overlapping to Cladding Manufacture's details and to Specialist Sub-contractor design.
   4.2. End/ horizontal: Overlapping to Cladding Manufacture's details and to Specialist Sub-contractor design.
5. Primary fasteners: Grade 316 austenitic stainless steel with non-ferrous bonded washer and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design.
   5.1. Number and location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
6. Secondary fasteners: Grade 316 austenitic stainless steel stitching screws with non-ferrous bonded washers and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match colour of flashings unless stated elsewhere.
   6.1. Number and location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
7. End laps size (minimum): 100mm as required by Cladding Manufacturer and to Specialist Sub-contractor design.
8. Sealing laps
   8.1. End laps: Single line of factory applied weather seals (FAWS) on underside of panel cut-back.
   8.2. Side laps: Single line factory applied weather seal (FAWS) on underside of panel side-lap.
9. Vertical joints:
   9.1. Other:
      1. Fire rated insulation board with any gaps between board and panels filled with fire rated gun applied canister insulation.
      2. In accordance with Cladding Manufacturer's tested and certified details to achieve fire rating and to Specialist Sub-contractor design.
10. Fire performance
    10.1. Spread of flame/ Reaction to fire: BS EN 13501-1, class B-s1,d0.
    10.2. Combustibility: Limited Combustibility.
    10.3. Fire resistance: 77 minutes fire integrity and 30 minutes fire insulation. To be confirmed by Building Control / Approved Inspector and Client's insurers.
11. Insurance requirements:
    1. LPS 1181 Grade EXT-A30.
    2. Client to confirm any additional insurance requirements.
12. Warranty requirements:
    1. 40 year thermal performance guarantee.
    2. 40 year structural performance guarantee.
    3. 40 year maintenance and inspection free coating guarantee. Manufacturers coating guarantee to be available on project completion and be fully transferrable for future changes of building ownership.
13. U-value (plane): 0.23 W/m²K to waste recycling.
14. Air leakage: 3m3/hr/m2 at 50Pa.
15. Humidity load (to BS EN ISO 13788): To be determined by Specialist Sub-contractor to suit Client's requirements and building usage.
16. Accessories:

1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
2. Single line of non-setting gun-grade, PremSeal CV or similar, site applied across panel side lap in line with internal air seal, located at head and cill locations.
3. Profile fillers as clause 300A.
4. External cold rolled accessories as clause 310B.
5. Internal cold rolled accessories as clause 311B.
6. Panel labelling as clause 570.
7. All necessary accessories required to install cladding to Cladding Manufacturer's tested and certified details to achieve stated fire rating.

17. Special features: None
18. Additional requirements::
    1. Wall cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. Any joints in the secondary steel frame supporting cladding and which are forming part of the building air seal line to be fully sealed to Specialist Sub-contractor's details.
    3. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    4. Provide certification of fire wall installation on completion.
    5. Specialist Sub-contractor supplied informational clause 166.
    6. The KS1000 RW insulated cladding panel has a single figure weighted sound reduction of Rw = 25dB. Agree rating is acceptable with Client / Local Authority prior to placing orders.

120 WP04 Vertically spanning trapezoidal wall cladding panel system to office building EXT-A30

1. Description: Composite trapezoidal wall cladding system.
2. Support structure: Fire wall rail support frame on main structural frame to Structural Engineer's details and specification in conjunction with Cladding Manufacturer's requirements.
    2.1. Bearing width (minimum):
        1. In accordance with Cladding Manufacturer's recommendations tested and certified details to achieve fire rating.

    2.2. Orientation: Vertically spanning panels.
3. Panels - factory-assembled construction to BS EN 14509
    3.1. Manufacturer: Kingspan Insulated Panels or similar approved Manufacturer.
        3.1.1. Product reference: Kingspan trapezoidal insulated wall cladding system to LPS 1181 Grade EXT-A30 or similar approved system.
        Proposed system is to be agreed with Client's Insurers.
    3.2. Panels reference: Kingspan KS 1000 RW to LPS 1181 Grade EXT-A30. (77 minutes fire integrity / 30 minutes fire insulation).
    3.3. Cover width: Nominal 1000mm.
    3.4. External facing material: Metallic protected steel to BS EN 10346: 2015.
        3.4.1. Profile: KS 1000 RW - trapezoidal profile.
        3.4.2. Thickness: Nominal 0.5mm.
        3.4.3. Finish: Kingspan XL Forté.

3.4.4. Colour: Refer to Cox Freeman Ltd. drawings for colour references.

3.5. Internal facing material: Metallic protected steel to BS EN 10346: 2015.

3.5.1. Profile: Standard liner profile.

3.5.2. Thickness: Nominal 0.4mm.

3.5.3. Finish: Kingspan CLEANsafe 15, to be agreed with Client.

3.5.4. Colour: White, to be agreed with Client.

3.6. Core insulation: HCFC, CFC, HFC free LPCB certificated IPN - QuadCore hybrid insulation core.

3.7. Panel thickness: 80mm core thickness thickness / 111mm overall thickness to achieve required U-Value and fire rating.

4. Joint type

4.1. Side/ vertical: Overlapping to Cladding Manufacture's details and to Specialist Sub-contractor design.

4.2. End/ horizontal: Overlapping to Cladding Manufacture's details and to Specialist Sub-contractor design.

5. Primary fasteners: Grade 316 austenitic stainless steel with non-ferrous bonded washer and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design.

5.1. Number and location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.

6. Secondary fasteners: Grade 316 austenitic stainless steel stitching screws with non-ferrous bonded washers and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match colour of flashings unless stated elsewhere.

6.1. Number and location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.

7. End laps size (minimum): 100mm as required by Cladding Manufacturer and to Specialist Sub-contractor design.

8. Sealing laps

8.1. End laps: Single line of factory applied weather seals (FAWS) on underside of panel cut-back.

8.2. Side laps: Single line factory applied weather seal (FAWS) on underside of panel side-lap.

9. Vertical joints:

9.1. Other:

1. Fire rated insulation board with any gaps between board and panels filled with fire rated gun applied canister insulation.
2. In accordance with Cladding Manufacturer's tested and certified details to achieve fire rating and to Specialist Sub-contractor design.

10. Fire performance

10.1. Spread of flame/ Reaction to fire: BS EN 13501-1, class B-s1,d0.

10.2. Combustibility: Limited Combustibility.

10.3. Fire resistance: 77 minutes fire integrity and 30 minutes fire insulation. To be confirmed by Building Control / Approved Inspector and Client's insurers.

11. Insurance requirements:

1. LPS 1181 Grade EXT-A30.
2. Client to confirm any additional insurance requirements.

12. Warranty requirements:

1. 40 year thermal performance guarantee.
2. 40 year structural performance guarantee.

3. 40 year maintenance and inspection free coating guarantee. Manufacturers coating guarantee to be available on project completion and be fully transferrable for future changes of building ownership.

13. U-value (plane): 0.23 W/m²K to offices.
14. Air leakage: 3m3/hr/m2 at 50Pa.
15. Humidity load (to BS EN ISO 13788): To be determined by Specialist Sub-contractor to suit Client's requirements and building usage.
16. Accessories:
    1. All necessary accessories including trims, flashing, bearers, support channels, flashings and shrouds, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
    2. Single line of non-setting gun-grade, PremSeal CV or similar, site applied across panel side lap in line with internal air seal, located at head and cill locations.
    3. Profile fillers as clause 300A.
    4. External cold rolled accessories as clause 310B.
    5. Internal cold rolled accessories as clause 311B.
    6. Panel labelling as clause 570.
    7. All necessary accessories required to install cladding to Cladding Manufacturer's tested and certified details to achieve stated fire rating.
17. Special features: None
18. Additional requirements::
    1. Wall cladding system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. Any joints in the secondary steel frame supporting cladding and which are forming part of the building air seal line to be fully sealed to Specialist Sub-contractor's details.
    3. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    4. Provide certification of fire wall installation on completion.
    5. Specialist Sub-contractor supplied informational clause 166.
    6. The KS1000 RW insulated cladding panel has a single figure weighted sound reduction of Rw = 25dB. Agree rating is acceptable with Client / Local Authority prior to placing orders.

160 RL01 Profiled rooflights

1. Description: Polycarbonate trapezoidal roof light system fully compatible with the roof cladding.
2. Support structure: Galvanised steel roof purlins on main structural frame to Structural Engineer's details and specification.
    2.1. Bearing width: Minimum 120mm and intermediate 50mm to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations.
    2.2. Pitch: As roof.
3. Factory-assembled insulating rooflights (FAIRs) and wall lights: Co-extruded, multi-wall construction.
4. Standard: To BS EN 1013
    4.1. Material: Co-extruded, multi wall polycarbonate.
    4.2. Manufacturer: Kingspan Insulated Panels or similar approved.
        4.2.1. Product reference: Kingspan KS 1000 RWSF DLTR 1.6 Day-Lite trapezoidal roof panels to be fully compatible with adjacent roof system.
        4.2.2. Colour: Submit samples of options for Client approval. Allow for Clear.

4.2.3. Cover width: Nominal 1000mm.

5. Fire performance
   5.1. Reaction to fire performance rating - rooflight outer surface: BRoof(t4) to BS EN 13501-5
   5.2. Reaction to fire performance rating - rooflight inner surface: Class B-s1,d0
6. Safety
   6.1. Fragility to ACR(M)001: Class B
7. Accessories: All necessary accessories including trims, flashing, PVC spacers, ledger angles, profile fillers etc. and any other components required to complete installation in full accordance with Cladding Manufacturer's details and recommendations.
8. Primary fasteners
   8.1. Type:: As required by Cladding Manufacturer and to Specialist Sub- contractor design.
   8.2. Fastener profile location: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
   8.3. Number of fasteners per sheet width
      8.3.1. Eaves and end laps: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
      8.3.2. Intermediate supports: As required by Cladding Manufacturer and to Specialist Sub-contractor design.
9. End laps size (minimum): As required by Cladding Manufacturer and to Specialist Sub- contractor design.
10. Side laps stitching: As required by Cladding Manufacturer and to Specialist Sub- contractor design.
11. Sealing laps As clause 550 and as follows:
    11.1. Plastic FAIRs sheet overlapped by insulating sandwich panels: As required by Cladding Manufacturer and to Specialist Sub- contractor design.
    11.2. Plastic FAIRs sheets underlapped by insulating sandwich panels: As required by Cladding Manufacturer and to Specialist Sub- contractor design.
12. Special features: As required by Cladding Manufacturer and to Specialist Sub- contractor design.
13. U-value (plane): 1.6 W/m2K to waste recycling building.
14. Air leakage: 3m3/hr/m2 at 50Pa.
15. Humidity load (to BS EN ISO 13788): To be determined by Specialist Sub-contractor to suit Client's requirements and building usage.
16. Additional requirements:
    1. Roof light system and associated accessories / items etc. are to be installed in full accordance with the Manufacturer's recommendations and certified details to achieve the required levels of performance.
    2. Any joints in the secondary steel frame supporting cladding and which are forming part of the building air seal line to be fully sealed to Specialist Sub-contractor's details.
    3. Specialist Sub-contractor is to submit all appropriate product test results, performance certificates and product data sheets to Client / Client's Insurer for sign off prior to placing orders.
    4. Specialist Sub-contractor to provide fastener calculations in accordance with BS EN 1991-1-4: 2005.
    5. Specialist Sub-contractor to provide roof drainage calculations in accordance with BS EN 12056: 2000.
    6. Specialist Sub-contractor supplied informational clause 166.

General requirements

166 Sub-contractor's design

1. Description: Provide detailed design of all cladding types complete with all associated items and accessories.
2. Design responsibility: Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
3. Design standard: In accordance with BS 5427.
4. Product specification and requirements: To BS EN 14509 and any other relevant standards.
5. Structural and fire requirements
   5.1. Generally: As shown on general arrangement drawings and to Structural Engineer's details and specification.
   5.2. Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
6. Functional requirements:
   1. As specified in this section of the NBS specification.
   2. As specified in section A33.
   3. As required by Cladding Manufacturer including any certified details.
7. Additional requirements:
   1. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
   2. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
8. Design and production information:
   1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
   2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
   3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
   4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
9. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

172 Thermal bridging

1. Requirement: Complete the design of the cladding/ covering system to avoid excessive thermal bridging.
   1.1. Standard and process, in accordance with: MCRMA Technical Paper 14, MCRMA Technical Paper 17 with MCRMA Technical Bulletin 14 and Cladding Manufacture's requirements.

175 Product samples

1. General: Before commencing detailed design, submit labelled samples of the following: All cladding types, colours, flashings, fasteners etc.

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.
    1.1. Verifying authority: Submit proposals.

187 Deflection of metal cladding/ covering

1. Standard: Calculation or test in accordance with BS EN 14509.
2. Roof covering Maximum permitted deflection under distributed loads as a multiple of span and due to:
    2.1. Permanent load: To Structural Engineer's requirements.
    2.2. Permanent load plus imposed roof load or undrifted snow load: To Structural Engineer's requirements.
    2.3. Permanent and wind loads: To Structural Engineer's requirements.
3. Wall cladding Maximum permitted deflection under distributed loads as a multiple of span and due to:
    3.1. Wind load: To Structural Engineer's requirements.

192 Sound transmittance of cladding/ covering system - weighted

1. Location: Through each cladding type.
2. Requirement: Measure within 100 to 3150 Hz frequency range to BS EN ISO 717-1.
    2.1. Minimum weighted sound reduction index (Rw): In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.
    2.2. Minimum standardized level difference (DnTw): In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.

193 Sound transmittance of cladding/ covering system - frequency specific

1. Location: Through roof and external walls.
2. Requirement: Measure to BS EN ISO 10140-2.
    2.1. Minimum sound reduction index (R): In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.
        2.1.1. For one third octave band centre frequency (Hz) of: In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.

194 Internal sound absorption of cladding/ covering system

1. Location: Through roof and external walls.
2. Requirement: Measure to BS EN ISO 354.
    2.1. Minimum sound absorption coefficient (alpha S): In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.
        2.1.1. For one third octave band centre frequency (Hz) of: In accordance with Client's requirements. Cladding Sub-contractor to confirm proposed system meets Client's requirements.

197 Attachment

1. Determine the number and location of cladding fasteners recommended by the cladding manufacturer to resist wind loads calculated in accordance with BS EN 1991-1-4: 2005 Eurocode 1 – Actions on structures Part 1-4.
2. Calculate wind loads on roof and wall cladding appropriate to location, exposure, roof height, building shape and size in accordance with NA of BS EN 1991-1-4: 2005 the UK National Annex to Eurocode 1 – Actions on structures Part 1-4.

198 Water penetration

1. Requirement: Under site exposure conditions, moisture must not penetrate onto internal surfaces, or into cavities not designed to be wetted.

200 Avoidance of interstitial condensation

1. Requirement: Determine interstitial condensation risk of cladding system using the method described in BS 5250 Annex D. If necessary, provide a vapour control layer and/ or revise thermal insulation to ensure that damage and nuisance from interstitial condensation does not occur.
2. Outdoor psychrometric conditions (notional) As follows:
   2.1. Temperature: To be determined by Specialist Sub-contractor.
   2.2. Relative humidity: To be determined by Specialist Sub-contractor.
   2.3. Vapour pressure: To be determined by Specialist Sub-contractor.
3. Indoor psychrometric conditions (notional) As follows:
   3.1. Temperature: To be determined by Specialist Sub-contractor.
   3.2. Relative humidity: To be determined by Specialist Sub-contractor.
   3.3. Vapour pressure: To be determined by Specialist Sub-contractor.

202 Avoidance of surface condensation

1. Requirement: Determine surface condensation risk of cladding system using the method described in BS EN ISO 13788. If necessary, revise thermal insulation to provide satisfactory temperature factor (fmin). Ensure that damage and nuisance from surface condensation and does not occur.

Fixing cladding/ covering

215 Painting structure

1. Sequence: Paint outer surface of supporting structure before fixing cladding/ covering.

219 Fasteners

1. Unspecified fasteners: Recommended for the purpose by the cladding/ covering manufacturer.

221 Fittings and accessories

1. Unspecified fittings and accessories: Recommended for the purpose by the cladding/ covering manufacturer.

223 Prevention of electrolytic action

1. Isolating tape: Type recommended by cladding/ covering manufacturer.
   1.1. Location: To contact surfaces of supports and sheets of dissimilar metals.

234 IG01 Membrane lined insulated gutter

1. Description: Membrane lined insulated gutter as part of composite roofing system.

2. Manufacturer: Kingspan Insulated Panels or similar approved.
   2.1. Product reference: Kingspan membrane linedinsulated gutter system complete with the Kingspan Total Guarantee for up to 25 years.
3. Sizes: Gutter is to be sized by Specialist Roofing Subcontractor to suit location of use and to be designed to accommodate continuous storm intensity in accordance with BS EN 12056 to the general size and shape illustrated on Cox Freeman Ltd. drawings / required complete with all necessary stop ends, overflows, gutter supports etc. Calculations are to be submitted to support the actual sizing and numbers and types of outlets required to comply with the code(s) using rainfall rates accurately interpolated from graphs within BS EN 12056 - to comply with designated required life of building ie. not taken to next highest graph O/A for calculation purposes.
4. Material: Galvanized mild steel to BS EN 10346 with zinc coating as Manufacturer's details.
   4.1. Gauge/ Thickness: 0.7mm thick or as necessary to ensure gutter is walk-on.
   4.2. External finish: 1.2mm thick PVC membrane, colour light grey.
5. Insulation: Closed cell, non-deleterious with zero Ozone Depletion Potential (zero ODP) PIR insulation with Factory Mutual (FM Global) and LPCB approval. Thickness to achieve required U-Value.
6. Internal liner sheet: Galvanized mild steel to BS EN 10346 with zinc coating as Manufacturer's details.
   6.1. Gauge/Thickness: 0.5mm thick or as necessary to ensure gutter is walk-on.
   6.2. Internal finish: CLEANsafe 15, colour bright white.
7. Jointing method: As recommended by Manufacturer and to Sub-contractor's details.
8. Fixing method: As recommended by Manufacturer and to Sub-contractor's details.
9. Accessories: All necessary accessories required to allow installation of gutter to Manufacturer's details and recommendations in locations shown including all internal and external corners, stop ends, T-sections, sumps, overflows and weirs, joints, outlet details.
10. Thermal transmittance (U-value): 0.3 W/m2K when calculated using the method required by the Building Regulations Part L2A 2010 (England & Wales).
11. Performance Requirements: ACR[M]001:2005 for non-fragility and achieved Class B.
12. Other:
    1. Gutters to have a waterface membrane of no less that 165mm deep.
    2. Gutters are to be installed and jointed in full accordance with Manufacturer's details and recommendations.
    3. Gutter support brackets are to be provide where required to Specialist Roofing Sub-contractor's details in conjunction with Gutter Manufacturer's recommendations to suit loadings, locations etc.
    4. Membrane Coated Snorkel and Letterbox type weir overflows are to be included where necessary to provide effective evacuation(s) at all times and should be of the same material as the gutters and externally flashed, trimmed, finished and coated to Specialist Roofing Contractors details. Overflow openings to be located maximum 75mm above gutter sole. Specialist Sub-contractor to determine size, extent and locations. Allow for providing 1 number with each gutter stop end.
    5. Specialist sub-contractor is to determine the number, diameter and locations of all rain water outlets required to drain gutter. Gutter design is to incorporate tapered rain water outlets complete with leaf guards etc. to Specialist Sub-contractors details in accordance with Manufacturer's recommendations.
    6. RWP's to be as section R10, colour to be confirmed, and all to include access/rodding hatches, swan necks, support clips etc as required to complete the installation to Specialist Roofing Sub-contractors details. RWP locations to be determined in conjunction with the Structural Engineer to suit below ground drainage / column positions etc.
    7. Refer to Cox Freeman Ltd. drawings for indicative details of gutter.

13. Gutter testing: Block all outlets, fill gutters to overflow level and after 5 minutes closely inspect for leakage and rectify as required.
14. Maintenance: Building owner to consider any future maintenance of the gutters and associated rainwater drainage system as part of their own risk assessment, using specialist cleaning contractors with their own access equipment.

275 Continuity thermal insulation

1. Material: As recommended by Cladding Manufacturer to suit detail.
    1.1. Manufacturer: As recommended by Cladding Manufacturer.
        1.1.1. Product reference: As recommended by Cladding Manufacturer.
2. Recycled content: As recommended by Cladding Manufacturer.
3. Installation: Secure and continuous with cladding/ covering insulation.
4. General: All in full accordance with Cladding Manufacturer's details and recommendations. Final types to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations to suit cladding system, location of use and exposure.

275 Continuity thermal insulation Type A

1. Material: As recommended by Cladding Manufacturer to suit detail.
    1.1. Manufacturer: As recommended by Cladding Manufacturer.
        1.1.1. Product reference: As recommended by Cladding Manufacturer.
2. Recycled content: As recommended by Cladding Manufacturer.
3. Installation: Secure and continuous with cladding/ covering insulation.
4. General: All in full accordance with Cladding Manufacturer's details and recommendations. Final types to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations to suit cladding system, location of use and exposure.

276 Continuity thermal insulation to KS 1000 RW panels

1. Location:
   At junctions between roof / wall panel system and walls / penetrations insulated with PIR board insulation, any gaps filled with Premier Sealants (+44 (0)1724 864 100) Firefoam (class B1 rated) or similar, fire rated gun applied canister urethane insulation as required by Cladding Manufacturer and to Specialist Sub-contractor's design.
2. Placement:
   Secure and continuous with cladding/ covering insulation.
3. Other:
   Psi values of junction details to be calculated by Kingspan Insulated Panels, as per the guidance set out in BRE report BR497 Conventions for Calculating Linear Thermal Transmittance and Temperature Factors.
4. General:
   All in full accordance with Cladding Manufacturer's details and recommendations. Final types to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations to suit cladding system, location of use and exposure.

300 A Profile fillers to Kingspan KS 1000 RW cladding panel system

1. Material: MP (Metallocene polyolefin) to Cladding Manufacturer's details.
2. Manufacturer: As recommended by Cladding Manufacturer.
    2.1. Product references: As recommended by Cladding Manufacturer.
3. Colour: Black.
4. Thickness: To suit cladding system and panel thickness.

5. Fixing method: Continuously seal the top, bottom and sides of each profile filler to Cladding Manufacturer's details.
    5.1. Requirement: To close cavities within the external envelope. Tight fit with no unintended gaps.
6. Location: Where shown on drawings.
Wherever necessary to close off corrugation cavities from the inside and outside of the building,
Where required by Cladding Manufacturer's details.
7. General: All in full accordance with Cladding Manufacturer's details and recommendations.
Final types to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations to suit cladding system, location of use and exposure.

310 A Purpose made cold formed external metal accessories to Kingspan KS 1000 RW roof cladding system

1. Material: Steel to BS EN 10346
    1.1. Thickness/ gauge: Nominal 0.4mm. Final thickness to be confirmed by Specialist Sub-contractor to suit application and exposure.
    1.2. Finish/ Colour: Kingspan XL Forte external coating. Refer to Cox Freeman Ltd. drawings for colour references.
2. Fasteners
    2.1. Type: Grade 316 austenitic stainless steel stitching screws with non-ferrous bonded washer and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match flashings unless stated elsewhere.
    2.2. Location: As recommended by Cladding Manufacturer.
    2.3. Fixing centres: As recommended by Cladding Manufacturer.
3. Seal:: Continuous seal between flashing and cladding panel as recommended by Cladding Manufacturer.
Individual lengths to be jointed using 150mm sealed butt straps.
4. General:: All in full accordance with Cladding Manufacturer's details and recommendations.
Final types to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations to suit cladding system, location of use and exposure.

310 B Purpose made cold formed external metal accessories to Kingspan KS 1000 RW wall cladding system

1. Material: Steel to BS EN 10346
    1.1. Thickness/ gauge: Nominal 0.7mm. Final thickness to be confirmed by Specialist Sub-contractor to suit application and exposure.
    1.2. Finish/ Colour: Kingspan XL Forte external coating. Refer to Cox Freeman Ltd. drawings for colour references.
2. Fasteners
    2.1. Type: Grade 316 austenitic stainless steel stitching screws with non-ferrous bonded washers and low profiled heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match colour of flashings unless stated elsewhere.
    2.2. Location: As recommended by Cladding Manufacturer.
    2.3. Fixing centres: As recommended by Cladding Manufacturer.
3. Seal:: Continuous seal between flashing and cladding panel as recommended by Cladding Manufacturer.
Individual lengths to be jointed using 150mm sealed butt straps.
4. General:: All in full accordance with Cladding Manufacturer's details and recommendations.
Final types to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations to suit cladding system, location of use and exposure.

311 A Purpose made cold formed internal metal accessories to Kingspan KS 1000 RW roof cladding system

1. Material: Steel to BS EN 10346
   1.1. Thickness/ gauge: Nominal 0.7mm. Final thickness to be confirmed by Specialist Sub-contractor to suit application and exposure.
   1.2. Finish/ Colour: Kingspan Cleansafe 15 internal coating.
   Colour to be White.
2. Fasteners
   2.1. Type: Grade 316 austenitic stainless steel stitching screws with non-ferrous bonded washer and coloured plastic heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match flashings unless stated elsewhere.
   2.2. Location: As recommended by Cladding Manufacturer.
   2.3. Fixing centres: As recommended by Cladding Manufacturer.
3. Seal:: Continuous seal between flashing and cladding panel as recommended by Cladding Manufacturer.
   Individual lengths to be jointed using 150mm sealed butt straps.
4. General:: All in full accordance with Cladding Manufacturer's details and recommendations. Final types to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations to suit cladding system, location of use and exposure.

311 B Purpose made cold formed internal metal accessories to Kingspan KS 1000 RW wall cladding system

1. Material: Steel to BS EN 10346
   1.1. Thickness/ gauge: Nominal 0.4mm. Final thickness to be confirmed by Specialist Sub-contractor to suit application and exposure.
   1.2. Finish/ Colour: Kingspan Cleansafe 15 internal coating.
   Colour to be White.
2. Fasteners
   2.1. Type: Grade 316 austenitic stainless steel stitching screws with non-ferrous bonded washers and low profiled heads as required by Cladding Manufacturer to Specialist Sub-contractor design. Head colour to match colour of flashings unless stated elsewhere.
   2.2. Location: As recommended by Cladding Manufacturer.
   2.3. Fixing centres: As recommended by Cladding Manufacturer.
3. Seal:: Continuous seal between flashing and cladding panel as recommended by Cladding Manufacturer.
   Individual lengths to be jointed using 150mm sealed butt straps.
4. General:: All in full accordance with Cladding Manufacturer's details and recommendations. Final types to be confirmed by Specialist Sub-contractor in conjunction with the Cladding Manufacturer's recommendations to suit cladding system, location of use and exposure.

410 Fixing panels and sheets generally

1. Cut edges: As recommended by Cladding Manufacturer.
2. Penetrations: Openings to minimum size necessary.
   2.1. Edge reinforcement: To Specialist Sub-contractor's details in conjunction with Structural Engineer (where applicable).
3. Orientation: Exposed joints of side laps away from prevailing wind unless shown otherwise on drawings.
4. Panel and sheet ends, laps and raking cut edges: Fully supported and with fixings at top of lap.
5. Fasteners: Drill holes. Position at regular intervals in straight lines, centred on support bearings.

5.1. Position of fasteners in oversized drilled holes: Central.

5.2. Fasteners torque: Sufficient to correctly compress washers.

6. Debris: Remove dust and other foreign matter before finally fixing panel and sheets.
7. Completion: Check fixings to ensure watertightness and that panels and sheets are secure.
8. Cut edges: Paint to match face finish.

470 Structural movement joints

1. Type: Cover flashing fixed on one side over gap between panels.
2. Location: Coincident with structural movement joint.
3. Width of gap: To match structural movement joint requirements.
4. Requirement: Weathertight.

480 Flashings/ trims generally

1. Lap joint treatment

1.1. Vertical and sloping flashings/ trims: End laps to be same as for adjacent panels and as recommended by Cladding Manufacturer.

1.2. Horizontal flashings/ trims: End laps to be 150 mm, sealed and where possible arranged with laps away from prevailing wind and as recommended by Cladding Manufacturer.

2. Method of fixing: To structure in conjunction with adjacent panels. Otherwise to panels and as recommended by Cladding Manufacturer.

2.1. Fasteners: As recommended by Cladding Manufacturer.

482 Butt jointed flashings/ trims

1. Locations: All horizontal and vertical flashings.
2. Butt straps: 300 mm wide and made from sheet of same material and finish.
3. Butt joints: Seal.

540 Abutments

1. Junctions with flashings: Weathertight and neatly dressed down.

550 Sealing external laps

1. Sealant tape: Types recommended by panel/ sheet manufacturer.
2. Position of tape: Below fixing positions in straight unbroken lines, parallel to and slightly back from edge of panel/ sheet.
3. Seal quality: Effective, continuous and not overcompressed.
4. End laps Sealant tape positions:

4.1. Single line tape: 10-15 mm below line of fasteners.

4.2. Second line tape: 10-15 mm above line of fasteners.

4.3. Third line tape (silicone, where specified): 15 mm set back from the edge of external sheet.

5. Side laps Sealant tape positions:

5.1. Single line tape: Outside line of fasteners.

5.2. Second line tape (where specified): On other side of fasteners.

570 Identification and labelling of cladding panels

1. On completion of the cladding works, a label identifying the composition of the panel types is to be fitted.

2. The label is to illustrate the type of panel fitted, including its core type, to assist Insurers, Fire Officers, Owners and Occupiers in identifying each panel type.
3. Final label type and location is to be agreed with the Client.

670 Documentation

1. Certificates, records, guarantees and other documents: Submit on completion.

Ω End of Section

J42
Single layer polymeric sheet roof coverings

Types of roof covering

110 SP01 Single ply membrane roofing system

1. Description: Single ply roof covering system to Transformer Room.
2. Performance:
   2.1. Thermal Transmittance (U Value): 0.25 W/m2K.
   2.2. Service life of system: Minimum 35 years.
3. Substrate: Reinforced concrete slab to Structural Engineer's details and specifications.
   3.1. Preparation: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements.
4. Roof covering system: Single ply roofing membrane with tapered insulation or similar approved.
   4.1. Manufacturer: Sika Limited or similar approved.
      4.1.1. Product reference: Sarnafil system to suit application, location and exposure. Submit proposals.
   4.2. Lower protection layer (loose laid): To Specialist Sub-contractor's design in accordance with Manufacturer's requirements.
   4.3. Air and vapour control layer: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements.
      4.3.1. Laying: Self adhere and overlap all side and end laps.
   4.4. Insulation: Rigid tapered insulation to fall towards gutters to Specialist Sub-contractor's design in accordance with Manufacturer's requirements.
   Insulation to be LPCB approved to suit Clients insurance requirements.
      4.4.1. Attachment: Bonded.
   4.5. Separating layer (loose laid): To Specialist Sub-contractor's design in accordance with Manufacturer's requirements.
   4.6. Waterproof membrane: Sarnafil lacquered reinforced PVC membrane to Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
      4.6.1. Thickness: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
      4.6.2. Colour: Submit samples for agreement with Client.
      4.6.3. Attachment: Adhered.
5. Accessories: All necessary accessories including trims, flashings, sarnametal, support angles, gutters etc. and any other components required to install and complete roof covering installation in accordance with Roof Covering Manufacturer's details and recommendations to comply with Manufacturer's guarantee.
   1. Drainage: SarnaDrain (or similar approved) insulated rain water outlets complete with leaf guards to Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit system as clause 305. Specialist Sub-contractor is to confirm the size and number of outlets / downpipes required and the size and depth of the gutters based on the relevant design rate of rainfall intensity as BS EN 12056-3, National Annex NB.2 (Category to be determined by Specialist Subcontractor) and the size of roof surfaces to be drained.
   2. Gutter: Positive gutter to be formed within roofing system complete with overflow weirs as necessary. Specialist Sub-contractor to design gutter in accordance with section R10.
   3. Flashings: Sarnametal (or similar approved).

4. Lightning Protection: To be advised by Specialist Sub-contractor. Where required provided heat weldable lightning conductor clips in accordance with Roof Covering Manufacturer's recommendations.
5. Walkways: SarnaTred Walkway Tiles (or similar approved).

6. Installation and warranty: Install roofing system in accordance with Manufacturer's details and recommendations to provided 35 year warranty.
7. Other:
    1. Roof Covering Manufacturer / Specialist Sub-contractor is to finalise the specification to meet performance requirements and to suit location and exposure of use.
    2. A detailed method of work statement and programme of works should be agreed with the Roofing Contractor before the commencement of the works. The requirements of all relevant British Standards and Industry Codes of Practice should be complied with at all times.
    3. Allow for flashing and weathering details to services penetrations generally to Roof Covering Manufacturer's details and specifications in conjunction with M&E Consultants drawings.
    4. Contractor to provided all details and data sheets along with all necessary certification to Client's Insurer's for approval prior to ordering.

Performance

202 A Sub-Contractor’s design of roof coverings

1. Design responsibility: Provide detailed design of single ply roof covering system complete with all necessary calculations.
2. Design responsiblity:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

210 Roof performance

1. Roof covering: Secure, free draining and weathertight.

220 Avoidance of interstitial condensation: Warm and inverted roofs

1. Determine: Interstitial condensation risk within roof construction as calculated from design data highlighted in BS 6229:2003.
2. Basic design data
   - 2.1. Outdoor notional psychrometric conditions, winter
     - 2.1.1. Temperature: -5°C.
     - 2.1.2. Relative humidity: 90%.
     - 2.1.3. Vapour pressure: 0.36 kPa.
     - 2.1.4. Duration: 60 days.
   - 2.2. Outdoor notional psychrometric conditions, summer
     - 2.2.1. Temperature: 18°C.
     - 2.2.2. Relative humidity: 65%.
     - 2.2.3. Vapour pressure: 1.34 kPa.
     - 2.2.4. Duration: 60 days.
   - 2.3. Indoor notional psychrometric conditions
     - 2.3.1. Temperature: To be determined by Specialist Sub-contractor.
     - 2.3.2. Relative humidity: To be determined by Specialist Sub-contractor.
     - 2.3.3. Vapour pressure: To be determined by Specialist Sub-contractor.
3. Winter interstitial condensate (warm roof)
   - 3.1. Calculated amount (maximum): 0.35 kg/m².
   - 3.2. Calculated annual net retention: Nil.
4. Air and vapour control layer: If necessary, provide a suitable membrane or sealed deck so that damage and nuisance from interstitial condensation do not occur.

225 Avoidance of interstitial condensation: Warm and inverted roofs

1. Interstitial condensation within roof construction: Determine risk as recommended in BS 5250 and BS EN ISO 13788.
2. Air and vapour control layer: If necessary, provide a suitable membrane so that damage and nuisance from interstitial condensation do not occur.

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 the roof (maximum): 0.25 W/m²K.
   - 1.2. Compressive strength of insulation (minimum) at 10% compression: Submit proposals.
   - 1.3. Finished surface: Suitably even, stable and robust to receive roof covering.
   - 1.4. Insulation compliance: To a relevant European Standard, or Agrément certified.

240 Fire performance

1. Classification: Submit proposals.

Products

320 Primer

1. Type: As Roof Covering Manufacturer requirements.
2. Manufacturer: As Roof Covering Manufacturer.
   - 2.1. Product reference: To be advised by Roof Covering Manufacturer to suit substrate.

325 Adhesive

1. Type: As Roof Covering Manufacturer requirements.
2. Manufacturer: As Roof Covering Manufacturer.
    2.1. Product reference: To be advised by Roof Covering Manufacturer to suit substrate.

345 Perimeter trims

1. Type: Galvanised steel sheet with single ply membrane factory laminated.
2. Manufacturer: As Roof Covering Manufacturer.
    2.1. Product reference: To be advised by Roof Covering Manufacturer to suit substrate.
3. Colour: Submit proposals.
4. Size: To be determined by Specialist Sub-contractor in conjunction with Roof Covering Manufacturer's recommendations to suit each use and requirement.

355 Mechanical fasteners, washers, pressure plates, etc.

1. Type: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
    1.1. Material: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
2. Manufacturer: As recommended by Roof Covering Manufacturer to suit roof covering system.
    2.1. Product reference: As recommended by Roof Covering Manufacturer to suit roof covering system.

395 Air and vapour control layer

1. Type: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements.
2. Manufacturer: As recommended by Roof Covering Manufacturer to suit roof covering system.
    2.1. Product reference: As recommended by Roof Covering Manufacturer to suit roof covering system.
3. Thickness: As recommended by Roof Covering Manufacturer to suit roof covering system.
4. Vapour resistance: As recommended by Roof Covering Manufacturer to suit roof covering system.

430 Warm deck roof insulation

1. Type: Rigid polyisocyanurate (PIR) roofboard to BS EN 13165 with LPCB certification.
2. Manufacturer: As recommended by Roof Covering Manufacturer to suit system build up and application.
    2.1. Product reference: Submit proposals confirming LPCB certification and confirmation that Roof Covering System Guarantee will be achieved.
3. Thickness: To be determined by Manufacturer to achieve required U-Value of roof system.
4. Compressive strength (minimum): To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
5. Other characteristics: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
6. Edges: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
7. Facing: As recommended by Roof Covering Manufacturer to suit system build-up and application.

Execution generally

510 Adverse weather

1. General: Do not lay membrane at temperatures below 5°C or in wet or damp conditions unless effective temporary cover is provided over working area.
2. Unfinished areas of roof: Keep dry and protect edges of laid membrane from wind action.

520 Incomplete work

1. End of working day: Provide temporary seal to prevent water infiltration.
2. On resumption of work: Cut away tail of membrane from completed area and remove from roof.

530 Applying primers

1. Coverage per coat (minimum): In accordance with Manufacturer's details.
2. Surface coverage: Even and full.
3. Coats: Fully bonded. Allow volatiles to dry off thoroughly between coats.

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

610 Suitability of substrates

1. Surfaces to be covered: Secure, clean, dry, smooth, free from frost, contaminants, voids and protrusions.
2. Preliminary work: Complete, including
    2.1. Grading to correct falls.
    2.2. Formation of upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
    2.3. Fixing of battens, fillets and anchoring plugs/ strips.
3. Moisture content and stability of substrate: Must not impair integrity of roof.

670 Laying air and vapour control layer

1. Laying: In accordance with Manufacturer's details.
2. Side and head laps: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
3. Upstands, kerbs and other penetrations: Enclose edges of insulation. Fully seal at abutment by bonding or taping.

680 Laying warm deck roof insulation

1. Setting out
    1.1. Long edges: Fully supported and running at right angles to Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
    1.2. End edges: Adequately supported.
    1.3. Joints: Butted together.
    1.4. End joints: Staggered.
2. Attachment: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
3. Mechanical fixing: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
4. Completion: Boards must be in good condition, well fitting and secure.

Waterproof membranes/ accessories

710 Mechanical fixing of waterproof membrane

1. Setting out: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
2. Laying: Loose, do not wrinkle or stretch.
3. Installing fasteners
   - 3.1. Use manufacturer's/ supplier's recommended methods and equipment.
   - 3.2. Insertion: Correct and consistent.
4. Washers/ Pressure plates/ Bars
   - 4.1. Distance from fixed edge (minimum): 10 mm.
   - 4.2. Fixing: Flush with membrane.
5. Sheet overlaps: Extend beyond washers/ pressure plates by minimum …….
6. Surface condition at completion: Fully sealed, smooth, weatherproof and free draining.

720 Adhesive bonding of waterproof membrane

1. Setting out: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
2. Attachment: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
   - 2.1. Do not wrinkle or stretch.
3. Surface condition at completion: Fully sealed, smooth, weatherproof and free draining.

730 Welded jointing of waterproof membrane

1. Side and end joints
   - 1.1. Laps (minimum): To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
   - 1.2. Preparation: Clean and dry surfaces beyond full width of joint.
   - 1.3. Sealing: Weld together.
2. Seam sealant: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.
3. Condition at completion: Fully sealed, smooth, weatherproof and free draining.

760 Perimeter of membrane

1. General: Secure membrane at roof edge conditions, changes of plane, curb flashings, upstands to roof lights, etc. with mechanical fasteners.

770 Perimeter details for membranes

1. Upstands, edge trims, drips, kerbs, etc.: Form flashings from waterproof membrane material.
2. Roof membrane: Terminate in horizontal plane immediately adjacent to change in direction and secure with mechanical fasteners.
3. Flashings: Dress over perimeter profile. Overlap horizontal roof membrane beyond perimeter securement by minimum to Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure..
4. Sealing: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.

Surfacing

850 Laying membrane walkways

1. Attachment: To Specialist Sub-contractor's design in accordance with Manufacturer's requirements to suit application, location and exposure.

Completion

910 Inspection

1. Interim and final roof inspections: Submit reports.

920 Electronic roof integrity test

1. Testing authority: Submit proposals.
2. Timing of test: Prior to, and on completion of access by other trades.
3. Condition of roof prior to testing
   - 3.1. Waterproof membrane complete to a stage where integrity can be tested.
   - 3.2. Surface: Clean.
4. Test results and warranty: Submit on completion of testing.

930 Flood test

1. Condition of roof prior to testing
   - 1.1. Waterproof membrane complete to a stage where integrity 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:
5. Inspection: Regular, to detect leaks.
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.
   - 1.1. Outlets: Clear.
2. Work necessary to provide a weathertight finish: Complete.
3. Storage of materials on finished surface: Not permitted.
4. Completed membrane: Do not damage. Protect from traffic and adjacent or high level working.

Ω End of Section

K10
Gypsum board dry linings/ partitions/ ceilings

Types of dry lining

115 PS01 Metal stud partition system

1. Description: Metal stud partition system for office building walls.
2. Partition type: British Gypsum GypWall Classic or similar approved 'complete' metal stud partition system to meet the stated performance requirements. Submit details of proposed system for comments prior to order.
3. Partition height: Partitions generally taken full height to underside of first floor / roof construction.
4. Head condition: Deflection head as British Gypsum certified details to suit performance requirements of the partition system and deflection.
   4.1. Deflection allowance: Deflection to be confirmed by Structural Engineer.
5. Structural performance
   5.1. Strength grade to BS 5234-2: Severe duty.
      5.1.1. Additional tests: Allow for wall mounted units and screens, etc. where applicable.
   5.2. Air pressure and deflection: To be determined by Specialist Sub-contractor.
   5.3. Other requirements: Allow for weight of ceramic tiles where applicable.
6. Fire performance
   6.1. Reaction to fire: To meet the requirements of approved document part B.
   6.2. Fire resistance of complete partition assembly: Not required
7. Airborne sound insulation
   7.1. Laboratory measurement of complete partition assembly:
   7.2. Weighted sound reduction index Rw (minimum) to BS EN ISO 717-1: Not less than 45 Rw dB typically.
8. Metal framing: Type recommended by board manufacturer to complete the partition assembly and achieve specified performance and heights. Refer to sections for partition heights.
9. Insulation: As recommended by board manufacturer to meet specified performance.
   9.1. Recycled content: Submit proposals.
   9.2. Thickness: As recommended by board manufacturer to meet specified performance.
10. Linings: 2 layers of British Gypsum plasterboard or similar approved system either side of metal framing generally or 2 layers of British Gypsum moisture resistant plasterboard or similar approved where facing into toilets / wet rooms or rooms with high humidity as recommended by Partition Manufacturer, locations to be determined by Specialist Sub-contractor to suit room usage.
    10.1. Lining thickness: As recommended by board manufacturer to meet specified performance and partition height.
11. Finishing: All joints to be taped and filled prior to receiving a 2mm thick British Gypsum Thistle Board Finish or similar approved.
    11.1. Primer/ Sealer: As recommended by board manufacturer.
    11.2. Accessories: All necessary accessories required to allow partition installation in accordance with Manufacturer's approved details and to meet stated levels of performance.
12. Other requirements:
    1. Partitions to be provided with all necessary additional support frames / 18mm WBP plywood support patresses where required to support equipments such as wall mounted units, LCD screens, sanitary fittings, wall protection etc. to Specialist Sub-contractors details in conjunction with Partition Manufacturer's recommendations. Extent to be

determined by Specialist Sub-contractor to suit Client's requirements / room data sheets and drawing.

2. Acoustic sealing to all partition junctions including base and head and around all openings, services and penetrations to Partition Manufacturer's details and recommendations where applicable.
3. Partition system to be installed in full accordance with Manufacturer's details and recommendations to ensure the stated performance levels of each partition are met.

115 PS02 Metal stud partition system to achieve 30 or 60 minute fire resistance

1. Description: Metal stud partition system for office building walls to achieve 30 or 60 minutes fire resistance.
2. Partition type: British Gypsum GypWall Classic or similar approved 'complete' metal stud partition system to meet the stated performance requirements. Submit details of proposed system for comments prior to order.
3. Partition height: Partitions generally taken full height to underside of first floor / roof construction.
4. Head condition: Fire rated deflection head as British Gypsum certified details to suit performance requirements of the partition system and deflection.
   4.1. Deflection allowance: Deflection to be confirmed by Structural Engineer.
5. Structural performance
   5.1. Strength grade to BS 5234-2: Severe duty.
      5.1.1. Additional tests: Allow for wall mounted units and screens, etc. where applicable.
   5.2. Air pressure and deflection: To be determined by Specialist Sub-contractor.
   5.3. Other requirements: Allow for weight of ceramic tiles where applicable.
6. Fire performance
   6.1. Reaction to fire: To meet the requirements of approved document part B.
   6.2. Fire resistance of complete partition assembly: To BS EN 13501-2. Refer to Fire precautions drawing for locations of each rating:
      1. EI 30 - 30 minutes fire integrity and 30 minutes fire insulation.
      2. EI 60 - 60 minutes fire integrity and 60 minutes fire insulation.
7. Airborne sound insulation
   7.1. Laboratory measurement of complete partition assembly:
   7.2. Weighted sound reduction index Rw (minimum) to BS EN ISO 717-1: Not less than 45 Rw dB typically.
8. Metal framing: Type recommended by board manufacturer to complete the partition assembly and achieve specified performance and heights. Refer to sections for partition heights.
9. Insulation: As recommended by board manufacturer to meet specified performance.
   9.1. Recycled content: Submit proposals.
   9.2. Thickness: As recommended by board manufacturer to meet specified performance.
10. Linings: 2 layers of British Gypsum plasterboard or similar approved system either side of metal framing generally or 2 layers of British Gypsum moisture resistant plasterboards or similar approved where facing into toilets / wet rooms or rooms with high humidity as recommended by Partition Manufacturer, locations to be determined by Specialist Sub-contractor to suit room usage.
    10.1. Lining thickness: As recommended by board manufacturer to meet specified performance and partition height.
11. Finishing: All joints to be taped and filled prior to receiving a 2mm thick British Gypsum Thistle Board Finish or similar approved.
    11.1. Primer/ Sealer: As recommended by board manufacturer.

11.2. Accessories: All necessary accessories required to allow partition installation in accordance with Manufacturer's approved details and to meet stated levels of performance.

12. Other requirements:
    1. Partitions to be provided with all necessary additional support frames / 18mm WBP plywood support patresses where required to support equipments such as wall mounted units, LCD screens, sanitary fittings, wall protection etc. to Specialist Sub-contractors details in conjunction with Partition Manufacturer's recommendations. Extent to be determined by Specialist Sub-contractor to suit Client's requirements / room data sheets and drawing.
    2. Acoustic / fire sealing to all partition junctions including base and head and around all openings, services and penetrations to Partition Manufacturer's details and recommendations where applicable.
    3. Any apertures / openings through fire rated partitions ie. doors, vision panels, services penetrations etc. are to be framed and supported in full accordance with Partition Manufacturer's tested and and certified details. Any installations within apertures / openings ie. doors, vision panels, intumescent batts etc. are to be fully compatible and suitable for use within fire rated partition system and are to meet and maintain the same level of fire resistance as the partition. Any additional framing / support requirements to allow installation of any fire rated components within the partition system are to be advised by Partition Manufacturer / Specialist Sub-contractor.
    4. Partition system to be installed in full accordance with Manufacturer's details and recommendations to ensure the stated performance levels of each partition are met.

115 PS03 Metal stud partition system to achieve 120 minute fire resistance

1. Description: Metal stud partition system for warehouse building fire walls above blockwork to achieve 120 minutes fire resistance.
2. Partition type: British Gypsum GypWall Classic or similar approved 'complete' metal stud partition system to meet the stated performance requirements. Submit details of proposed system for comments prior to order.
3. Partition height: Partitions generally taken from blockwork head restraint steel to underside of partition head restraint steel. Refer to Cox Freeman Ltd. drawings for further detail.
4. Head condition: Fire rated deflection head as British Gypsum certified details to suit performance requirements of the partition system and deflection.
    4.1. Deflection allowance: Deflection to be confirmed by Structural Engineer.
5. Structural performance
    5.1. Strength grade to BS 5234-2: Severe duty.
    5.2. Air pressure and deflection: To be determined by Specialist Sub-contractor.
6. Fire performance
    6.1. Reaction to fire: To meet the requirements of approved document part B.
    6.2. Fire resistance of complete partition assembly: To BS EN 13501-2. EI 120 - 120 minutes fire integrity and 120 minutes fire insulation.
7. Airborne sound insulation
    7.1. Laboratory measurement of complete partition assembly:
    7.2. Weighted sound reduction index Rw (minimum) to BS EN ISO 717-1: Not less than 45 Rw dB typically.
8. Metal framing: Type recommended by board manufacturer to complete the partition assembly and achieve specified performance and heights. Refer to sections for partition heights.
9. Insulation: As recommended by board manufacturer to meet specified performance.
    9.1. Recycled content: Submit proposals.
    9.2. Thickness: As recommended by board manufacturer to meet specified performance.

10. Linings: 2 layers of British Gypsum FireLine plasterboard or similar approved system either side of metal framing generally as recommended by Partition Manufacturer.
    10.1. Lining thickness: 15mm thick as recommended by board manufacturer to meet specified performance and partition height.
11. Finishing: All joints to be taped and filled prior to achieve fire rating.
    11.1. Primer/ Sealer: As recommended by board manufacturer.
    11.2. Accessories: All necessary accessories required to allow partition installation in accordance with Manufacturer's approved details and to meet stated levels of performance.
12. Other requirements:
    1. Acoustic / fire sealing to all partition junctions including base and head and around all openings, services and penetrations to Partition Manufacturer's details and recommendations where applicable.
    2. Any apertures / openings through fire rated partitions ie. doors, vision panels, services penetrations etc. are to be framed and supported in full accordance with Partition Manufacturer's tested and and certified details. Any installations within apertures / openings ie. doors, vision panels, intumescent batts etc. are to be fully compatible and suitable for use within fire rated partition system and are to meet and maintain the same level of fire resistance as the partition. Any additional framing / support requirements to allow installation of any fire rated components within the partition system are to be advised by Partition Manufacturer / Specialist Sub-contractor.
    3. Partition system to be installed in full accordance with Manufacturer's details and recommendations to ensure the stated performance levels of each partition are met.

115 PS04 Metal stud partition system - acoustic rated

1. Description: Metal stud partition system for office building walls requiring acoustic performance.
2. Partition type: British Gypsum GypWall Classic or similar approved 'complete' metal stud partition system to meet the stated performance requirements. Submit details of proposed system for comments prior to order.
3. Partition height: Partitions generally taken full height to underside of first floor / roof construction.
4. Head condition: Deflection head as British Gypsum certified details to suit performance requirements of the partition system and deflection.
    4.1. Deflection allowance: Deflection to be confirmed by Structural Engineer.
5. Structural performance
    5.1. Strength grade to BS 5234-2: Severe duty.
        5.1.1. Additional tests: Allow for wall mounted units and screens, etc. where applicable.
    5.2. Air pressure and deflection: To be determined by Specialist Sub-contractor.
    5.3. Other requirements: Allow for weight of ceramic tiles where applicable.
6. Fire performance
    6.1. Reaction to fire: To meet the requirements of approved document part B.
    6.2. Fire resistance of complete partition assembly: Not required
7. Airborne sound insulation
    7.1. Laboratory measurement of complete partition assembly:
    7.2. Weighted sound reduction index Rw (minimum) to BS EN ISO 717-1: Not less than 56 Rw dB typically.
8. Metal framing: Type recommended by board manufacturer to complete the partition assembly and achieve specified performance and heights. Refer to sections for partition heights.
9. Insulation: As recommended by board manufacturer to meet specified performance.
    9.1. Recycled content: Submit proposals.
    9.2. Thickness: As recommended by board manufacturer to meet specified performance.

10. Linings: 2 layers of British Gypsum plasterboard or similar approved system either side of metal framing generally or 2 layers of British Gypsum moisture resistant plasterboard or similar approved where facing into toilets / wet rooms or rooms with high humidity as recommended by Partition Manufacturer, locations to be determined by Specialist Sub-contractor to suit room usage.
    10.1. Lining thickness: As recommended by board manufacturer to meet specified performance and partition height.
11. Finishing: All joints to be taped and filled prior to receiving a 2mm thick British Gypsum Thistle Board Finish or similar approved.
    11.1. Primer/ Sealer: As recommended by board manufacturer.
    11.2. Accessories: All necessary accessories required to allow partition installation in accordance with Manufacturer's approved details and to meet stated levels of performance.
12. Other requirements:
    1. Partitions to be provided with all necessary additional support frames / 18mm WBP plywood support patresses where required to support equipments such as wall mounted units, LCD screens, sanitary fittings, wall protection etc. to Specialist Sub-contractors details in conjunction with Partition Manufacturer's recommendations. Extent to be determined by Specialist Sub-contractor to suit Client's requirements / room data sheets and drawing.
    2. Acoustic sealing to all partition junctions including base and head and around all openings, services and penetrations to Partition Manufacturer's details and recommendations where applicable.
    3. Partition system to be installed in full accordance with Manufacturer's details and recommendations to ensure the stated performance levels of each partition are met.

145 LS01 Metal stud wall lining system

1. Description: Metal stud wall lining system for office building walls.
2. Lining type: British Gypsum Gypliner IWL (independent wall lining) or similar approved complete partition system to meet the stated performance requirements.
3. Wall lining height: Lining system generally taken full height to underside of first floor / roof construction.
4. Head condition: Deflection head as British Gypsum certified details to suit performance requirements of the partition system and deflection.
    4.1. Deflection allowance: Deflection to be confirmed by Structural Engineer.
5. Structural performance
    5.1. Strength grade to BS 5234-2: Severe duty.
        5.1.1. Additional tests: Allow for wall mounted units and screens, etc. where applicable.
    5.2. Air pressure and deflection: To be determined by Specialist Sub-contractor.
    5.3. Other requirements: Allow for weight of ceramic tiles where applicable.
6. Fire performance
    6.1. Reaction to fire: To meet the requirements of approved document part B.
7. Fire resistance of complete wall lining assembly: Not required.
8. Thermal resistance (R) of complete wall lining assembly (excluding surface resistances): Not applicable.
9. Metal framing: Type recommended by board manufacturer to complete the partition system and achieve specified performance and heights. Refer to sections for partition heights.
10. Insulation: As recommended by board manufacturer to meet specified performance.
    10.1. Recycled content: Submit proposals.
    10.2. Thickness: As recommended by board manufacturer to meet specified performance.

11. Linings: 2 layers of British Gypsum plasterboard or similar approved system generally or 2 layers of British Gypsum moisture resistant plasterboard or similar approved where facing into toilets / wet rooms or rooms with high humidity as recommended by Partition Manufacturer, locations to be determined by Specialist Sub-contractor to suit room usage.
    11.1. Lining thickness: As recommended by board manufacturer to meet specified performance and partition height.
12. Finishing: All joints to be taped and filled prior to receiving a 2mm thick British Gypsum Thistle Board Finish or similar approved.
    12.1. Primer/ Sealer: As recommended by board manufacturer.
    12.2. Accessories: All necessary accessories required to allow partition installation in accordance with Manufacturer's approved details and to meet stated levels of performance.
13. Other requirements:
    1. Partitions to be provided with all necessary additional support frames / 18mm WBP plywood support patresses where required to support equipments such as wall mounted units, LCD screens, sanitary fittings, wall protection etc. to Specialist Sub-contractors details in conjunction with Partition Manufacturer's recommendations. Extent to be determined by Specialist Sub-contractor to suit Client's requirements / room data sheets and drawing.
    2. Acoustic sealing to all partition junctions including base and head and around all openings, services and penetrations to Partition Manufacturer's details and recommendations where applicable.
    3. Partition system to be installed in full accordance with Manufacturer's details and recommendations to ensure the stated performance levels of each partition are met.

145 LS02 Metal furring wall lining system

1. Description: Metal stud wall lining system to blockwork separating wall between offices and recycling to provide increased thermal resistance to wall construction.
2. Lining type: British Gypsum Gypliner or similar approved complete partition system to meet the stated performance requirements.
3. Wall lining height: Lining system generally taken full height to underside of first floor / roof construction.
4. Head condition: Deflection head as British Gypsum certified details to suit performance requirements of the partition system and deflection.
    4.1. Deflection allowance: Deflection to be confirmed by Structural Engineer.
5. Structural performance
    5.1. Strength grade to BS 5234-2: Severe duty.
        5.1.1. Additional tests: Allow for wall mounted units and screens, etc. where applicable.
    5.2. Air pressure and deflection: To be determined by Specialist Sub-contractor.
    5.3. Other requirements: Allow for weight of ceramic tiles where applicable.
6. Fire performance
    6.1. Reaction to fire: To meet the requirements of approved document part B.
7. Fire resistance of complete wall lining assembly: Not required.
8. Thermal resistance (R) of complete wall lining assembly (excluding surface resistances): Specialist Sub-contractor to confirm best achievable U-value provided by system including blockwork substrate.
9. Metal framing: Type recommended by board manufacturer to complete the partition lining fixed back to blockwork system and achieve specified performance and heights. Refer to sections for partition heights.
    9.1. Framing centres: As recommended by board manufacturer to meet specified performance.
    9.2. Bracket centres: As recommended by board manufacturer to meet specified performance.

9.3. Stand off dimension: As recommended by board manufacturer and to provide maximum thermal insulation.

10. Insulation: As recommended by board manufacturer to meet specified performance.

10.1. Recycled content: Submit proposals.

10.2. Thickness: As recommended by board manufacturer to meet specified performance.

11. Linings: 2 layers of British Gypsum plasterboard or similar approved system generally or 2 layers of British Gypsum moisture resistant plasterboard or similar approved where facing into toilets / wet rooms or rooms with high humidity as recommended by Partition Manufacturer, locations to be determined by Specialist Sub-contractor to suit room usage.

11.1. Lining thickness: As recommended by board manufacturer to meet specified performance and partition height.

12. Finishing: All joints to be taped and filled prior to receiving a 2mm thick British Gypsum Thistle Board Finish or similar approved.

12.1. Primer/ Sealer: As recommended by board manufacturer.

12.2. Accessories: All necessary accessories required to allow partition installation in accordance with Manufacturer's approved details and to meet stated levels of performance.

13. Other requirements:

1. Partitions to be provided with all necessary additional support frames / 18mm WBP plywood support patresses where required to support equipments such as wall mounted units, LCD screens, sanitary fittings, wall protection etc. to Specialist Sub-contractors details in conjunction with Partition Manufacturer's recommendations. Extent to be determined by Specialist Sub-contractor to suit Client's requirements / room data sheets and drawing.
2. Acoustic sealing to all partition junctions including base and head and around all openings, services and penetrations to Partition Manufacturer's details and recommendations where applicable.
3. Partition system to be installed in full accordance with Manufacturer's details and recommendations to ensure the stated performance levels of each partition are met.

General/ preparation

300 Sub-contractor's design

1. Description: Provide detailed design of fixed vertical ladders and roof mounted guard railing including all necessary calculations.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.

3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.

4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

305 Compliance with performance requirements

1. Testing/ Assessment: Submit UKAS accredited laboratory reports for the following: Fire resistance: Partitions (including deflection heads and doorsets) and suspended ceilings (including access units).
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.

375 New wet laid bases

1. Dpcs: Install under full width of partitions/ freestanding wall linings.
   1.1. Material: Bituminous sheet or plastics.

Components - Not Used

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.

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.

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.

530 Cavity fire barriers within partitions/ wall linings

1. Metal framed systems
   1.1. Material:
   1.2. Installation: Form accurately and fix securely with no gaps to provide a complete barrier to smoke and flame.
2. Adhesive fixed wall lining systems
   2.1. Material: Adhesive compound.
   2.2. Installation: Form in a continuous line with no gaps to provide a complete barrier to smoke and flame.

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.

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.

595 Deflection heads

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

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 refer to partition and lining system clauses.
   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.

Ω End of Section

K11
Rigid sheet flooring/ sheathing/ decking/ sarking/ linings/ casings

Types of flooring/ sheathing/ decking/ sarking/ lining/ casings

100 Sub-contractor's design

1. Description: Provide detailed design of rigid sheet flooring/ sheathing/ decking/ parking/ linings/ boarding/ casings including all necessary calculations and certificates.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

885 FP01 Fire protection board to viewing platform

1. Description: Fire protection boards to underside of waste recycling viewing platform.
2. Substrate: Viewing platform to Specialist Sub-contractor's design in conjunction with Structural Engineer.
3. Board:
    - 3.1. Manufacturer/ Supplier: Promat UK Ltd. or similar approved.
    - 3.2. Product reference: Promat Promatect -250 mezzanine protection system or similar approved. Specialist Sub-contractor to submit details to suit each location.
    - 3.3. Colour/ Pattern/ Finish: Off white, smooth matt upper surface.
    - 3.4. Thickness: As necessary to achieve fire performance.
    - 3.5. Fire performance:
        1. To provide 60 minute fire resistance (integrity and insulation) to the full extent of the underside and exposed perimeter of new boarded mezzanine structure (including all supporting structure, beams etc.).

2. Class 0 performance to Building Regulations. Refer to Cox Freeman Ltd. drawings for full extent and indicative details.

3.6. Edges: As certified system.

3.7. Other requirements:

4. Setting out: Long edges running in accordance with Board Manufacturer's recommendations and certified details..

4.1. Gap between adjacent boards: Treatment in accordance with Board Manufacturer's recommendations and certified details.

5. Fixing to supports

5.1. Fasteners: All in accordance with Board Manufacturer's recommendations and certified details.

5.2. Fixing centres (maximum):

5.3. Around board edges: All in accordance with Board Manufacturer's recommendations and certified details.

5.4. Along intermediate supports: All in accordance with Board Manufacturer's recommendations and certified details.

5.5. Fixing distance from edges (minimum): All in accordance with Board Manufacturer's recommendations and certified details.

6. Joint treatment: All in accordance with Board Manufacturer's recommendations and certified details.

7. Insulation: Specialist Sub-contractor / Board Manufacturer to advise requirement of any rockwool insulation required to achieve levels of fire integrity and insulation.

8. Exposure: Underside / exposed perimeter edges / associated structural steelwork.

9. Accessories: All necessary accessories required to allow installation of fire boarding system in locations shown to achieve required levels of fire resistance in full accordance with Board Manufacturer's certified details including all cover strips, fire seals, galvanised supports etc.

10. Other requirements:

1. Board Manufacturer / Specialist Sub-contractor to determine the final board thickness to achieve the required levels of fire resistance to suit cold rolled joist sizes and centres etc. to Structural Engineer's details.
2. Board Manufacturer / Specialist Sub-contractor is to determine the final board thickness to achieve the required levels of fire resistance by calculating the section factor A/V (Hp/A) of each steel member. The final steel member sizes are to be confirmed by Steel Fabricator.
3. System to be installed by Specialist Sub-contractor in full accordance with Manufacturer's certified details.

885 FP02 Fire protection system to protected zone

1. Description: Fire protection board system to provided protected zone adjacent fire walls.

2. Substrate: Composite roof cladding on purlins to Specialist Sub-contractor's design in conjunction with Structural Engineer.

3. Board:

3.1. Manufacturer/ Supplier: Promat UK Ltd. or similar approved.

3.2. Product reference: Promat 120 minute Supalux Protected Zone (E 120-EI 15) system or similar approved. Specialist Sub-contractor to submit details to suit each location.

3.3. Colour/ Pattern/ Finish: Off white, smooth matt upper surface.

3.4. Thickness: As necessary to achieve fire performance.

3.5. Fire performance:

1. To provide 120 minute fire resistance to protected zone of roof construction adjacent fire walls where required to prevent break out of fire between compartments.
2. Class 0 performance to Building Regulations. Refer to Cox Freeman Ltd. drawings for full extent and indicative details.

3.6. Edges: As certified system.

3.7. Other requirements:

4. Setting out: Long edges running in accordance with Board Manufacturer's recommendations and certified details..

4.1. Gap between adjacent boards: Treatment in accordance with Board Manufacturer's recommendations and certified details.

5. Fixing to supports

5.1. Fasteners: All in accordance with Board Manufacturer's recommendations and certified details.

5.2. Fixing centres (maximum):

5.3. Around board edges: All in accordance with Board Manufacturer's recommendations and certified details.

5.4. Along intermediate supports: All in accordance with Board Manufacturer's recommendations and certified details.

5.5. Fixing distance from edges (minimum): All in accordance with Board Manufacturer's recommendations and certified details.

6. Joint treatment: All in accordance with Board Manufacturer's recommendations and certified details.
7. Insulation: Specialist Sub-contractor / Board Manufacturer to advise requirement of any rockwool insulation required to achieve levels of fire integrity and insulation.
8. Exposure: Underside / exposed perimeter edges / associated structural steelwork.
9. Accessories: All necessary accessories required to allow installation of fire boarding system in locations shown to achieve required levels of fire resistance in full accordance with Board Manufacturer's certified details including framing system and all necessary cover strips, fire seals, galvanised supports etc.
10. Other requirements:
    1. Board Manufacturer / Specialist Sub-contractor to determine the final board thickness to achieve the required levels of fire resistance to suit cold rolled joist sizes and centres etc. to Structural Engineer's details.
    2. System to be installed by Specialist Sub-contractor in full accordance with Manufacturer's certified details.

Workmanship

900 Compliance with performance requirements

1. Testing / assessment: Submit accredited laboratory reports for the fire resistance/ performance of each system.
2. Materials, components and details: All as used in testing / assessment reports. If discrepancies arise, give notice.

905 Installation generally

1. Timing: Building to be weathertight before fixing boards internally.
2. All componants of fire protection system along with associated ansillary items or items aiding in achieving the required fire protection to be installed in full accordance with the Manufacturer's certified details.

940 Board moisture content and conditioning

1. Moisture content of boards at time of fixing: Appropriate to end use.
2. Conditioning regime: Submit proposals.

990 Access panels

1. Size and position: Agree before boards are fixed.
2. Additional noggings/ dwangs (Scot), battens, etc.: Provide and fix as necessary.

Ω End of Section

K32
Panel cubicles/ duct and wall linings/ screens

To be read with preliminaries/ general conditions.

120 WS01 Panel cubicles

1. Description: Panel cubicle system to toilets.
2. Manufacturer: Venesta or similar approved.
   2.1. Product reference: Quantum (SGL) or similar approved heavy duty cubicle system. Submit samples and brochures etc. for agreement with Client.
3. Panels
   3.1. Height (overall): 2100mm to be agreed with Client.
   3.2. Floor clearance: 105mm to be agreed with Client.
   3.3. Core material: Solid grade laminate.
      3.3.1. Thickness: 13mm.
   3.4. Facings: Solid grade laminate.
      3.4.1. Colour/ Pattern/ Species: Submit range samples for agreement with Client.
   3.5. Edge treatment: All edges radiused and polished, with rounded corners.
   3.6. Wall support: Full length channel.
4. Pilasters
   4.1. Core material: Solid grade laminate.
      4.1.1. Thickness: 13mm.
   4.2. Facings: Solid grade laminate.
      4.2.1. Colour/ Pattern/ Species: Submit range samples for agreement with Client.
   4.3. Edge treatment: All edges radiused and polished, with rounded corners.
5. Doors
   5.1. Height: Standard height to match panels.
   5.2. Core material: Solid grade laminate.
      5.2.1. Thickness: 13mm.
   5.3. Facings: Solid grade laminate.
      5.3.1. Colour/ Pattern/ Species: Submit range samples for agreement with Client.
   5.4. Edge treatment: All edges radiused and polished, with rounded corners.
   5.5. Ironmongery:
      1. Indicator bolt complete with emergency release facility, keep and concealed fixings.
      2. Wall fixing: Cleat with through fixing and snap on outer case.
      3. Safety hinges.
      4. Self closing doors.
      5.5.1. Colour: Stainless steel.
6. Fittings
   6.1. Headrails: Extruded aluminium, powder coated.
   6.2. Pedestals/ Shoes: Fully adjustable stainless steel with concealed fixings.
7. Accessories: All necessary to allow installation of system in conjunction with Manufacturer's details and recommendations including the following:
      1. Coat hook to doors

2. Grab rails to ambulant cubicles in full accordance with Building Regulations Approved Document Part M;
3. Toilet roll holders.
4. Outward opening doors to ambulant cubicles.

8. Other requirements:
    1. All fixings to be anti-vandal through-bolted fixings.
    2. Details, samples and layout plans, section, elevations to be provided by Specialist Sub-contractor for approval by Client.
    3. Refer to Cox Freeman Ltd. drawings for general arrangement layouts.

140 WS01 IPS system

1. Description: IPS system to toilets.
2. Manufacturer: Venesta or similar approved.
    2.1. Product reference: Rapiduct or similar approved IPS system. Submit samples and brochures etc. for agreement with Client.
3. Panels
    3.1. Type: Solid grade laminate.
        3.1.1. Width (coordinating): To be determined by Specialist Sub-contractor to suit WC room and cubicle layouts.
    3.2. Core material: Solid grade laminate.
        3.2.1. Thickness: 13mm nominal.
    3.3. Facings: Solid grade laminate.
        3.3.1. Colour/ Pattern/ Species: Submit range samples for agreement with Client.
    3.4. Edge treatment: All edges radiused and polished, with rounded corners.
    3.5. Reaction to fire (minimum classification, finished panel): To meet the requirements of approved document part B.
4. Fasteners: Heavy duty lift off. Client to confirm if anti-vandal mechanical fixing is required.
5. Framing/ Support
    5.1. Duct panels: As recommended by IPS System Manufacturer.
    5.2. Wall panels: As recommended by IPS System Manufacturer.
6. Flashgap panels: Solid grade laminate. Submit range samples for agreement with Client.
7. Skirting: Manufacturer's standard ready to receive tiles cove.
8. Other requirements:
    1. Details, samples and layout plans, section, elevations to be provided by Specialist
    2. Subcontractor for approval by Client.
    3. Allow for system to be taken 100mm above ceiling.
    4. Refer to Cox Freeman drawings for general arrangement layouts.

210 Samples

1. General: Before placing orders submit representative samples of the following: All items.
2. Delivered materials/ products: To match samples.

250 Installation

1. Programming: Do not install cubicles or duct/ wall panels before building is weathertight, wet trades have finished their work, wall and floor finishes are complete, and the building is well dried out.

2. Accuracy: Set out to ensure frames and/ or panels and doors are plumb, level and accurately aligned.
3. Modifications: Do not cut, plane or sand prefinished components except where shown on drawings.
4. Fixing: Secure components using methods and fasteners recommended by the cubicle/ panel manufacturer. Prevent pulling away, bowing or other distortions to frames, panels and doors.
5. Moisture and thermal movement: Make adequate allowance for future movement.

300 Sub-contractor's design

1. Description: Provide detailed design of cubicle and IPS systems and all associated items.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

Ω End of Section

K40
Demountable suspended ceilings

Types of ceiling system

115 SG01 Suspended ceiling system to office and circulation areas

1. Description: Suspended ceiling system to office and circulation areas with lay-in grid tiles.
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: Armstrong Ceilings or similar approved.
5. Ceiling
    5.1. Infill units: Ultima+ or similar approved lay-in grid ceiling tiles.
    5.2. Ceiling module: 600mm x 600mm.
    5.3. Soffit height above finished floor level: As shown on Cox Freeman Ltd. drawings.
6. Grid
    6.1. System: Armstrong Ceiling Prelude XL2 24mm suspended grid system or similar approved.
    6.2. Exposure: Exposed.
    6.3. Colour: White.
7. Access: To be determined by Specialist Sub-contractor in conjunction with Services Engineer.
8. Suspension system: As recommended by Ceiling Manufacturer to suit system and soffit.
9. Perimeter trim: Perimeter profiled shadow trim to match grid system. Submit proposals.
10. Accessories: To include all hangers, fixings, main runners, cross members, primary channels, perimeter trims, splines, noggins, clips, bracing, bridging, etc., which are necessary to complete the installation in location shown to Specialised Sub-contractors details in accordance with Ceiling Manufacturer's recommendations.
11. Integrated services fittings: To Specialist Sub-contractor's details in conjunction with Services Engineer's requirements.
12. Other requirements:
    1. Ceiling system to be installed in accordance with Manufacturer's details and recommendations.
    2. Contractor to supply samples and literature relating to proposed ceiling tiles and grids etc. for each area to Client for approve prior to ordering.
    3. Ceiling tile clips where required as determined by Specialist Sub-contractor in accordance with Ceiling Manufacturer's recommendations.
    4. Ceiling system to be washable.

115 SG02 Suspended ceiling system to changing and toilet areas

1. Description: Hygienic suspended ceiling system to changing and toilet areas with lay-in grid tiles.
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: Armstrong Ceilings or similar approved..
5. Ceiling
    5.1. Infill units: Parafon Hygien lay-in grid ceiling tiles or similar approved.
    5.2. Ceiling module: 600mm x 600mm.
    5.3. Soffit height above finished floor level: As shown on Cox Freeman Ltd. drawings.

6. Grid
   6.1. System: Armstrong Ceiling Prelude XL2 24mm suspended grid system or similar approved..
   6.2. Exposure: Exposed.
   6.3. Colour: White.
7. Access: To be determined by Specialist Sub-contractor in conjunction with Services Engineer.
8. Suspension system: As recommended by Ceiling Manufacturer to suit system and soffit.
9. Perimeter trim: Perimeter angle trim to match grid system. Submit proposals.
10. Accessories: To include all hangers, fixings, main runners, cross members, primary channels, perimeter trims, splines, noggins, clips, bracing, bridging, etc., which are necessary to complete the installation in location shown to Specialised Sub-contractors details in accordance with Ceiling Manufacturer's recommendations.
11. Integrated services fittings: To Specialist Sub-contractor's details in conjunction with Services Engineer's requirements.
12. Other requirements:
    1. Ceiling system to be installed in accordance with Manufacturer's details and recommendations.
    2. Contractor to supply samples and literature relating to proposed ceiling tiles and grids etc. for each area to Client for approve prior to ordering.
    3. Ceiling tile clips where required as determined by Specialist Sub-contractor in accordance with Ceiling Manufacturer's recommendations.
    4. Ceiling system to be washable.

General/ performance

210 Environment

1. Environmental classification to BS EN 13964: To be determined by Specialist Sub- contractor to suit each area of use.
2. Release of Formaldehyde to BS EN 13964: Class E1
3. Susceptibility to growth of harmful micro-organisms to BS EN 13964: To be determined by Specialist Sub-contractor to suit each area of use.

Components

240 Samples

1. General: Submit representative samples of the following: Ceiling tiles, grids and perimeter trimes for each system .

285 A Above ceiling insulation

1. Description: Thermal and acoustic insulation over suspended ceiling system to first floor offices.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals to achieve performance requirements and ensure compatibility with suspended ceiling system.
3. Purpose:
   1. Acoustic insulation
   2. Thermal insulation

   3.1. Performance: 45 dB sound reduction.
   Confirm thermal insulation to be achieved.
4. Type: Mineral wool pads.
5. Recycled content: Submit proposals.

6. Thickness: Nominal 100mm thick to be confirmed by Specialist Sub-contractor to meet performance requirements.
7. Density: To meet performance requirements.
8. Facings/ Wrappings: To meet performance requirements.
9. Other:
    1. Insulation to be installed in accordance with Manufacturer's / Ceiling System Manufacturer's details and recommendations.
    1. Contractor to supply samples and literature relating to proposed ceiling tiles and grids etc. for each area to Client for approve prior to ordering.

Execution

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: Typically underside of composite roof cladding.
    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: As recommended by manufacturer.

335 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: As recommended by manufacturer.
    2.2. Fixing centres: As recommended by manufacturer.

340 Exposed grids

1. Grid fixings: As recommended by manufacturer.
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: As recommended by manufacturer.
   1.1. Independently supported luminaires: Suspension adjusted to line and level of ceiling.
   1.2. Ceiling supported luminaires: Modifications and/ or extra support required: …….
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.

411 Mechanical services

1. Fan coil units
   1.1. Inlet/ Outlet grilles: Trim ceiling grid and infill units to suit.
   1.2. Space beneath: Sufficient for ceiling system components.
   1.3. Suspension and connections: Permit accurate setting out and levelling of fan coil units.
2. Air grilles and diffusers
   2.1. Setting out: Accurate and level.
   2.2. Linear air diffusers: Retain in place with lateral restraint. Provide flanges for support of grid and infill units.
   2.3. Grille/ Diffuser ceiling joints: Provide smudge rings and edge seals.
3. Smoke detectors and PA speakers
   3.1. Ceiling infill units: Scribe and trim to suit.

3.2. Independent suspension:

3.3. Flexible connections: Required.

4. Sprinkler heads: Carefully set out and level.

500 Electrical continuity and earth bonding

1. Inclusion in finished work: To be advised by Specialist Sub-contractor.

Completion

505 Tools

1. Access tools: At Completion, supply one set of the following: All tools / items required for access and maintenance of each type of ceiling system .

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: 5% tiles for each type of ceiling system. Final amounts to be agreed with Client.

Ω End of Section

L10
Windows/ rooflights/ screens/ louvres

General

110 Evidence of performance

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

170 Sub-contractor's design

1. Description: Provide detailed design of all window units, frames, ironmongery etc.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

Products

335 WT01 Aluminium windows to office and gatehouse buildings

1. Standard: Non-fire and/ or smoke rated windows to BS EN 14351-1 and BS 4873
2. Exposure category to BS 6375-1/ Design wind load: To be determined by Specialist sub-contractor to suit location, height and exposure of building.
3. Finish as delivered: Polyester powder coating to BS EN 12206-1
4. Thermal performance (U-value maximum):
    1. Window unit to achieve a U-value of 1.4W/m2K.
    2. Look alike panels to achieve a U-value of 0.21W/m2K.
5. Acoustic performance rating: Submit proposals.
6. Glazing details: Preglazed insulating glass units as Clause L40 / 370 WG01.
    6.1. Beading: Internal.

7. Look alike panels: Preglazed insulated glass unit as Clause L40 / 370 WG01 with ceramic backed inner pane complete with PIR insulation (thickness to achieve required U-value) and coloured outer pane.
8. Ironmongery/ Accessories: As recommended by Specialist Subcontractor in conjunction with Manufacturer to suit location. Locking handle. Trickle ventilators where required.
9. Configuration: Fixed lights, openable lights, look alike panels. To be determined by Specialist Sub-contractor to suit general arrangement layouts.
10. Operation: Openable lights to be tilt and turn temp. Submit details for agreement with Client.
11. Fixing: As recommended by Specialist Subcontractor in conjunction with Manufacturer to suit location
12. Accessories: All necessary accessories to allow installation of windows in locations shown in accordance with manufacturer's recommendations.
13. Other requirements:
    1. Provide samples of window units and look alike panels including all colour and finishes, glazing, ironmongery etc. for comments prior to ordering.
    2. Provide detailed drawings of each window including plans, sections, elevations, details and interface with adjacent works for comments prior to manufacture.
    3. All dimensions are to be checked on site prior to manufacturer.
    4. Where necessary the windows are to be fully compliant with Approved Document Parts K and L of the Building Regulations and include manifestation strips, critical locations etc.

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.

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.

766 Location of openable windows in naturally ventilated buildings

1. Location: Over 10 m from sources of external pollution.

782 Fixing of aluminium frames

1. Standard: As section Z20.
2. Fasteners: As recommended by manufacturer.
    2.1. Spacing: When not predrilled or specified otherwise, position fasteners not more than 250 mm from ends of each jamb, adjacent to each hanging point of opening lights, and at maximum 600 mm centres.

820 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.

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: Submit proposals.
   3.1. Other evidence: Submit proposals.

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.

130 Approved Document Part M pedestrian doors/ door assemblies/ doorsets

1. Doors/ door assemblies/ doorsets manufacturer / supplier to confirm the proposed items can, where required meet the requirements of Approved Document Part M of the Building Regulations:

1.1. Each door / doorset, in conjunction with associated ironmongery, will achieve the minimum effective clear width through a single leaf door, or one leaf of a double leaf door, in accordance with Table 2 and Diagram 9 of Approved Document Part M of the Building Regulations. Manufacturer / Supplier to confirm structural opening sizes to achieve compliance;

1.2. Where needing to be opened manually, the opening force of at the leading edge of the door is not more than 30N from 0° (the door in the closed position) to 30° open, and not more than 22.5N from 30° to 60° of the opening cycle.

1.3. Ironmongery supplier / Door supplier to confirm compliance of each doorset, where required.

180 Other information

1. Read all door specifications in conjunction with Cox Freeman Ltd. general arrangement drawings, door and ironmongery schedules (where provided) and all other relevant drawings.
2. Unless stated elsewhere, determine handing and configuration of each door/ door assembly/ doorset from current layout drawings.
3. Specialist Sub-contractor / Door Manufacturer must provide detailed drawings of each door / door assembly/ doorset showing full door and frame elevations, door / frame / vision panel details, type and location of all ironmongery / furniture / protection etc. to Architect / Principal Contractor for comments prior to ordering any items.

190 Sub-contractor's design

1. Description: Provide detailed design of all doors/ door assemblies/ doorsets and associated ironmongery, fixings and door furniture etc.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

Products

430 DA01 Timber doorset

1. Description: Internal timber doorset to office building.

2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals.
3. Materials: Generally to BS EN 942.
4. Fire resistance rating: Not required.
5. Sound insulation rating: Submit proposals.
6. Duty: Heavy duty suitable for high frequency use by persons with little incentive to exercise care.
7. Door leaf
   7.1. Core: Soilid
   7.2. Facings: Veneer or Laminate. To be agreed with Client.
   7.3. Lippings: 10mm hardwood exposed lippings to all edges. To be agreed with Client.
8. Frame and architraves
   8.1. Wood species: Sort wood. Submit proposals.
   8.2. Appearance class to BS EN 942: Submit proposals.
   8.3. Finish as delivered: Ready to receive paint finish. To be agreed with Client.
9. Preservative treatment: Submit proposals.
10. Glazing/ Infill details: Where required to meet building regulation requirements.
    10.1. Type: Clear and toughened where required to comply with approved document part K of the building regulations.
    10.2. Size: As required to comply with approved document part M of the building regulations.
    10.3. Manifestation: Where required Ito comply with approved document part K and M of the building regulations.
    10.4. Beading: To door manufacturer's details.
11. Moisture content on delivery: To suit location of use.
12. Ironmongery: Submit proposals based on general arrangement layouts for agreement with Client.
13. Perimeter seals: As recommended by door manufacturer to suit location of use.
14. Other:
    1. Dissimilar facings are to be balanced in accordance with manufacturer's details.
    2. Doorset to be supplied and fixed in accordance with manufacturer's details and recommendations.
    3. Doorset to be sized by door manufacturer to suit structural opening sizes stated unless clear opening requirements take precedence, in which case, door manufacturer is to advise on the structural opening sizes to suit doorset.
    4. Door Manufacturer to issue drawings of each doorset for comments prior to manufacture of any doors.
    5. Contractor to provide literature and samples of proposed doors, including facings to Client for approval prior to ordering.
15. Fixing: As recommended by door manufacture.

430 DA02 Timber fire rated doorset

1. Description: Internal timber doorset to office building.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals.
3. Materials: Generally to BS EN 942.
4. Fire resistance rating: 60 minutes fire integrity and insulation to BS EN 1634 and FD 60 S to approved document part B.
5. Sound insulation rating: Submit proposals.

6. Duty: Heavy duty suitable for high frequency use by persons with little incentive to exercise care.
7. Door leaf
   7.1. Core: Soilid
   7.2. Facings: Veneer or Laminate. To be agreed with Client.
   7.3. Lippings: 10mm hardwood exposed lippings to all edges. To be agreed with Client.
8. Frame and architraves
   8.1. Wood species: Hard wood. Submit proposals.
   8.2. Appearance class to BS EN 942: Submit proposals.
   8.3. Finish as delivered: Ready to receive paint finish. To be agreed with Client.
9. Preservative treatment: Submit proposals.
10. Glazing/ Infill details: Where required to meet building regulation requirements.
    10.1. Type: Clear and toughened where required to comply with approved document part K of the building regulations and to achieve required fire resistance.
    10.2. Size: As required to comply with approved document part M of the building regulations.
    10.3. Manifestation: Where required Ito comply with approved document part K and M of the building regulations.
    10.4. Beading: To door manufacturer's details.
11. Moisture content on delivery: To suit location of use.
12. Ironmongery: Submit proposals based on general arrangement layouts for agreement with Client.
13. Perimeter seals: As recommended by door manufacturer to suit location of use.
14. Other:
    1. Dissimilar facings are to be balanced in accordance with manufacturer's details.
    2. Doorset to be supplied and fixed in accordance with manufacturer's details and recommendations.
    3. Doorset to be sized by door manufacturer to suit structural opening sizes stated unless clear opening requirements take precedence, in which case, door manufacturer is to advise on the structural opening sizes to suit doorset.
    4. Door Manufacturer to issue drawings of each doorset for comments prior to manufacture of any doors.
    5. Contractor to provide literature and samples of proposed doors, including facings to Client for approval prior to ordering.
    6. Fire rated doorsets to have a visible pre-fixed label in accordance with clause L20 / 115.
    7. Doorset to be tested and certified as being capable of providing required levels of fire resistance from either side in accordance with clause L20 / 115 and FD 60 S of Approved Document Part B of the Building Regulations.
15. Fixing: As recommended by door manufacture.

480 DE01 External metal doorset

1. Description: Externally rated metal doorset to waste recycling building.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals.
3. Fire resistance rating: Not required.
4. Sound insulation rating: Submit proposals.
5. Thermal transmittance (U-value maximum): 1.5 W/m2K.
6. Duty: Heavy duty suitable for high frequency use by persons with little incentive to exercise care
7. Door leaf:
   7.1. Core: Insulated.

7.2. Facings: 1.2mm thick galvanised steel interlocking sheets.

7.3. Finish as delivered: Polyester powdercoated.

7.3.1. Colour: To be agreed with Client.

8. Frame and architraves:

8.1. Type: 1.2mm thick galvanised steel rebated fixed from suitable for location of use.

8.2. Finish as delivered: Polyester powdercoated.

8.2.1. Colour: To be agreed with Client.

9. Glazing/ Infill details: Not required.

10. Ironmongery: Submit proposals based on general arrangement layouts for agreement with Client. Allow for push bar escape ironmonger with external key lock generally.

11. Perimeter seals: Externally rated doorsets to have all necessary perimeter air and weather seals as recommended by door manufacturer to suit door location and use.

12. Other requirements:

1. Doorset to be supplied and fixed in accordance with manufacturer's details and recommendations.
2. Doorset to be sized by door manufacturer to suit structural opening sizes stated unless clear opening requirements take precedence, in which case, door manufacturer is to advise on the structural opening sizes to suit doorset.
3. Door Manufacturer to issue drawings of each doorset for comments prior to manufacture of any doors.
4. Contractor to provide literature and samples of proposed doors, including facings to Client for approval prior to ordering.

13. Fixing: As recommended by door manufacturer.

480 DE02 External fire rated metal doorset

1. Description: Externally rated metal doorset to waste recycling building.

2. Manufacturer: Submit proposals.

2.1. Product reference: Submit proposals.

3. Fire resistance rating: 60 minutes fire integrity and insulation to BS EN 1634 and FD 60 S to approved document Part B.

4. Sound insulation rating: Submit proposals.

5. Thermal transmittance (U-value maximum): 1.5 W/m2K.

6. Duty: Heavy duty suitable for high frequency use by persons with little incentive to exercise care

7. Door leaf:

7.1. Core: Insulated.

7.2. Facings: 1.2mm thick galvanised steel interlocking sheets.

7.3. Finish as delivered: Polyester powdercoated.

7.3.1. Colour: To be agreed with Client.

8. Frame and architraves:

8.1. Type: 1.2mm thick galvanised steel rebated fixed from suitable for location of use.

8.2. Finish as delivered: Polyester powdercoated.

8.2.1. Colour: To be agreed with Client.

9. Glazing/ Infill details: Not required.

10. Ironmongery: Submit proposals based on general arrangement layouts for agreement with Client. Allow for push bar escape ironmonger with external key lock generally.

11. Perimeter seals: All as recommended by door manufacturer:

1. Factory fitted cold smoke seals.

2. Intumescent strips.
3. perimeter air and weather seals.

12. Other requirements:
    1. Doorset to be supplied and fixed in accordance with manufacturer's details and recommendations.
    2. Doorset to be sized by door manufacturer to suit structural opening sizes stated unless clear opening requirements take precedence, in which case, door manufacturer is to advise on the structural opening sizes to suit doorset.
    3. Door Manufacturer to issue drawings of each doorset for comments prior to manufacture of any doors.
    4. Contractor to provide literature and samples of proposed doors, including facings to Client for approval prior to ordering.
    5. Doorset to be tested and certified as being capable of providing required levels of fire resistance from either side in accordance with clause L20 / 115 and FD 60 S of Approved Document Part B of the Building Regulations.
13. Fixing: As recommended by door manufacturer.

480 DE03 External aluminium doorset to office building main entrance

1. Description: Externally rated, thermally broken aluminium glazed doorset with matching glazed side panel to office building.
2. Manufacturer: Submit proposals.
    2.1. Product reference: Submit proposals.
3. Fire resistance rating: Not required.
4. Sound insulation rating: Submit proposals.
5. Thermal transmittance (U-value maximum): 1.5 W/m2K.
6. Duty: Heavy duty suitable for high frequency use by persons with little incentive to exercise care
7. Door leaf:
    7.1. Type: Extruded aluminium with thermal breaks.
    7.2. Finish as delivered: Polyester powdercoated.
        7.2.1. Colour: To be agreed with Client.
8. Frame and architraves:
    8.1. Type: Extruded aluminium with thermal breaks.
    8.2. Finish as delivered: Polyester powdercoated.
        8.2.1. Colour: To be agreed with Client.
9. Glazing/ Infill details:
    1. Preglazed insulating glass units to match Clause L40 / WG01.
    2. Glazing to be toughened safety glass internal pane, air void, and toughened Low E safety glass external pane, thickness of panes / void to be determined by Specialist Sub-contractor to achieve required U-Value.
    3. Glazing to comply in critical locations with Approved Document K and BS 6206:1981 Specification for Impact Performance Requirements for Flat Screen Glass.

    9.1. Manifestation: To comply with approved documents part K and M where necessary.
10. Ironmongery: Powered operation to comply with approved document part M with escape override internally.
    Submit proposals based on general arrangement layouts for agreement with Client.
11. Perimeter seals: All as recommended by door manufacturer:
    1. perimeter air and weather seals.
12. Other requirements:

1. Allow for matching post and ducting to allow for powered operation.
1. Allow for matching glazed side panel to main entrance door.
2. Doorset to be supplied and fixed in accordance with manufacturer's details and recommendations.
3. Doorset to be sized by door manufacturer to suit structural opening sizes stated unless clear opening requirements take precedence, in which case, door manufacturer is to advise on the structural opening sizes to suit doorset.
4. Door Manufacturer to issue drawings of each doorset for comments prior to manufacture of any doors.
5. Contractor to provide literature and samples of proposed doors, including facings to Client for approval prior to ordering.

13. Fixing: As recommended by door manufacturer.

480 DE04 External aluminium doorset to office building rear access and gatehouse

1. Description: Externally rated, thermally broken aluminium glazed doorset to office building.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals.
3. Fire resistance rating: Not required.
4. Sound insulation rating: Submit proposals.
5. Thermal transmittance (U-value maximum): 1.5 W/m2K.
6. Duty: Heavy duty suitable for high frequency use by persons with little incentive to exercise care
7. Door leaf:
   7.1. Type: Extruded aluminium with thermal breaks.
   7.2. Finish as delivered: Polyester powdercoated.
      7.2.1. Colour: To be agreed with Client.
8. Frame and architraves:
   8.1. Type: Extruded aluminium with thermal breaks.
   8.2. Finish as delivered: Polyester powdercoated.
      8.2.1. Colour: To be agreed with Client.
9. Glazing/ Infill details:
   1. Preglazed insulating glass units to match Clause L40 / 370 WG01.
   2. Glazing to be toughened safety glass internal pane, air void, and toughened Low E safety glass external pane, thickness of panes / void to be determined by Specialist Sub-contractor to achieve required U-Value.
   3. Glazing to comply in critical locations with Approved Document K and BS 6206:1981 Specification for Impact Performance Requirements for Flat Screen Glass.

   9.1. Manifestation: To comply with approved documents part K and M where necessary.
10. Ironmongery: Powered operation to comply with approved document part M with escape override internally.
    Submit proposals based on general arrangement layouts for agreement with Client.
11. Perimeter seals: All as recommended by door manufacturer:
    1. perimeter air and weather seals.
12. Other requirements:
    1. Allow for matching post and ducting to allow for powered operation.
    1. Doorset to be supplied and fixed in accordance with manufacturer's details and recommendations.

2. Doorset to be sized by door manufacturer to suit structural opening sizes stated unless clear opening requirements take precedence, in which case, door manufacturer is to advise on the structural opening sizes to suit doorset.
3. Door Manufacturer to issue drawings of each doorset for comments prior to manufacture of any doors.
4. Contractor to provide literature and samples of proposed doors, including facings to Client for approval prior to ordering.

13. Fixing: As recommended by door manufacturer.

481 DI01 Internal fire rated metal doorset

1. Description: Internally rated metal doorset to waste recycling building.
2. Fire resistance rating: 120 minutes fire integrity and insulation to BS EN 1634 and FD 120 S to approved document Part B.
3. Sound insulation rating: Submit proposals.
4. Duty: Heavy duty suitable for high frequency use by persons with little incentive to exercise care
5. Door leaf:
   5.1. Core: Insulated.
   5.2. Facings: 1.2mm thick galvanised steel interlocking sheets.
   5.3. Finish as delivered: Polyester powdercoated.
      5.3.1. Colour: To be agreed with Client.
6. Frame and architraves:
   6.1. Type: 1.2mm thick galvanised steel rebated fixed from suitable for location of use.
   6.2. Finish as delivered: Polyester powdercoated.
      6.2.1. Colour: To be agreed with Client.
7. Glazing/ Infill details: Where required to meet building regulation requirements.
   7.1. Type: Clear and toughened where required to comply with approved document part K of the building regulations and to achieve required fire resistance.
   7.2. Size: As required to comply with approved document part M of the building regulations.
   7.3. Manifestation: Where required to comply with approved document part K and M of the building regulations.
   7.4. Beading: To door manufacturer's details.
8. Ironmongery: Submit proposals based on general arrangement layouts for agreement with Client. Allow for push bar escape ironmonger with external key lock generally.
9. Perimeter seals: All as recommended by door manufacturer:
   1. Factory fitted cold smoke seals.
   2. Intumescent strips.
   3. perimeter air and weather seals.
10. Other requirements:
   1. Doorset to be supplied and fixed in accordance with manufacturer's details and recommendations.
   2. Doorset to be sized by door manufacturer to suit structural opening sizes stated unless clear opening requirements take precedence, in which case, door manufacturer is to advise on the structural opening sizes to suit doorset.
   3. Door Manufacturer to issue drawings of each doorset for comments prior to manufacture of any doors.
   4. Contractor to provide literature and samples of proposed doors, including facings to Client for approval prior to ordering.

5. Doorset to be tested and certified as being capable of providing required levels of fire resistance from either side in accordance with clause L20 / 115 and FD 60 S of Approved Document Part B of the Building Regulations.

11. Fixing: As recommended by door manufacturer.

570 RR01 Rapid roll doors

1. Description: Vertical lifting rapid roll doors.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals.
3. Performance:
4. Self-closing: C4: High frequency of use with little incentive of care.
5. Type: Roll up.
6. Arrangement: Self supporting frame face fitted across opening.
7. Curtain: Nominal 2mm thick PVC coated polyester, anti-static door curtain with full width clear PVC vision panel, reinforced as necessary complete with 'Crash-Out & AutoReset' facility.
8. Frame/ Guides: Standard self supporting frames with stainless steel covers.
9. Operation: Automatic with manual override and fail safe to open link to fire alarm where required.
   9.1. Control: Push button to both sides of door (to be confirmed by Client).
10. Other requirements:
    1. Door to have self-repair system to allow curtain to be reset automatically.
    2. Door to have Auto-reversing safety edge and photo cell.
    3. Door to be fitted with warning lights where required. Locations to be agreed with Clients.
    4. Doors to be fitted with a battery back up and linked into the fire detection system to
    5. automatically open and remain in open position upon activation of fire alarm where
    6. required.
    7. Door to be supplied and fixed in accordance with Manufacturer's details and recommendations.
    8. Door to be sized by Door Manufacturer to suit structural opening sizes stated.
    9. Door Manufacturer to issue drawings of each door for comments prior to manufacture of any doors.
    10. Contractor to provide literature and samples of proposed doors to Client for approval prior to ordering.
    11. Motor position / size to be confirmed by Door Manufacturer prior to ordering to ensure space / fixing requirements are adequate.
11. Fixing: To door manufacturer's details.

610 FS01 120 minutes fire resisting roller shutter

1. Description: Roller shutter door to achieve 120m fire resistance.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals.
3. Performance: Smoke and fire resistance: 120 minutes.
4. Resistance to fire: Fire shutter is to be tested and certified as being capable of providing fire resistance of 120 minutes integrity from either side in accordance with BS 476:Part 22 or any subsequent overriding standards.
5. Smoke control: To restrict smoke from either side.
6. Self-closing: C1: Retained in the open position. Self-closing in the event of fire alarm activation or power loss.

7. Arrangement: Vertical lift, face fitted across opening.
8. Shutter/ curtain material: Galvanized steel.
   8.1. Finish as delivered: Polyester powder coated, colour to be agreed with Client.
9. Frame/ Guides: Galvanized steel.
   9.1. Finish as delivered: Polyester powder coated, colour to be agreed with Client.
10. Operation: Electrically operated and linked into fire alarm system and to close in event of alarm activation.
11. Ironmongery: Submit proposals necessary for operation of shutter.
12. Other requirements:
    1. Manual override to be provided.
    2. Profiled polyester powder coated galvanised steel hood and fascia to be provided over head gear, coil casing and motor complete with all necessary brackets etc. colour to be agreed with Client.
    3. Fire shutter to incorporate a controlled decent device.
    4. Fire shutter to be fixed in accordance with Manufacturer's details and recommendations.
    5. Critical dimensions of support frame are to be advised by Fire Shutter manufacturer.
    6. Motor position / size including any maintenance space requirements are to be confirmed by Manufacturer prior to ordering to ensure space / fixing requirements provided for door opening size are adequate.
    7. Fire shutter to be sized by Door Manufacturer to suit structural opening sizes stated on drawings.
    8. Manufacturer / Specialist Sub-contractor to supply detailed drawings and specifications of each door for comments prior to manufacturing.
    9. Contractor to provide literature and samples of proposed doors to Client for approval prior to ordering.
13. Fixing: As recommended by shutter manufacturer.

615 DI01 Sectional vertical lift door - 5m x 5m

1. Description: Vertical lifting insulated sectional door to waste recycling building.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals.
3. Performance: Externally rated.
   3.1. Thermal transmittance (U-value maximum): 1.5W/m2K.
   3.2. Opening speed: Door to fully open in 20 seconds. To be agreed with Client.
4. Durability: Submit proposals.
5. Arrangement: Vertical lift.
   5.1. Track system: Heavy gauge cold rolled galvanised steel to manufacturer's details.
6. Door panels: Galvanised steel inner and outer face with insulated core to achieve U-value. complete with neoprene gasket to protect against water penetration and integral finger protection at each moving section joint.
   6.1. Finish as delivered: Pre-coated. Colour to be agreed with Client.
7. Vision panels: Nominal 600mm wide x 400mm high vision panels from double acrylic panels and black polycarbonate frames. Number to suit door width.
8. Operation: Electrically operated, with push button controls. To be agreed with Client.
9. Accessories: All necessary to allow installation in locations shown in full accordance with manufacturer's details and recommendations.
10. Other requirements:

1. The door is to be detailed by Specialist Sub-contractor or Door Manufacturer to ensure the door will lift suitably to provide the required clear opening size within the confines of the room and avoid clashing with any racking or other constraints.
2. Motor position / size including any maintenance space requirements are to be confirmed by
3. Manufacturer prior to ordering to ensure space / fixing requirements provided for door opening size are adequate.
4. EPDM rubber perimeter and joint seals etc.
5. Doors to be supplied complete with all necessary tracks, thermal movement provision, balancing package and all associated hinges, rollers and fixings.
6. Door Manufacturer / Specialist Sub-contractor to supply detailed drawings and specifications of each door for comments prior to manufacturing.
7. Door to be fixed in full accordance with Door Manufacturer's details and recommendations.
8. Contractor to provide literature and samples of proposed doors to Client for approval prior to ordering.

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.

750 Fixing doorsets

1. Timing: After associated rooms have been made weathertight and the work of wet trades is finished and dried out.

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.

800 Fixing of loose thresholds

1. Spacing of fixings: Maximum 150 mm from each end 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.

811 Fire resisting and smoke control doorsets, industrial, commercial and garage doors

1. Installation: By manufacturer or their approved installers, in accordance with requirements of BS EN 16034 and in conjunction with BS EN 13241, including the Declaration of Performance (DoP) certification for the CE marked doorset.

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

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 in accordance with door manufacturer's recommendations .
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

L30
Stairs/ ladders/ walkways/ handrails/ balustrades

Preliminary information/ requirements

110 Sub-contractor's design

1. Description: Provide detailed design of fixed vertical ladders and roof mounted guard railing including all necessary calculations.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

130 Site dimensions

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

Components

250 MS01 Metal stairs and viewing platform

1. Description: Galvanised steel stairs and viewing platform to waste recycling building viewing platform.
2. Design:
    2.1. Design responsibility: Determine layout, type, calculations, section sizes, strength and type, sizes and number of fixings to suit stair, landings and viewing platform and associated items including layouts and details. Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
    2.2. Design standards:
        1. BS 5395.

2. Approved Document Part B, K and M of the Building Regulations.

2.3. Design and production information: Submit detailed drawings of the following:

1. Plans, elevations, sections, details, fixings and attachments tother work.
2. Treads and risers.
3. Stringers.
4. Platforms and landings.
5. Handrails.
6. Nosings.
7. As clause 110.

3. Configuration:: Determine from general arrangement drawings and submit proposals.
4. Component materials/ grades

4.1. Treads: Chequer plate.

4.1.1. Slip resistance value of integral tread - water wet (minimum): Submit proposals.

4.1.2. Slip resistance value of integral nosing - water wet (minimum): Submit proposals.

4.1.3. Colour of integral nosing: Contrasting.

4.2. Risers: Closed.

4.3. Strings: To Specialist Sub-contractors design and details to suit structural requirements, heights, locations, application and use.

4.4. Guarding

4.4.1. Posts fixed to stringers.

4.4.2. Handrails: Tubular, sized and finished in accordance with approved document part M.

4.4.3. Infill: Perforated infill panels. To be agreed with Client.

4.5. Platforms / landings: Chequer plate.

4.5.1. Slip resistance value of integral tread - water wet (minimum):: Submit proposals.

4.5.2. Slip resistance value of integral nosing - water wet (minimum):: Submit proposals.

5. Finish as delivered: Galvanized to BS EN ISO 1461.
6. Workmanship: To section Z11.
7. Other requirements:

1. Galvanised mild steel toe plate required around all landings.
2. Site dimensions to be taken / checked prior to manufacture of the stairs.
3. All risers in flights to be equal.
4. All welds ground flush.
5. - Specialist Sub-contractor to submit drawings and information for comments prior to fabrication.
6. Fabricated off site and assembled on site.
7. Handrails and guardrails are to be capable of resisting all horizontal forces given in BS EN 1991-1-1 and all requirements of Approved Document Part K of the Building Regulations.
8. Allow for providing matching handrailing / guarding to all platforms and landings off of stairs.

250 MS02 External metal stairs

1. Description: Galvanised steel external stairs between office building and waste recycling building.
2. Design:

2.1. Design responsibility: Determine layout, type, calculations, section sizes, strength and type, sizes and number of fixings to suit stair, landings and platforms and associated items

including layouts and details. Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.

2.2. Design standards:

1. BS 5395.
2. Approved Document Part B, K and M of the Building Regulations.

2.3. Design and production information: Submit detailed drawings of the following:

1. Plans, elevations, sections, details, fixings and attachments tother work.
2. Treads and risers.
3. Stringers.
4. Platforms and landings.
5. Handrails.
6. Nosings.
7. As clause 110.

3. Configuration:: Determine from general arrangement drawings and submit proposals.
4. Component materials/ grades

4.1. Treads: Chequer plate.

4.1.1. Slip resistance value of integral tread - water wet (minimum): Submit proposals.

4.1.2. Slip resistance value of integral nosing - water wet (minimum): Submit proposals.

4.1.3. Colour of integral nosing: Contrasting.

4.2. Risers: Closed.

4.3. Strings: To Specialist Sub-contractors design and details to suit structural requirements, heights, locations, application and use.

4.4. Guarding

4.4.1. Posts fixed to stringers.

4.4.2. Handrails: Tubular, sized and finished in accordance with approved document part M.

4.4.3. Infill: Perforated infill panels. To be agreed with Client.

4.5. Platforms / landings: Chequer plate.

4.5.1. Slip resistance value of integral tread - water wet (minimum):: Submit proposals.

4.5.2. Slip resistance value of integral nosing - water wet (minimum):: Submit proposals.

5. Finish as delivered: Galvanized to BS EN ISO 1461.
6. Workmanship: To section Z11.
7. Other requirements:

1. Galvanised mild steel toe plate required around all landings.
2. Site dimensions to be taken / checked prior to manufacture of the stairs.
3. All risers in flights to be equal.
4. All welds ground flush.
5. - Specialist Sub-contractor to submit drawings and information for comments prior to fabrication.
6. Fabricated off site and assembled on site.
7. Handrails and guardrails are to be capable of resisting all horizontal forces given in BS EN 1991-1-1 and all requirements of Approved Document Part K of the Building Regulations.
8. Allow for providing matching handrailing / guarding to all platforms and landings off of stairs.

Installation

630 Corrosion protection of dissimilar materials

1. Components/ substrates/ fasteners of dissimilar materials: Isolate using washers/ sleeves or other suitable means to separate materials to avoid corrosion and/ or staining.

640 Installation generally

1. Fasteners and methods of fixing: To section Z20.
2. Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
3. Temporary support: Do not use stairs, walkways or balustrades as temporary support or strutting for other work.
4. Applied finishes: Substrates to be even, dry, sound and free from contaminants. Make good substrate surfaces and prepare/ prime as finish manufacturer's recommendation before application.

Completion

910 Inspection

1. Timing: Agree with Contract Administrator.
2. Period of notice (minimum): Agree with Contract Administrator.

920 Documentation

1. Contents
   1.1. Copies of structural design calculations/ test reports.
   1.2. General product information.
   1.3. Installation information.
   1.4. Inspection and maintenance reports.
2. Number of copies: Agree with Contract Administrator.
3. Submission: Agree with Contract Administrator.

Ω End of Section

L35
Fixed utilitarian access systems

General

130 AL01 Fixed vertical ladders and platforms to waste recycling building

1. Description: Fixed vertical ladders and platforms to provide permanent access to waste recycling building roofs for occasional inspection and maintenance.
2. Standard: To BS 4211.
3. Method of provision: Fabricated off site and assembled on site.
4. Dimensions: Refer to Cox Freeman Ltd. general arrangement drawings.
5. Basic component material: Steel, galvanised to BS EN ISO 1461.
6. Rungs: Solid bar.
7. Stiles: As necessary to achieve stability at required spans.
8. Landings/ platforms: Chequer plate.
9. Hoops: Circular safety cages.
10. Assembly connectors: To Specialist Sub-contractors details in conjunction with Structural Engineer's details to suit location.
11. Fixing to superstructure: To Structural Engineer's details.
12. Accessories:
    1. All necessary accessories required to to install, use and maintain ladder in position required in accordance with the required design standards.
    2. Lockable security hatch at low level to be in line with Client's risk assessments and safe working procedures.
    3. Safety signage at low level 'No Access Unless Trained and Authorised' to be confirmed by Client.
    4. Access points at head of each ladder protected by self closing gate.
    5. Guarding system as clause 170.
13. Design:
    13.1. Design responsibility: As clause 110 and determine layout, type, calculations, section sizes, strength and type, sizes and number of fixings to suit ladder, platform and all associated items including layouts and details.
    13.2. Design and production information:
        1. Submit drawings of the following for each ladder:
        2. plans,
        3. elevations,
        4. sections,
        5. details,
        6. fixings and attachments to other work,
        7. ladder rungs,
        8. ladder stringers,
        9. safety hoops,
        10. landing platform details,
        11. self closing safety gates,
        12. access restrictors.
14. Other requirements:

1. Specialist Sub-contractor to detail ladders to suit locations and configurations shown on general arrangement drawings.
2. All ladder components to be designed and detailed by Specialist Sub-contractor.
3. Minimum 100mm high galvanised mild steel toe plate required around all landings / platforms.
4. Site dimensions to be taken / checked prior to manufacture.
5. All welds ground flush.
6. Specialist Sub-contractor to submit drawings and information for comments prior to fabrication.

170 Guarding system to vertical ladder platforms and landings

1. Description: Handrail and guarding system to fixed vertical ladder landings and platforms as clause 130 AL01.
2. Method of provision: Fabricated off site and assembled on site.
3. Dimensions: Refer to Cox Freeman Ltd. general arrangement drawings. Handrails to be 1150mm above platforms / landings.
4. Basic component material: Steel, galvanised to BS EN ISO 1461.
5. Standards: Tubes.
6. Handrails: Tubes
7. Knee rails: Tubes
8. Infill panels: Not required
9. Assembly connectors: To Specialist Sub-contractors details in conjunction with Structural Engineer's details to suit location.
10. Fixing to parent structure: To Specialist Sub-contractors details in conjunction with Structural Engineer's details to suit location.
11. Accessories:
    1. All necessary accessories required to to install, use and maintain guarding in position required in accordance with the required design standards.
12. Other requirements:
    1. Specialist Sub-contractor to detail system to suit locations and configurations shown on general arrangement drawings.
    2. All components to be designed and detailed by Specialist Sub-contractor.
    3. Handrails and guardrails are to be capable of resisting all horizontal forces given in BS EN 1991-1-1 and all requirements of Approved Document Part K of the Building Regulations.
    4. Site dimensions to be taken / checked prior to manufacture.
    5. All welds ground flush.
    6. Specialist Sub-contractor to submit drawings and information for comments prior to fabrication.
    7. Minimum 100mm high galvanised mild steel toe plate required around all landings / platforms.

System performance

250 Sub-contractor's design

1. Description: Provide detailed design of fixed vertical ladders / platforms and guarding including all necessary calculations.
2. Design responsibility:

1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.

3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

Products - Not Used

Fabrication

510 Fabrication generally

1. Shop drawings: Submit.

Execution

620 Execution generally

1. Structural members: Do not subject to nondesign loading. Do not modify, cut, notch or make unspecified holes.
2. Frameworks: Assemble and brace, including temporary members required for installation.
    2.1. Temporary support: Do not use access systems as temporary support or strutting for other work.
3. External durability of fastenings: Corrosion resistant material or with a corrosion resistant finish.
4. Bolted joints
    4.1. Contact between dissimilar metals: Avoid.
    4.2. Bolts and washers: Select types, sizes and quantities of fasteners or packings and spacings to retain supported components without distortion or loss of support.
5. Welded joints
    5.1. Standards
        5.1.1. Aluminium alloys: TIG or MIG welding to BS EN 1011-4.
        5.1.2. Carbon steel: Metal arc welding to BS EN 1011-1 and -2.
        5.1.3. Stainless steel: TIG welding to BS EN 1011-3.
    5.2. Surfaces to be jointed: Clean.

5.3. Tack welds: Use only for temporary attachment.
5.4. Traces of flux residue, slag and weld spatter: Remove.
5.5. Surface of welds: Grind smooth.
5.6. Joints: Fully bonded with no holes of cracks.

6. Finished components
6.1. Free: From distortion, cracks, burrs and sharp arrises.
6.2. Corner junctions of identical sections: Mitre.
6.3. Handrails: Smooth and continuous, with no sharp edges.

660 Anchoring

1. Fixing positions: Coordinate location of holding down bolts and wall fixings with services fixing positions.
2. Edge distance and spacing (minimum): Submit proposals.

Completion

910 Cleaning

1. General: Clean surfaces and wipe down finishes.

920 Inspection

1. Notice for inspection (minimum): Agree with Contract Administrator.

930 Documentation

1. Operation and maintenance instructions: Submit.
2. Record drawings: Submit.

Ω End of Section

L40
General glazing

General requirements

100 Sub-contractor's design

1. Description: Provide detailed design of all roof drainage systems including drainage calculations.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

140 Material samples

1. Representative samples of designated materials: Submit before cutting panes.
    1.1. Sample size (minimum): 300mm x 300mm.
    1.2. Designated materials: Glazed units and look alike panels.

150 Workmanship and positioning generally

1. Glazing generally: In accordance with BS 6262 series.
2. Integrity: Glazing must be wind and watertight under all conditions with full allowance made for deflections and other movements.
3. Dimensional tolerances: Panes/ sheets to be within ± 2 mm of specified dimensions.
4. Materials
    4.1. Compatibility: Glass/ plastics, surround materials, sealers, primers and paints/ clear finishes to be used together to be compatible. Avoid contact between glazing panes/ units and alkaline materials such as cement and lime.
    4.2. Protection: Keep materials dry until fixed. Protect insulating glass units and plastics glazing sheets from the sun and other heat sources.

152 Preparation

1. Surrounds, rebates, grooves and beads: Clean and prepare before installing glazing; ensure compliance with any certified installation requirements.

155 Glass generally

1. Standards: To BS 952 and relevant parts of:
   1.1. BS EN 572 for basic soda lime silicate glass.
   1.2. BS EN 1096 for coated glass.
   1.3. BS EN 1748-1 for borosilicate glass.
   1.4. BS EN 1748-2 for ceramic glass.
   1.5. BS EN 1863 for heat strengthened soda lime silicate glass.
   1.6. BS EN 12150 for thermally toughened soda lime silicate safety glass.
   1.7. BS EN 12337 for chemically strengthened soda lime silicate glass.
   1.8. BS EN 13024 for thermally toughened borosilicate safety glass.
   1.9. BS EN ISO 12543 for laminated glass and laminated safety glass.
2. Panes/ sheets: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.
   2.1. Edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

Types of glazing

370 WG01 Bead fixed insulating glass units

1. Description: Double glazed , hermetically sealed insulating glass units to office building aluminium windows and doors. Submit details.
2. IGU:
   2.1. Standard: BS EN 1279 and Kitemark certified.
   2.2. Inner pane: Toughened low emissivity glass. Thickness to be determined by Window Manufacturer to achieve U-value requirements.
   2.3. Cavity: To be determined by Window Manufacturer to achieve U-value requirements.
   2.4. Outer pane: Tinted, toughened solar control glass. Thickness to be determined by Window Manufacturer to achieve U-value requirements.
   2.5. Perimeter taping: Do not use.
3. Surround/ bead: To be determined by Window Supplier / Specialist Sub-contractor.
   3.1. Preparation: To be determined by Window Supplier / Specialist Sub-contractor.
   3.2. Bead location: Inside.
   3.3. Bead fixing: To be determined by Window Supplier / Specialist Sub-contractor.
4. Glazing system: Preformed gasket sections supplied by window manufacturer
5. Thermal performance (U-value maximum): 1.0 W/m²K
6. Glazing installation
   6.1. Insulating unit: Located centrally in surround using setting and location blocks.
   6.2. Gaskets and beads: Installed as recommended by frame manufacturer.
      6.2.1. Gasket fit at corners: Tight, without gaps.
   6.3. Drainage and ventilation holes: Unobstructed.

Ω End of Section

M10
Cement based levelling/ wearing screeds

Types of screed

130 LS01 Proprietary levelling screed

1. Description: Proprietary levelling screed to office building ground floor slab.
2. Substrate: Insulation on reinforced concrete slab.
    2.1. Preparation: As recommended by screed manufacturer.
3. Screed manufacturer: Flowcrete UK Ltd or similar approved
    3.1. Product reference: Isocrete Heavy Duty K-Screed to suit application.
4. Screed construction: Floating, as clause 290.
    4.1. Reinforcement for crack control: As required by Screed Manufacturer to suit location and application.
5. Thickness
    5.1. Nominal: Typically 100mm to vinyl and carpeted areas and 75mm to tiled areas. Final thicknesses are to be advised by Specialist Sub-contractor to suit floor finishes.
    5.2. Minimum: 75 mm.
6. Mix
    6.1. Cement: As recommended by screed manufacturer.
    6.2. Proportions: To manufacturer's recommendations.
7. In situ crushing resistance (ISCR) category: A (3 mm maximum indentation).
    7.1. Mass of test weight: 4 kg.
8. Flatness/ Surface regularity class: SR2.
9. Finish: Trowelled, as clause 540 or as recommended by screed manufacturer to receive various floor finishes.
    9.1. To receive: Varies. Refer to Cox Freeman Ltd drawings for location of vinyl sheet flooring / carpet tiles / floor tiles.
10. Other requirements:
    1. Final screed details and specification to be confirmed by Screed Manufacturer.
    2. Screed to be laid by Approved Licensees in full accordance with Screed Manufacturer's details and recommendations to suit application.
    3. Approved by the British Board of Agrément certificate No. 91/2678
    4. Before floor finishes are laid, the moisture content of the screed should be checked by the Main Contractor. BS8203 recommends a maximum of 75% RH prior to the installation of sensitive finishes.
    5. Loadings / compressive strength etc. to be agreed with Structural Engineer.
    6. Read in conjunction with Structural Engineer's details and specification.
    7. Smoothing compound as clause 710.

Generally/ preparation

200 Sub-contractor's design

1. Description: Provide detailed design of floating floor screed and below speed insulation including all necessary calculations.
2. Design responsibility:

1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.

3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

205 Design life of screeds

1. Duration: 30 years.
    1.1. Subject to reasonable wear and tear.
2. Location: Ground floor.
3. Condition of use: Subject to correct loading and traffic usage throughout duration.

210 Suitability of substrates

1. General
    1.1. Suitable for specified levels and flatness/ regularity of finished surfaces. Consider permissible minimum and maximum thicknesses of screeds.
    1.2. Sound and free from significant cracks and gaps.
2. Concrete strength: In accordance with BS 8204-1, Table 2.
3. Cleanliness: Remove plaster, debris and dirt.
4. Moisture content: To suit screed type. New concrete slabs to receive fully or partially bonded construction must be dried out by exposure to the air for minimum six weeks.

220 Proprietary levelling/wearing screeds

1. General: Materials, mix proportions, mixing methods, minimum/ maximum thicknesses and workmanship must be in accordance with recommendations of screed manufacturer.
2. Standard: To BS EN 13813 / BS 8204-3.

290 Floating construction floor insulation

1. Insulation
    1.1. Type: Floor insulation to office building below screed.
    1.2. Manufacturer: Kingspan Insulation or similar approved.

1.2.1. Product reference: Thermafloor TF70 or similar approved insulation suitable for application shown.

1.2.2. Thickness: 100mm to be confirmed.

1.3. Substrate: Reinforced concrete slab to Structural Engineer's details. Concrete slabs should be allowed to dry out fully prior to the installation of the insulation boards. The surface of the slab should be smooth, flat and free from projections.

1.4. Perimeter: 25mm thick insulation board to match the above, to be placed vertically around the slab to prevent cold bridging in full accordance with the Manufacturer's details.

1.5. Installation: In accordance with manufacturer's details to suit application.

2. Separating layer

2.1. Type: Polyethylene sheet minimum 125 micrometres thick (500 gauge).

2.2. Installation: Lay over insulation and turn up at perimeter abutments. Lap 150 mm at joints.

3. Screed: As clause 130 LS01.

4. Other:

1. All to be installed to Manufacturer's details and recommendations.

2. Structural Engineer to confirm is compressive strength of proposed insulation is suitable for screed / other loadings.

Batching/ mixing

302 Cements

1. Cement types: In accordance with BS 8204-1, clause 5.1.3.

305 Aggregates

1. Sand: To BS EN 13139.

1.1. Grading limits: In accordance with BS 8204-1, Table B.1.

2. Coarse aggregates for fine concrete levelling screeds

2.1. Standard: To BS EN 12620.

2.2. Designation: 4/10.

3. Lightweight aggregates: In accordance with BS 8204-1, Annex A.

307 Admixtures

1. Standard: In accordance with BS 8204-1, Table 1.

2. Calcium chloride: Do not use in admixtures.

330 Mixing

1. Water content: Minimum necessary to achieve full compaction, low enough to prevent excessive water being brought to surface during compaction.

2. Mixing: Mix materials thoroughly to uniform consistency. Mixes other than no-fines must be mixed in a suitable forced action mechanical mixer. Do not use a free fall drum type mixer.

3. Consistency: Use while sufficiently plastic for full compaction.

4. Ready-mixed retarded screed mortar: Use within working time and site temperatures recommended by manufacturer. Do not retemper.

335 In situ crushing resistance (ISCR)

1. Standards and category: In accordance with BS 8204-1, table 4.

1.1. Testing of bonded and unbonded screeds: To Annex D.

1.2. Testing of floating levelling screeds: To Annex E.

340 Adverse weather

1. Screeds surface temperature: Maintain above 5°C for a minimum of four days after laying.
2. Hot weather: Prevent premature setting or drying out.

Laying

345 Level of screed surfaces

1. Permissible deviation: (allowing for thickness of coverings) ±5 mm from datum for various floor finishes.

355 Flatness/ Surface regularity of floor screeds

1. Standard: In accordance with BS 8204-1, Table 5.
2. Test: In accordance with BS 8204-1, Annex C.
3. Sudden irregularities: Not permitted.

375 Compaction of screeds

1. General: Compact thoroughly over entire area.
2. Screeds over 50 mm thick: Lay in two layers of approximately equal thickness. Roughen surface of compacted lower layer then immediately lay upper layer.

392 General reinforcement

1. Steel fabric: To BS 4483.
    1.1. Type: As required by screed manufacturer.
2. Installation: In accordance with BS 8204-1.

405 Joints in levelling screeds generally

1. Laying screeds: Lay continuously using 'wet screeds' between strips or bays. Minimize defined joints.
2. Daywork joints: Form with vertical edge.

440 Crack inducing grooves in levelling screeds

1. Groove depth: At least half the depth of screed.
2. Cutting grooves: Straight, vertical and accurately positioned. Select from the following:
    2.1. Trowel cut as screed is laid.
    2.2. Saw cut sufficiently early after laying to prevent random cracking.

Finishing/curing

510 Finishing generally

1. Timing: Carry out all finishing operations at optimum times in relation to setting and hardening of screed material.
2. Prohibited treatments to screed surfaces
    2.1. Wetting to assist surface working.
    2.2. Sprinkling cement.

530 Smooth floated finish

1. Finish: Even texture with no ridges or steps.

540 Trowelled finish to levelling screeds

1. Floating: To an even texture with no ridges or steps.
2. Trowelling: To a uniform, smooth but not polished surface, free from trowel marks and other blemishes, and suitable to receive specified flooring material.

650 Curing

1. General: Prevent premature drying. Immediately after laying, protect surface from wind, draughts and strong sunlight. As soon as screed has set sufficiently, closely cover with polyethylene sheeting.
2. Curing period (minimum): Keep polyethylene sheeting in position for: period recommended by screed manufacturer.
3. Drying after curing: Allow screeds to dry gradually. Do not subject screeds to artificial drying conditions that will cause cracking or other shrinkage related problems.

Ω End of Section

M40
Stone/ concrete/ quarry/ ceramic tiling/ mosaic

Types of tiling/ mosaic

110 TC01 Floor tiles

1. Description: Floor tiles to offices
2. Tiles: Fully vitrified ceramic floor tile system on bedding screed.
   - 2.1. Manufacturer/ Supplier: Submit proposals.
     - 2.1.1. Product reference: Submit proposals.
   - 2.2. Colour: Submit range colours for agreement with Client.
   - 2.3. Finish: Anti-slip surface finish of tile dependant on slip resistance rating required. Submit proposals.
   - 2.4. Size: Nominal 400mm x 400mm square floor tiles complete with all necessary finishing tiles and radius coved skirting tiles as required.
   - 2.5. Thickness: Submit proposals to suit recess in screed / minimum screed thickness. Allow for 25mm recess, to be confirmed.
   - 2.6. Slip potential
     - 2.6.1. Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum) to BS 7976-1, -2, -3 or BS EN 14231 (natural stone only): To suit R11 equivalent (to be agreed with Client). Submit proposals.
     - 2.6.2. Surface roughness (Rz) (minimum) to BS 1134: To suit R11 equivalent (to be agreed with Client). Submit proposals.
     - 2.6.3. Ramp test class: R11.
   - 2.7. Recycled content: Submit proposals.
3. Background/ Base: Floor screed as clause M10 / 130 LS01.
   - 3.1. Preparation: As recommended by Manufacturer to receive new tile bedding. Manufacturer or Specialist Sub-contractor to check condition of base and to advice on preparation / DPM required prior to installation.
4. Intermediate substrate: As recommended by Manufacturer.
5. Bedding: Adhesive bed to Manufacturer's details.
   - 5.1. Reinforcement: As recommended by Manufacturer.
   - 5.2. Adhesive to BS EN 12004-1: As recommended by Manufacturer.
6. Joint width: As recommended by Manufacturer.
7. Grout: As recommended by Manufacturer to suit application and usage of each location.
   - 7.1. Type/ classification: As recommended by Manufacturer.
   - 7.2. Admixture: As recommended by Manufacturer.
8. Movement joints: As recommended by Manufacturer.
9. Accessories: All necessary accessories to allow installation of tile floor and coves in locations shown to suit application.
10. Other requirements.:
    1. Supply product data for each type of product indicated to Client for comments prior to ordering.
    2. Specialist Sub-contractor to submit drawings showing locations of each type of tile and tile pattern, widths, details, and locations and details of expansion, contraction, control, and isolation joints in substrates and finished tile surfaces, thresholds etc. for comments prior to ordering.

3. Samples for verification: Full-size units of each type of tile in each finish required. Assembled Samples with grouted joints for each type of tile and for each finish required.
4. Metal edge strips : Stainless steel angle where required in accordance with Specialist Sub-contractor's details in conjunction with Manufacturer's recommendations.
5. Radius coved base skirting tiles to include all necessary internal and external corner tiles to match range.
6. All aspects of system to be laid in full accordance with the Manufacturer's instructions.
7. New tiled floor finish system to be laid to ensure all areas are free from any sudden irregularities.
8. Tile and bedding system to give a fully insurance backed 20 year warranty.

110 TC02 Wall tiles

1. Description: Wall tiles to shower rooms and splash backs.
2. Tiles: Fully vitrified ceramic wall tile system.
   - 2.1. Manufacturer/ Supplier: Submit proposals.
     - 2.1.1. Product reference: Submit proposals.
   - 2.2. Colour: Submit range colours for agreement with Client.
   - 2.3. Finish: Glazed. Submit proposals.
   - 2.4. Size: Nominal 150mm x 150mm square wall tiles complete with all necessary finishing tiles as required.
   - 2.5. Thickness: Submit proposals.
   - 2.6. Slip potential
     - 2.6.1. Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum) to BS 7976-1, -2, -3 or BS EN 14231 (natural stone only): Not applicable.
     - 2.6.2. Surface roughness (Rz) (minimum) to BS 1134: Not applicable.
     - 2.6.3. Ramp test class: Not applicable.
   - 2.7. Recycled content: Submit proposals.
3. Background/ Base: As shown on general arrangement drawings. Typically plasterboard partitions.
   - 3.1. Preparation: As recommended by Manufacturer to receive new tile bedding. Manufacturer or Specialist Sub-contractor to check condition of base and to advice on preparation required prior to installation.
4. Intermediate substrate: As recommended by Manufacturer.
5. Bedding: Adhesive bed to Manufacturer's details.
   - 5.1. Reinforcement: As recommended by Manufacturer.
   - 5.2. Adhesive to BS EN 12004-1: As recommended by Manufacturer.
6. Joint width: As recommended by Manufacturer.
7. Grout: As recommended by Manufacturer to suit application and usage of each location.
   - 7.1. Type/ classification: As recommended by Manufacturer.
   - 7.2. Admixture: As recommended by Manufacturer.
8. Movement joints: As recommended by Manufacturer.
9. Accessories: All necessary accessories to allow installation of tile floor and coves in locations shown to suit application.
10. Other requirements.:
    1. Supply product data for each type of product indicated to Client for comments prior to ordering.
    2. Specialist Sub-contractor to submit drawings showing locations of each type of tile and tile pattern, widths, details, and locations and details of expansion, contraction, control,

and isolation joints in substrates and finished tile surfaces, thresholds etc. for comments prior to ordering.

3. Samples for verification: Full-size units of each type of tile in each finish required. Assembled Samples with grouted joints for each type of tile and for each finish required.
4. Metal edge strips: Stainless steel angle where required in accordance with Specialist Sub-contractor's details in conjunction with Manufacturer's recommendations.
5. All aspects of system to be laid in full accordance with the Manufacturer's instructions.
6. Tile and bedding system to give a fully insurance backed 20 year warranty.

General

200 Sub-contractor's design

1. Description: Provide detailed design of tiling systems and all associated accessories.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

210 Suitability of backgrounds/ bases

1. Background/ base tolerances: To permit specified flatness/ regularity of finished surfaces given the permissible minimum and maximum thickness of bedding.
2. New background drying times (minimum)
    2.1. Concrete walls: six weeks.
    2.2. Brick/ block walls: six weeks.
    2.3. Rendering: two weeks.
    2.4. Gypsum plaster: four weeks.
3. New base drying times (minimum)
    3.1. Concrete slabs: six weeks.
    3.2. Cement:sand screeds: three weeks.

250 Samples

1. General: Submit representative samples of the following: …….

Preparation

370 New in situ concrete

1. Backgrounds/ bases to be tiled: Remove mould oil, surface retarders and other materials incompatible with bedding.

380 New plaster

1. Plaster: Dry, solidly bedded, free from dust and friable matter.
2. Plaster primer: Apply if recommended by adhesive manufacturer.

390 Plasterboard backgrounds

1. Boards: Dry, securely fixed and rigid with no protruding fixings and face to receive decorative finish exposed.

460 Smoothing underlayment

1. Type: Recommended by adhesive manufacturer.
2. Condition: Allow to dry before tiling.

Fixing

510 Fixing generally

1. Colour/ shade: Unintended variations within tiles for use in each area/ room are not permitted.
   1.1. Variegated tiles: Mix thoroughly.
2. Adhesive: Compatible with background/ base. Prime if recommended by adhesive manufacturer.
3. Use of admixtures with cementitious adhesives: Only admixtures approved by adhesive manufacturer.
4. Cut tiles: Neat and accurate.
5. Fixing: Provide adhesion over entire background/ base and tile backs.
6. Final appearance: Before bedding material sets, make adjustments necessary to give true, regular appearance to tiles and joints when viewed under final lighting conditions.
7. Surplus bedding material: Clean from joints and face of tiles without disturbing tiles.

530 Setting out

1. Joints: True to line, continuous and without steps.
   1.1. Joints on walls: Horizontal, vertical and aligned round corners.
   1.2. Joints in floors: Parallel to the main axis of the space or specified features.
2. Cut tiles: Minimize number, maximize size and locate unobtrusively.
3. Joints in adjoining floors and walls: Align.
4. Joints in adjoining floors and skirtings: Align.
5. Movement joints: Where locations are not indicated, submit proposals.

550 Flatness/ Regularity of tiling/ mosaics

1. Sudden irregularities: Not permitted.

2. Deviation of surface: Measure from underside of a 2 m straightedge with 3 mm thick feet placed anywhere on surface. The straightedge should not be obstructed by the tiles and no gap should be greater than 6 mm, i.e. a tolerance of

560 Level of tiling across joints

1. Deviation (maximum) between tile surfaces either side of any type of joint
   1.1. 1 mm for joints less than 6 mm wide.
   1.2. 2 mm for joints 6 mm or greater in width.

570 Mortar bedding

1. Bedding mix
   1.1. Cement: Portland to BS EN 197-1, type CEM I/42.5.
   1.2. Sand for walls: Fine aggregate to BS EN 13139.
      1.2.1. Grading designation: 0/2 (CP or MP) category 2 fines.
   1.3. Sand for floors: Fine aggregate to BS EN 13139.
      1.3.1. Grading designation: 0/4 (MP) category 1 fines and between 20%-66% passing a 0.5 sieve.
2. Batching: Select from:
   2.1. Batch by weight.
   2.2. Batch by volume: Permitted on the basis of previously established weight:volume relationships of the particular materials. Use accurate gauge boxes. Allow for bulking of damp sand.
3. Mixing: Mix materials thoroughly to uniform consistence. Use a suitable forced action mechanical mixer. Do not use a free fall type mixer.
4. Application: At normal temperatures use within two hours. Do not use after initial set. Do not retemper.

578 Crack control reinforcement

1. Type to BS 4483:
2. Installation: Place centrally in depth of bed. Lap not less than 100 mm and securely tie together with steel wire.
3. Corners: Avoid a four layer build at corners.

590 Coved tile skirtings

1. Sequence: Bed solid to wall before laying floor tiles.
2. Bedding: As recommended by manufacturer.

650 Adhesive bed – notched trowel method (walls)

1. Application: By 3 mm floated coat of adhesive to dry background in areas of approximately 1 m². Comb surface.
2. Tiling: Press tiles firmly onto float coat.

651 Adhesive bed – notched trowel and buttering method (walls)

1. Application: By floated coat of adhesive to dry background in areas of about 1 m². Comb surface.
2. Tiling: Apply thin even coat of adhesive to backs of dry tiles. Fill any ribbed, deep keyed or button profiles. Press tiles firmly onto float coat.
3. Finished adhesive thickness: 3 mm or within the range allowed by the adhesive manufacturer.

711 Adhesive bed – buttering method (floors)

1. Tiling: Apply even coat of adhesive to backs of dry tiles. Fill any ribbed, deep keyed or button profiles.
2. Finished adhesive thickness: Within the range allowed by the adhesive manufacturer.

720 Cement:sand mortar bedding (floors)

1. Mortar bedding mix: 1:3-4 cement:sand.
   1.1. Consistency: Stiff plastic.
2. Laying: Lay suitably small working areas of screeded bed. Compact thoroughly to level.
   2.1. Finished bed thickness
      2.1.1. For tiles up to 10 mm thick: 10-15 mm.
      2.1.2. For tiles greater than 10 mm thick: 15-20 mm.
3. Tiling: Within two hours and before bedding sets, evenly coat backs of tiles with adhesive. Press tiles firmly into position.
4. Finished adhesive thickness: Within range recommended by manufacturer.

Movement joints/ grouting/ completion

875 Grouting

1. Sequence: Grout when bed/adhesive has set sufficient to prevent disturbance of tiles.
2. Joints: 6 mm deep (or depth of tile if less). Free from dust and debris.
3. Grouting: Fill joints completely, tool to profile, clean off surface. Leave free from blemishes.
   3.1. Profile:
4. Polishing: When grout is hard, polish tiling with a dry cloth.

885 Coloured grout

1. Staining of tiles: Not permitted
2. Evaluating risk of staining: Apply grout to a few tiles in a small trial area. If discoloration occurs apply a protective sealer to tiles and repeat trial.

Performance - Not Used

Ω End of Section

M50
Rubber/ plastics/ cork/ lino/ carpet tiling/ sheeting

Types of covering

130 CT01 Carpet tiling

1. Location: Office building. Refer to general arrangement drawings.
2. Base: Floor screed as clause M10 / 130 LS01.
   2.1. Preparation: Prepared in accordance with BS 5325 or corresponding National and European Standards, to be advised by Manufacturer to suit condition of base prior to fixing carpet tiles.
3. Fabricated underlay: To be advised by Manufacturer to suit condition of base prior to fixing carpet tiles.
4. Carpet tiles
   4.1. Standards: To BS EN 14041 and BS EN 1307.
      4.1.1. Evidence of compliance: Submit.
   4.2. Reaction to fire classification: To meet the requirements of approved document part B in each location of use.
   4.3. Manufacturer: InterfaceFlor or similar approved.
      4.3.1. Product reference: Equilibrium range or similar approved. Submit range samples for agreement with Client.
   4.4. Type: Tufted patterned structured tip sheared carpet tile.
   4.5. BS EN 1307 classification
      4.5.1. Levels of use class: 33.
      4.5.2. Luxury rating class: LC2.
      4.5.3. Additional performance properties to BS EN 1307:
         1. Castor chair suitability (Intensive use)
         2. Suitable for heavy contract application
   4.6. Recycled content: Submit proposals.
   4.7. Size: 500mm x 500mm.
   4.8. Colour/ pattern: Submit range samples for agreement with Client.
5. Method of laying: Fully adhere all tiles with release adhesive recommended by tile manufacturer.
6. Accessories: All necessary transition strips at differing floor finishes and threshold strips as necessary. All other accessories required to install flooring in locations required.
7. Other requirements:
   1. Installed in full accordance with Manufacturer's details and recommendations.
   2. Products must be fully conditioned to the environment in which they are to be installed, as outlined by Manufacturer.

150 VC01 Vinyl sheet flooring

1. Description: Heavy duty safety flooring.
2. Location: Refer to general arrangement drawings.
3. Base:
   1. New concrete floor slab to Structural Engineer's details.
   2. New floor screed to office building as clause M10 / 130 LS01.
   3.1. Preparation: As recommended by Manufacturer to suit base.
4. Fabricated underlay: As recommended by Manufacturer to suit base.

5. Flooring roll
    5.1. Standard: To BS EN 14041.
        5.1.1. Evidence of compliance: Submit.
    5.2. Reaction to fire classification: To meet the requirements of approved document part B in each location of use.
    5.3. Material: Homogeneous PVC heavy duty safety flooring BS EN ISO 10581 with enhanced slip resistance to BS EN 13845.
    5.4. Manufacturer: Polyflor Ltd. or similar approved.
        5.4.1. Product reference: Polysafe Vogue Ultra PUR.
    5.5. BS EN ISO 10874 class: 34 / 43.
    5.6. Slip potential
        5.6.1. Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum) to BS 7976-1, -2 and -3: 36 wet / R10 equivalent.
        5.6.2. Surface roughness (Rz) (minimum) to BS 1134: As required to meet slip resistance.
    5.7. Recycled content: Submit proposals.
    5.8. Width: 2000mm.
    5.9. Thickness: 2.0mm
    5.10. Colour/ pattern: Submit range samples for agreement with Client.
6. Adhesive (and primer if recommended by manufacturer): As recommended by Manufacturer.
7. Seam welding: Hot welding with complimentary coloured rod.
8. Accessories:
    1. Self coved skirtings complete with Polyflor former and trim, colour to be confirmed, dressed up vertical wall face by 100mm.
    2. All necessary transition strips at differing floor finishes and threshold strips as necessary.
9. Finishing: As recommended by Manufacturer.
10. Other requirements:
    1. The flooring material shall fully conform with the European Norm for safety flooring - EN 13845.
    2. A moisture test must be carried out, tensure that the subfloor has dried out to a level consistent with the application of vinyl flooring. The test should be carried out using a hygrometer, in accordance with the instructions in BS 8203. The result should not exceed 75% RH, once equilibrium has been achieved.
    3. Products must be fully conditioned tthe environment in which they are to be installed, as outlined by Manufacturer.
    4. Installation must be carried out in accordance with BS 8203 and the instructions of the Manufacturer.
    5. All joints must be welded.
    6. The slip resistance is assured throughout the guaranteed life of the product, with strict adherence to HSE Guidelines.

General requirements

200 Sub-contractor's design

1. Description: Provide detailed design of require floor finishes and associated items.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.

2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.

3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

210 Workmanship generally

1. Base condition after preparation: Rigid, dry, sound, smooth and free from grease, dirt and other contaminants.
2. Finished coverings: Accurately fitted, tightly jointed, securely bonded, smooth and free from air bubbles, rippling, adhesive marks and stains.

220 Samples

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

270 Extra material

1. Provision of extra material: At completion, hand to Employer extra material of each type of covering to extent of 10% of each covering (to be confirmed with Client).

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.

340 Conditioning

1. Prior to laying: Condition materials by unpacking and separating in spaces where they are to be laid. Maintain resilient flooring rolls in an upright position. Unroll carpet and keep flat on a supporting surface.
2. Conditioning time and temperature (minimum): As recommended by manufacturer with time extended by a factor of two for materials stored or transported at a temperature of less than 10°C immediately prior to laying.

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

410 New bases

1. Suitability of bases and conditions within any area: Commencement of laying of coverings will be taken as acceptance of suitability.

430 New wet laid bases

1. Base drying aids: Not used for at least four days prior to moisture content testing.
2. Base moisture content test: Carry out in accordance with BS 5325, Annexe A or BS 8203, Annexe A.
    2.1. Locations for readings: In all corners, along edges, and at various points over area being tested.
3. Commencement of laying coverings: Not until all readings show 75% relative humidity or less.

440 Substrates to receive thin coverings

1. Trowelled finishes: Uniform, smooth surface free from trowel marks and other blemishes. Abrade suitably to receive specified floor covering material.

460 Smoothing/ levelling underlayment compound

1. Type: As recommended by covering manufacturer.
2. Manufacturer: Submit proposals.
    2.1. Product reference: Submit proposals.

Laying coverings

610 Setting out tiles

1. Method: Set out from centre of area/ room, so that wherever possible:
    1.1. Tiles along opposite edges are of equal size.
    1.2. Edge tiles are more than 50% of full tile width.

620 Colour consistency

1. Finished work in any one area/ room: Free from banding or patchiness.

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.

670 Borders and feature strips in sheet material

1. Curl: Not acceptable.
2. Corners: Mitre joints.

680 Seam welding coverings

1. Commencement: At least 24 hours after laying, or after adhesive has set.
2. Joints: Neat, smooth, strongly bonded, flush with finished surface.

720 Doorways

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

740 Edgings and cover strips

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

780 Trafficking after laying

1. Covering types: All coverings.
2. Traffic free period: As recommended by covering manufacturer.

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 PS01 Emulsion paint

1. Description: To internal office walls.
2. Manufacturer: Johnstones or similar approved.
   2.1. Product reference: Submit proposals to suit each type of surface to be coated. Typically washable matt vinyl emulsion.
3. Surfaces:
   1. Fairfaced blockwork.
   2. Skimmed plasterboard.
   3.1. Preparation: As recommended by manufacturer to suit each surface to be coated.
4. Initial coats: As recommended by manufacturer to suit each surface to be coated.
   4.1. Number of coats: As recommended by manufacturer to suit each surface to be coated.
5. Undercoats: As recommended by manufacturer to suit each surface to be coated.
   5.1. Number of coats: As recommended by manufacturer to suit each surface to be coated.
6. Finishing coats: Full washable matt vinyl matt emulsion.
   6.1. Number of coats: As recommended by manufacturer to suit each surface to be coated. Generally provide two full finishing coats of vinyl matt emulsion to achieve a consistent washable finish with full depth of colour.
7. Other requirements: Submit product data sheets, COSHH assessments and colour ranges for agreement with Client.

130 PS01 Gloss paint

1. Description: To internal skirtings and architraves.
2. Manufacturer: Johnstones or similar approved.
   2.1. Product reference: Submit proposals to suit each type of surface to be coated. Typically washable matt vinyl emulsion.
3. Surfaces: Softwood and hardwood.
   3.1. Preparation: As recommended by manufacturer to suit each surface to be coated.
4. Initial coats: As recommended by manufacturer to suit each surface to be coated.
   4.1. Number of coats: As recommended by manufacturer to suit each surface to be coated.
5. Undercoats: As recommended by manufacturer to suit each surface to be coated.
   5.1. Number of coats: As recommended by manufacturer to suit each surface to be coated.
6. Finishing coats: Full high gloss finish.
   6.1. Number of coats: As recommended by manufacturer to suit each surface to be coated. Generally provide two full finishing coats of high gloss to achieve complete opacity of finish with full depth of colour.
7. Other requirements: Submit product data sheets, COSHH assessments and colour ranges for agreement with Client.

150 PS01 Eggshell paint

1. Description: To toilets and shower rooms.
2. Manufacturer: Johnstones or similar approved.

2.1. Product reference: Submit proposals to suit each type of surface to be coated. Typically washable acrylic eggshell paint for use in toilet and shower rooms.

3. Surfaces: Plasterboard partiti
   3.1. Preparation: As recommended by manufacturer to suit each surface to be coated.
4. Initial coats: As recommended by manufacturer to suit each surface to be coated.
   4.1. Number of coats: As recommended by manufacturer to suit each surface to be coated.
5. Undercoats: As recommended by manufacturer to suit each surface to be coated.
   5.1. Number of coats: As recommended by manufacturer to suit each surface to be coated.
6. Finishing coats: Full washable acrylic eggshell paint.
   6.1. Number of coats: As recommended by manufacturer to suit each surface to be coated. Generally provide two full finishing coats of acrylic eggshell to achieve complete opacity of finish with full depth of colour.
7. Other requirements: Submit product data sheets, COSHH assessments and colour ranges for agreement with Client.

Generally

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.

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.

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.

420 Fixtures and fittings

1. Removal: Before commencing work remove: Coverplates, grilles, wall clocks, and other surface mounted fixtures.
2. Replacement: Refurbish as necessary, refit when coating is dry.

425 Ironmongery

1. Removal: Before commencing work: Remove ironmongery from surfaces to be coated.
2. Hinges: Remove.
3. Replacement: Refurbishment as necessary; refit when coating is dry.

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.

500 Preprimed steel

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

570 Uncoated masonry/ Rendering

1. Loose and flaking material: remove.

590 Uncoated plasterboard

1. Depressions around fixings: Fill with stoppers/ fillers

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.

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.

730 Workshop coating of concealed joinery surfaces

1. General: Apply coatings to all surfaces of components.

Ω End of Section

M61
Intumescent coatings for fire protection of steelwork

Protective coating systems

110 PI01 On site intumescent coating to steel

1. Description: On site intumescent coating to primed steelwork.
2. Use/ location: Protection to all steelwork supporting fire walls including boundary wall cladding system.
3. Fire performance: To BS 476, as clause 203
4. Preparation and priming:
    1. Ensure primer is compatible with intumescent coating and primed surface is clean, dry and free from any grease, dust and contaminants.
    2. Primer should be a minimum dft as recommended by Manufacturer to suit requirement and ensuring blast profile is fully covered. Primer should be as recommended by Intumescent Coating Manufacturer.

    4.1. Primer: Sherwin-Williams Macropoxy 400.
5. Intumescent coating system

    5.1. Manufacturer: Sherwin-Williams or similar approved.

    5.1.1. Product reference: Sherwin-Williams Firetex intumescent coatings.

    5.2. Intumescent coat

    5.2.1. Type: Firetex FX5 series (or as recommended by Manufacturer to suit requirements and application of use) applied to meet the dft requirement for the fire rating specified to Manufacturer's recommendations.

    5.2.2. Finish:

    1. Visible areas: Normal decorative.
    2. Non-visible areas: Basic.

    5.3. Top sealer coat

    5.3.1. Type: Acrolon 7300, high performance, two pack, fast drying acrylic urethane.

    5.3.2. Colour: White RAL 9016, to be agreed with Client.

    5.3.3. Finish: Semi-gloss, to be agreed with Client.
6. Bolt head/ Nut protection: As recommended by Coating Manufacturer to suit system.
7. Other requirements:
    1. Installed in full accordance with Manufacturer's details and specification.
    2. Submit details and data sheets of system to Client prior to ordering.
    3. Ensure that primed steel is compatible with intumescent coatings
    1. To be applied by an approved contractor.
    2. Ensure steelwork sections are of an adequate size to receive intumescent coating.
    3. Refer to Structural Engineer's drawings for steelwork design.

Performance and general requirements

200 Sub-contractor's design

1. Description: Provide detailed design of intumescent fire protection to steelwork including all necessary calculations.
2. Design responsibility:

1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.

3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

203 Fire performance to BS 476

1. Fire resistance to BS 476-21:
    1. 120 minutes to all steelwork components supporting 120 minute blockwork fire wall.
    2. 60 minutes to all steelwork components supporting 60 minute fire walls and fire rated boundary wall cladding.
    3. 60 minutes to all steelwork components supporting viewing platform.
    4. 60 minutes to all steelwork components supporting fire floor of offices.

204 Exposure and durability

1. Environmental exposure: C3, Internal. Determine exposure class based on building use and location.
2. Durability classification: Determine exposure class based on building use and location and programme.

205 Validation of materials

1. Project-specific evaluation of intumescent coating materials
    1.1. Standard: In accordance with BS EN 16623, clause 4.
    1.2. Test results: Submit on request.

210 Working procedures

1. Standard: In accordance with BS EN 16623.
2. Give notice: Before commencing surface preparation and coating application.
3. Quality control: Record project specific procedures for surface preparation and coating application.

215 Working conditions

1. General: Maintain manufacturer's recommended temperature, humidity and air quality conditions during application and drying.
2. Surface condition: Clean and dry at time of application.

220 Applicator's personnel

1. Operatives: Trained/ experienced in anticorrosive and intumescent coatings.
2. Evidence of training/ experience: Submit on request.

250 Sprayed coating application on site

1. Standard: In accordance with BS EN 16623.
2. Spray drift: Minimize.
3. Uncoated areas of steel: Steelwork sections not providing support to fire resistant construction.
4. Masking: Protect designated adjacent surfaces.
   4.1. Designated surfaces: Any item not required to receive coating.

270 Inspection

1. Permit intumescent manufacturer to
   1.1. Inspect work in progress.
   1.2. Inspect quality control records.
   1.3. Take dry film thickness and other measurements.
   1.4. Take samples of products.
2. Intumescent manufacturer's inspection reports: Submit without delay.

Preparation of surfaces

315 New steel – blast cleaning

1. Preparation: Remove oil, grease and contaminants.
2. Blast cleaning
   2.1. Atmospheric condition: Dry.
   2.2. Abrasive: Suitable type and size, free from fines, moisture and oil.
   2.3. Finish: To BS EN ISO 8501-1, preparation grade SA2½, with an average profile of approximately 75 micrometres.
   2.4. Abrasive residues and moisture: Remove.
3. Primer: Apply as soon as possible after cleaning and before gingering or blackening appears.

Application of castings

402 Intumescent casting thickness

1. Required thickness: Determine for every steel member to give specified period of fire resistance. Use intumescent casting manufacturer's current published loading tables.
   1.1. Special sections and partial fire exposure conditions: Obtain required thickness in writing from manufacturer.
2. Schedule and drawings: Submit at least two weeks before starting work.
   2.1. Schedule content: Member sizes, weights/ thicknesses, loading conditions, etc. showing, for each variant, the exposed perimeter/ sectional area (Hp/A) ratio and required casting thickness.

2.2. Drawing content: Steelwork drawings marked in colour to show required thickness for each member.

404 Intumescent casting installation

1. Assembly: Adhesive fix casting sections tight to steel substrate.
2. Filling: Apply intumescent filler to all joints and deformations to produce a smooth and uniform finish.

Application of coatings

410 Intumescent coating dry film thickness (dft)

1. Applicable coatings:
2. Required dft: Determine for every steel member to give specified period of fire resistance. Use intumescent coating manufacturer's current published loading tables.
   2.1. Special sections and partial fire exposure conditions: Obtain required dft in writing from manufacturer.
3. Schedule and drawings: Submit at least two weeks before starting work.
   3.1. Schedule content: Member sizes, weights/ thicknesses, loading conditions, etc. showing, for each variant, the exposed perimeter/ sectional area (Hp/A) ratio and required dft.
   3.2. Drawing content: Steelwork drawings marked in colour to show required dft for each member.

420 Measurement of intumescent dft

1. Primer dft: Determine average dft (for deduction from total dft after application of intumescent).
2. Intumescent dft: Determine at:
   2.1. 500 mm centres along each coated plane of universal sections (8 planes), and rectangular hollow sections (4 planes).
   2.2. 125 mm centres along coated circular hollow sections, spread evenly around circumference.
3. Acceptance standard
   3.1. Average intumescent dft: Not less than required dft (exclusive of primer and top sealer).
   3.2. Local intumescent dft: Not less than 80% of required dft. Areas greater than 100 mm equivalent diameter with a dft of less than 80% of required dft must be brought up to thickness.

440 Basic finish

1. Definition: Reasonably smooth and even. Orange peel, other texture, minor runs and similar minor defects are acceptable.

450 Normal decorative finish

1. Definition: Good standard of cosmetic finish generally, when viewed from a distance of 5 m or more. Minor orange peel or other texture is acceptable.

460 High decorative finish

1. Definition: High standard of evenness, smoothness and gloss when viewed from a minimum distance of 2 m.

490 Top sealer coat

1. Application: To achieve dft recommended by manufacturer and to give an even, solid, opaque appearance, free from runs, sags and other visual defects.

Completion

530 Records of intumescent application

1. On completion of intumescent work, submit
   1.1. Accurate surface preparation, coating and intumescent application records.
   1.2. Fire resistance certificates.
   1.3. Intumescent manufacturer's recommendations for maintenance and overcoating.

Ω End of Section

N10
General fixtures/ furnishings/ equipment

Products

05 Sub-contractor's design

1. Description: Provide detailed design of items contained with section along with all associated items.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

145 FI01 Vanity unit

1. Description: Vanity unit to toilets.
2. Item: Vanity unit.
3. Manufacturer: Venesta or similar approved.
    3.1. Product reference: SGL CV3 profile vanity units or similar approved vanity unit system. Submit samples and brochures etc. for agreement with Client.
4. Form: Floor-mounted.
5. Dimensions: Determine from general arrangement drawings and submit proposals.
6. Vanity top:
    6.1. Core material: Solid grade laminate.
    6.2. Thickness: Manufacturer's standard.
    6.3. Facings: Solid grade laminate.
    6.4. Colour / pattern / species: Submit range samples for agreement with Client.
    6.5. Edge treatment: All edges radiused and polished, with rounded corners.
7. Frame:
    7.1. Core material: Support framework as Manufacturers details.

7.2. Thickness: Manufacturer's standard.

7.3. Facings: Solid grade laminate.

7.4. Colour / pattern / species: Submit range samples for agreement with Client.

7.5. Edge treatment: All edges radiused and polished, with rounded corners.

8. Panels:

8.1. Core material: Solid grade laminate.

8.2. Thickness: Manufacturer's standard.

8.3. Facings: Solid grade laminate.

8.4. Colour / pattern / species: Submit range samples for agreement with Client.

8.5. Edge treatment: Edge treatment: All edges radiused and polished, with rounded corners.

9. Supports: To Manufacture's details.

10. Accessories: All necessary accessories to allow installation of system in conjunction with Manufacturer's details and recommendations.

11. Other requirements:

1. Postformed vanity top downstand complete with integral coved upstand to wall and factory cut basin apertures to suit basins specified.
2. Samples, details and layout plans, section, elevations and details to be provided by Specialist Sub-contractor for approval by Client.
3. Sink details to be confirmed by Services Engineer.

300 EM01 Entrance matting to office building

1. Description: Entrance matting to main and rear entrance doors of office building.
2. Manufacturer: Forbo or similar approved.

2.1. Product reference: Nuway Grid or similar approved entrance matting system. Submit range samples for agreement with Client.

3. Arrangement: Inset internal.

3.1. Frame: Recessed extruded aluminium matwell frame to suit mat depth.

4. Material: Rubber with textile and aluminium strip.
5. Pattern: Closed.
6. Colour: Submit range samples.
7. Size: Determine from general arrangement drawings and submit proposals.
8. Integral accessories:

1. All necessary accessories to allow installation of mat and frame in full accordance with Manufacturer's details.

9. Other:

1. Entrance matting system to be Appoved Document Part M complient.
2. Install in full accordance with Manufacturers details.

Execution

710 Moisture content of wood and wood-based boards

1. Standard: To BS EN 942.
2. Moisture content on delivery: To suit building temperatures.
3. Temperature and humidity: During delivery, storage, fixing and to handover maintain conditions to suit specified moisture contents of timber components.

770 Trims

1. Lengths: Wherever possible, unjointed between angles or ends of runs.
2. Running joints: Where unavoidable, obtain approval of location and method of jointing.
3. Angle joints: Mitred.

Completion

910 General

1. Doors and drawers: Accurately aligned, not binding. Adjusted to ensure smooth operation.
2. Ironmongery: Checked, adjusted and lubricated to ensure correct functioning.

920 Appliances

1. Test: Ensure that all functions and features work correctly.
2. Documentation: Submit guarantees, instruction manuals, etc.

Ω End of Section

N12
Commercial catering fittings, furnishings and equipment

Products

320 FI01 Worktops

1. Description: To kitchenette / drinks preparation areas.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals including range samples and brochures etc. for agreement with the Client.
3. Dimensions: Determine from general arrangement drawings and submit proposals.
4. Material: 38mm thick, square edged solid laminate.
5. Finish/ Colour: Submit samples for agreement with Client.
6. Exposed edges: Laminate.
7. Support: To be determined by Specialist Sub-contractor to suit layout.
   7.1. Material: To be agreed with Client.
   7.2. Finish/ Colour: To be agreed with Client.
8. Other requirements:
   1. Details, samples and layout plans, section, elevations to be provided by Specialist Sub-contractor for approval by Client.
   2. All to be installed in accordance with Manufacturer's recommendations.

380 FI01 Sink

1. Description: To kitchenette / drinks preparation areas.
2. Sinks
   2.1. Manufacturer: Submit proposals.
      2.1.1. Product reference: Proprietary, self rimming, stainless steel kitchen sink with drainer for worktop inset. Submit proposals.
   2.2. Configuration: Single sink with single drainer and centre strainer, handed to suit general arrangement layouts.
   2.3. Overall size: Nominal 1000 x 600 mm to be incorporated into the kitchen design to suit unit sizes. Agree final sizes with Client.
   2.4. Material: Stainless steel grade 1.4301 (304).
   2.5. Finish/ Colour: Manufacturer's standard.
3. Support: Submit proposals to suit worktop.
   3.1. Material: Submit proposals.
   3.2. Finish/ Colour: Submit proposals.
4. Tap/ Chainstay/ Overflow holes:
   1. One tap hole, centre.
   2. No chainstay hole.
   3. Overflow hole.
5. Taps: Mixer to Services Engineer's details.
   5.1. Manufacturer: Submit proposals
      5.1.1. Product reference: Submit proposals.
   5.2. Operation: Lever. Approved Document Part M Compliant.
   5.3. Material: Chromed steel.

6. Wastes: Pop up
   6.1. Standard: To BS EN 274-1, -2 and -3.
   6.2. Manufacturer: Submit proposals.
      6.2.1. Product reference: Submit proposals.
   6.3. Size: To fit sink.
   6.4. Material: Stainless steel.
   6.5. Tail: Slotted (to pick up strainer).
7. Traps: Deep seal bottle.
   7.1. Standard: To BS EN 274-1, -2 and -3.
   7.2. Manufacturer: Submit proposals.
      7.2.1. Product reference: Submit proposals.
   7.3. Size: To fit sink.
   7.4. Material: Plastics.
   7.5. Depth of seal (minimum): 75 mm.
8. Accessories: All necessary accessories required to install sink, taps and waste in their entirety in locations shown on general arrangement drawing in accordance with manufacturer's details and recommendations and Services Engineer's details and specifications including the following:
   1. All necessary corrosion resistant fixing brackets and fixings where required.
   2. All necessary above ground drainage / waste items for installation including quickfix accessories, in accordance with British Standards and relevant parts of the Building Regulations.
9. Other requirements:
   1. Vertical and horizontal radius basin corners.
   2. Fully undercoated for sound deadening effect.
   3. Sinks to be fully sealed back to worktop with a continuous bead of clear antimicrobial, anti-mould, moisture and water resistant silicone.
   4. Specialist Sub-contractor to submit drawings of all items including plans, elevations, sections, details including attachments to other works for comments prior to ordering.
   5. Specialist Sub-contractor to supply all product literature and data sheets and samples for comments prior to ordering.

420 FI01 Kitchen cupboard base unit

1. Item: Cupboard base unit with swing door and internal shelf.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals including range samples and brochures etc. for agreement with the Client.
3. Dimensions:
   1. Height to suit a worktop height of 900m / 850mm (where complying to Approved Document Part M of the Building Regulations).
   2. Width 600mm generally.
   3. Depth to suit worktop depth.
4. Material: Plastic laminated particleboard to be confirmed by Client.
5. Finish/ Colour: To be agreed with Client.
   5.1. Edges: Laminate.
6. Accessories:
   1. 1 number intermediate shelf internally.
   2. Matching unit swing door.

3. Matching plinth and end panels as required.
4. Stainless steel handles as required. Agree type with Client.
5. Soft close hinges.
6. All necessary items as required by manufacture.

7. Other:
    1. Details, samples and layout plans, section, elevations to be provided by Specialist Sub-contractor for approval by Client.
    2. Layout to be designed and installed to meet the requirements of Approved Document Part M of the Building Regulations where required.

420 FI02 Kitchen drawer base unit

1. Item: Drawer base unit with 4 number drawers.
2. Manufacturer: Submit proposals.
    2.1. Product reference: Submit proposals including range samples and brochures etc. for agreement with the Client.
3. Dimensions:
    1. Height to suit a worktop height of 900m / 850mm (where complying to Approved Document Part M of the Building Regulations).
    2. Width 600mm generally.
    3. Depth to suit worktop depth.
4. Material: Plastic laminated particleboard to be confirmed by Client.
5. Finish/ Colour: To be agreed with Client.
    5.1. Edges: Laminate.
6. Accessories:
    1. 4 number matching unit drawers, rollers etc.
    2. Matching plinth and end panels as required.
    3. Stainless steel handles as required. Agree type with Client.
    4. Soft close rollers.
    5. All necessary items as required by manufacture.
7. Other:
    1. Details, samples and layout plans, section, elevations to be provided by Specialist Sub-contractor for approval by Client.
    2. Layout to be designed and installed to meet the requirements of Approved Document Part M of the Building Regulations where required.

420 FI03 Kitchen cupboard wall unit

1. Item: Wall mounted cupboard unit with swing door and 2 number internal shelves.
2. Manufacturer: Submit proposals.
    2.1. Product reference: Submit proposals including range samples and brochures etc. for agreement with the Client.
3. Dimensions:
    1. Height 900mm.
    2. Width 600mm generally.
    3. Depth 300mm.
4. Material: Plastic laminated particleboard to be confirmed by Client.
5. Finish/ Colour: To be agreed with Client.

5.1. Edges: Laminate.

6. Accessories:
    1. 2 number shelves internally.
    2. Matching unit swing door.
    3. Matching plinth and end panels as required.
    4. Stainless steel handles as required. Agree type with Client.
    5. Soft close hinges.
    6. All necessary items as required by manufacture.
7. Other:
    1. Details, samples and layout plans, section, elevations to be provided by Specialist Sub-contractor for approval by Client.
    2. Layout to be designed and installed to meet the requirements of Approved Document Part M of the Building Regulations where required.

470 Sealant

1. Standard: To BS EN ISO 11600
2. Type: Water resistant, mould and bacteria resistant silicone.
    2.1. Manufacturer: Submit proposals.
    2.2. Product reference: Submit proposals.
3. Colour: Coloured to match backgrounds / clear where required. Agree final colours with Client.
4. Other requirements:
    1. Submit data sheets of proposed product for Client approval prior to ordering.
    2. Install in accordance with manufacturer's recommendations.

Execution

600 Sub-contractor's design

1. Description: Provide detailed design of all items within section along with all associated items.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.

4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.

4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

610 Moisture content of wood and wood-based boards

1. Control and monitoring
   1.1. Method statement: Submit.

620 Installation generally

1. Fixing and fasteners: As section Z20.
2. Services: As Engineering Services specification.

640 Services to equipment, units and appliances

1. Connections: Provide to electric, gas, and hot and cold water services.

650 Installing sinks, taps, traps and wastes

1. Water supply: To BS EN 806-1, -2, -3, -4 and -5 and BS 8558.
2. Taps
   2.1. Fixing: Secure, watertight seal with the appliance.
   2.2. Positioning: Hot tap to left of cold tap as viewed by the user of the appliance.
3. Wastes
   3.1. Bedding: Waterproof jointing compound.
   3.2. Fixing: With resilient washer between appliance and backnut.

660 Sealant bedding and pointing

1. Application: As section Z22
2. Bedding: Sink to top of worktop.
3. Pointing:
   1. Between units and floor / wall.
   2. Worktop to wall.

670 Trims

1. Lengths: Unjointed between angles or ends of runs.
2. Angle joints: Mitred.

Completion

910 General

1. Doors and drawers: Accurately aligned, not binding. Adjusted to ensure smooth operation.
2. Ironmongery: Checked, adjusted and lubricated to ensure correct functioning.

920 Equipment, units and appliances

1. Test: Ensure that all functions and features work correctly.
2. Documentation: Submit guarantees, instruction manuals, etc.

Ω End of Section

N13
Sanitary appliances and fittings

Products

300 FI01 WCs and cisterns

1. Description: To toilets.
2. WC standard: To Defra WC suite performance specification or equivalent approved by relevant water company.
3. Type: Wall hung with concealed cistern for severe duty use and integration with IPS system.
4. Pan
   - 4.1. Standards: To BS EN 33 and BS EN 997 or to suit selected WC type and arrangement.
   - 4.2. Manufacturer: Armitage Shanks or similar approved. Submit proposals for agreement with the Client.
     - 4.2.1. Product reference: Contour 21+ wall hung, rimless washdown WC pan with horizontal outlet and concealed fixings in stainless steel. WC pan to be suitable for fixing on mounting bracket for use with an IPS system.
   - 4.3. Material: Vitreous china, white.
5. Seat and cover
   - 5.1. Standard: To BS 1254.
   - 5.2. Form: Seat and cover.
   - 5.3. Manufacturer: As pan manufacturer.
     - 5.3.1. Product reference: Severe duty, chemically resistant, anti-bacterial, solid plastic seat and cover to suit pan profile complete with integrally molded retaining buffers, concealed check hinges with stainless steel posts and fixings. Submit proposals for agreement with Client.
   - 5.4. Material: Severe duty, chemically resistant solid plastic.
   - 5.5. Finish/ colour: White.
   - 5.6. Soft close: Required.
6. Pan connector
   - 6.1. Standard: To BS 5627.
   - 6.2. Manufacturer: As pan manufacturer.
     - 6.2.1. Product reference: Submit proposals.
   - 6.3. Colour: Submit proposals.
7. Cistern
   - 7.1. Standard: BS EN 14055.
   - 7.2. Manufacturer: As pan manufacturer.
     - 7.2.1. Product reference: Conceala concealed cistern & cover, 4.5/3 litre flush volume with pneumatic dual flush valve fittings, 1/2in ballvalve, side supply, internal overflow, alternative height plastic flushbends, inlet connector etc. Submit proposals.
   - 7.3. Material: Plastics.
   - 7.4. Finish/ colour: Submit proposals.
8. Inlet valve: Cistern manufacturer's standard.
   - 8.1. Manufacturer: As pan manufacturer.
     - 8.1.1. Product reference: Submit proposals.
   - 8.2. Water supply connection: Side.
9. Flushing arrangement: WRAS approved.

9.1. Manufacturer: As pan manufacturer.

9.1.1. Product reference: Submit proposals for agreement with Client.

9.2. Operating control:

1. Proximity sensor as cost option.
2. Satin stainless steel dual flush, manual actuation flush plate for horizontal installation into IPS panels complete with concealed fixings and fixing frame, AV1 type pneumatic flush valve and connections etc. Nominal size 160mm x 200mm. Submit proposals for agreement with Client.

9.3. Flush volume: Water saving 4.5/3 litre dual flush.

10. Flush pipe: Concealed (supplied with cistern).

10.1. Manufacturer: As pan manufacturer.

10.1.1. Product reference: Submit proposals.

10.2. Material: Submit proposals.

11. Accessories: All necessary accessories required to install WC system in its entirety in locations shown on proposed drawings in accordance with manufacturer's details and recommendations and Services Engineer's details specifications including the following:
    1. Floor fixed, WC support bracket and all necessary corrosion resistant fixings for WC pan for use in conjunction with an IPS system.
    2. All necessary corrosion resistant cistern fixing fixing brackets and fixings for concealed cisterns used in conjunction with an IPS system.
    3. All necessary above ground drainage / waste items for installation including quickfix accessories, in accordance with British Standards and relevant parts of the Building
    4. Regulations.
12. Other requirements:
    1. Cistern fixing heights are to be in accordance with manufacturer's recommendations to provide efficient flushing.
    2. Ensure that all flush pipes enter the WC inlet at the correct angle as recommended by manufacturer to provide efficient flushing.
    3. WC pans are to be fully sealed back to IPS panels with a continuous bead of white antimicrobial, anti-mold, moisture and water resistant silicone.
    4. Specialist Sub-contractor to submit drawings of all items including plans, elevations, sections, details including attachments to other works for comments prior to ordering.
    5. Specialist Sub-contractor to supply all product literature and data sheets and samples where applicable to Client prior to ordering.
    6. Read in conjunction with Services Engineer's drawings and schedules.
    7. Read in conjunction with Cox Freeman Ltd. General Arrangement layout drawings.
    8. All to be installed in full accordance with Manufacturer's details and recommendations.

311 FI01 Accessible WC equipment package (Document M)

1. Description: Unisex accesible WC equipment package to accessible toilet.
2. Manufacturer: Armitage Shanks or similar approved. Submit proposals for agreement with the Client.

    2.1. Product reference: Document M Standard Disabled WC Pack to be supplied and fixed to comply fully with Approved Document M of the Building Regulations. Submit proposals for agreement with Client.

3. Type approval certificate: Submit.
4. Finish/ colour

4.1. Pan: Contour 21 Part M compliant, close coupled, raised height WC pan, 75cm projection with floor fixing kit. Pan to be set typically at 450mm above finished floor level to ensure a seat height of 480mm. Vitreous china, white.

4.2. Cistern: Contour 21 close coupled delay fill, syphon cistern 4.5 litre single flush for 75cm projection pan bottom supply and internal overflow, secure cover fastener, Stainless steel spatula cistern lever etc. Vitreous china, white.

4.3. Seat: Contour 21 chemically resistant, anti-bacterial, solid plastic seat (no cover) to suit pan profile complete with integrally molded retaining buffers, stainless steel posts and fixings. Seat to be compliant with Approved Document Part M. Submit proposals for agreement with Client.

4.4. Basin: Contour 21 wall mounted, handrinse washbasin, bottom outlet, to comply with Approved Document Part M. Top of basin to be between 720mm - 740mm above finished floor level. Vitreous china, white.

4.5. Handrails and grab bars: Coated steel, dark grey. Submit proposals for agreement with Client.

5. Transfer handing: Determine handing from general arrangement drawings.

6. Water supply fittings (basin): Basin mounted Sensorflow mixer tap with automatic motion activation.

6.1. Water supply temperature (maximum): To Services Engineer's details.

7. Accessories: All necessary accessories required to install Disabled WC pack in its entirety in locations shown in accordance with manufacturer's details and recommendations and Services Engineer's details specifications including the following:

1. All necessary corrosion resistant fixings to allow WC pan and cistern to to be fixed.
2. All necessary above ground drainage / waste items for installation including quickfix accessories, in accordance with British Standards and relevant parts of the Building Regulations.
3. All necessary corrosion resistant wash basin hangers and fixings etc. Document M compliant accessories.
4. Toilet roll holder complete with all necessary fixings.
5. 2 number wall mounted laminate faced shelf complete with all necessary fixings. 1 fixed at 740mm above finished floor level (adjacent door) and 1 fixed at 950mm above finished floor (adjacent WC pan).
6. Emergency assistance pull chord, colour red with 2 number red 50mm diameter bangles, 1 set at 100mm from finished floor level and the other set between 800 and 1000mm above finished floor level, located as close to wall as possible and is to be easily reachable from WC or floor and alarm reset button. Emergency assistance alarm to Services Engineer's details.
7. White metal soap dispenser complete with all necessary fixings, wall mounted above sink.
8. Fully automatic single handed operation hand-dryer unit complete with all necessary fixings, wall mounted, underside to be set between 800 and 1000mm above finished floor level. Note: Top access hand-driers are not acceptable for use in disabled cubicles.
9. Stainless steel mirror to be 700mm wide x 1200mm high.
10. Wall mounted coat hooks with all necessary fixings.
11. Stainless steel paper towel bin.

8. Other requirements:

1. All components to be suitable and compliant for use in a wheelchair accessible toilet / cubicle in accordance with Approved Document Part M of the Building Regulations.
2. Cistern fixing heights are to be in accordance with manufacturer's recommendations to provide efficient flushing.
3. Ensure that all flush pipes enter the WC inlet at the correct angle as recommended by manufacturer to provide efficient flushing.

4. WC pans and wash hand basins are to be fully sealed back to tiled wall finish with a continuous bead of white antimicrobial, anti-mold, moisture and water resistant silicone.
5. Specialist Sub-contractor to submit drawings of all items including plans, elevations, sections, details including attachments to other works for comments prior to ordering.
6. Specialist Subcontractor to supply all product literature and data sheets and samples to Client for comments prior to ordering.
7. Read in conjunction with Services Engineer's drawings and schedules.

312 FI01 Unisex accessible shower room equipment packages (Document M)

1. Description: Unisex accessible shower to accesible toilet.
2. Manufacturer: Armitage Shanks or similar approved. Submit proposals for agreement with the Client.
   2.1. Product reference: Document M Shower Room Pack to be supplied and fixed to comply fully with Approved Document M of the Building Regulations. Submit proposals for agreement with Client.
3. Type approval certificate: Submit.
4. Finish/ colour
   4.1. Seat, folding: Submit range samples for agreement with Client.
   4.2. Back support: Submit range samples for agreement with Client.
   4.3. Shower curtain rail: Submit range samples for agreement with Client.
   4.4. Shower curtain: Submit range samples for agreement with Client.
   4.5. Handrails and grab bars: Submit range samples for agreement with Client.
5. Shower fittings: To Services Engineer's details and specification.
6. Accessories: All necessary accessories required to install Disabled WC pack in its entirety in locations shown in accordance with manufacturer's details and recommendations and Services Engineer's details specifications including the following:
   1. All necessary corrosion resistant fixings.
   2. All necessary above ground drainage / waste items for installation including quickfix accessories, in accordance with British Standards and relevant parts of the Building Regulations.
   3. All necessary corrosion resistant wash basin hangers and fixings etc. Document M compliant accessories.
   4. White metal soap dispenser complete with all necessary fixings, wall mounted above sink.
7. Other requirements:
   1. All components to be suitable and compliant for use in a wheelchair accessible toilet / cubicle in accordance with Approved Document Part M of the Building Regulations.
   2. Specialist Sub-contractor to submit drawings of all items including plans, elevations, sections, details including attachments to other works for comments prior to ordering.
   3. Specialist Subcontractor to supply all product literature and data sheets and samples to Client for comments prior to ordering.
   4. Read in conjunction with Services Engineer's drawings and schedules.

315 FI01 Urinals and concealed cisterns

1. Description: Wall hung urinals to toilets.
2. Urinals
   2.1. Standard: To BS EN 13407.
   2.2. Manufacturer: Armitage Shanks or similar approved. Submit proposals for agreement with the Client.

2.2.1. Product reference: Contour panel mounted urinal with a max depth of 305mm. Submit proposals to Client.

2.3. Material: Vitreous china, white.

3. Wastes: Domed strainer waste.
   3.1. Standards: To BS EN 274-1, -2 and -3.
   3.2. Manufacturer: As Urinal.
      3.2.1. Product reference: Submit proposals.
   3.3. Size: To suit outlet.
   3.4. Material: Brass, chrome-plated.
   3.5. Tail: Unslotted.
4. Traps: Concealed P type to suit urinal.
   4.1. Standards: To BS EN 274-1, -2 and -3.
   4.2. Manufacturer: As Urinal.
      4.2.1. Product reference: Submit proposals.
   4.3. Size: To suit outlet.
   4.4. Material: Plastics, chrome-plated.
   4.5. Depth of seal (minimum): 75 mm.
5. Cistern, complete with automatic siphon, lid, supports and fixings: Conceala concealed, slim line cistern for use with IPS system or alternatively cistern free, mains flushed, refer to Services Engineer's details and specifications. Provide cost option for each.
   5.1. Standard: To BS 1876.
   5.2. Manufacturer: As urinal.
      5.2.1. Product reference: Submit proposals.
   5.3. Material: Plastic.
   5.4. Flush volume: To be determined by Services Engineer to suit the number of urinals being served by each cistern
   5.5. Operating control: WRAS approved, water saving, chrome plated infrared proximity sensor electronic flushing control system to manages economic delivery of water to urinals with hygiene flush setting to allow flushing to occur once every 24 hours if urinal is unused in that period.
   5.6. Flush pipe: Concealed.
      5.6.1. Product reference: Submit proposals.
      5.6.2. Material: Stainless steel.
6. Accessories: All necessary accessories required to install urinal and cistern system in its entirety in locations shown on drawings in accordance with manufacturer's details and recommendations and Services Engineer's details and specifications including the following:
   1. Spreaders and back inlets for vitreous china urinal in accordance with manufacturers details.
   2. All necessary corrosion resistant urinal fixings for concealed fixing to IPS system.
   3. All necessary corrosion resistant cistern fixing fixing brackets and fixings for concealed cisterns used in conjunction with an IPS system.
   4. All necessary above ground drainage / waste items for installation including quickfix accessories, in accordance with British Standards and relevant parts of the Building Regulations.
   5. Urinal dividers where required. Please refer to Cox Freem Ltd. drawings.
7. Other requirements:
   1. Cistern fixing heights are to be in accordance with manufacturer's recommendations to provide efficient flushing.

2. Ensure that all flush pipes are at the correct angle as recommended by manufacturer to provide efficient flushing.
3. Urinals are to be fully sealed back IPS panels with a continuous bead of white antimicrobial, anti-mold, moisture and water resistant silicone.
4. Specialist Sub-contractor to submit drawings of all items including plans, elevations, sections, details including attachments to other works for comments prior to ordering.
5. Specialist Sub-contractor to supply all product literature and data sheets and samples for comments prior to ordering.
6. Read in conjunction with Services Engineer's drawings and schedules.
7. Read in conjunction with Cox Freeman Ltd. General Arrangement drawings.
8. All to be installed in full accordance with Manufacturer's details and recommendations

331 FI01 Stainless steel cleaners sink

1. Description: Stainless steel cleaners sink to cleaners store.
2. Standard:
    1. DDA to BS 8300,
    2. Stainless steel type 304 to BS EN 100088:part 2:2005.
3. Manufacturer: Armitage Shanks or similar approved. Submit proposals for agreement with the Client.
    3.1. Product reference: Product reference: Stainless steel Janitorial unit incorporating lower level cleaners sink with bucket grating and upper level handrinse basin with earthing terminal, mixer tap with restricted swivel, tamper proof concealing panel for washbasin trap, hinged bucket grating to sink, stainless steel legs with adjustable feet and earthing tag. Submit proposals.
4. Size: Typical footprint size: 500mm wide x 600mm projection x 900mm high.
5. Material: Satin finished stainless steel, 1.2mm thick throughout except for end panels which are 1.5mm.
6. Configuration: Floor standing.
7. Tap/ chainstay/ overflow holes: The rear panel above the bucket sink to have a removable access panel to connect the water and waste pipework. A monobloc mixer tap with swivel spout is fitted to the front right hand corner of the upper washbasin. A service gap is provided behind the lower bucket sink to allow for the waste pipe from the wash basin.
8. Water supply fittings: Monobloc mixer is provided with restricted swivel nozzle for use with either handrinse basin or cleaners sink below.
    8.1. Water supply temperature (maximum): Refer to Services Engineer's details and recommendations.
    8.2. Flow rate (maximum): Refer to Services Engineer's details and recommendations.
9. Wastes:
    9.1. Standards: To BS EN 274-1, -2 and -3.
    9.2. Size:
        1. DN 30 to hand wash basin.
        2. DN 40 to cleaners sink.
    9.3. Material: Stainless steel.
    9.4. Tail:
        1. Hand wash basin complete with swivel plug.
        - Cleaners sink with unslotted multi-purpose outlet.
10. Traps: Resealing bottle traps.
    10.1. Standards: To BS EN 274-1, -2 and -3.

10.2. Size:

1. 32mm to hand wash basin.
2. 38mm to cleaners sink.

10.3. Material: Plastic.

10.4. Depth of seal (minimum): 75 mm.

11. Accessories:
    1. All necessary accessories required to install sink, taps and waste in their entirety in locations shown on drawing in accordance with manufacturer's details and recommendations and Services Engineer's details and specifications including the following:
    2. All necessary corrosion resistant fixing brackets and fixings where required.
    3. All necessary above ground drainage / waste items for installation including quickfix accessories, in accordance with British Standards and relevant parts of the Building Regulations.
12. Other requirements:
    1. Sinks to be fully sealed back to wall with a continuous bead of white antimicrobial, anti-mold, moisture and water resistant silicone.
    2. Specialist Subcontractor to submit drawings of all items including plans, elevations, sections, details including attachments to other works for comments prior to ordering.
    3. Specialist Subcontractor to supply all product literature and data sheets and samples for comments prior to ordering.
    4. Read in conjunction with Services Engineer's drawings and schedules.
    5. Read in conjunction with Cox Freeman Ltd. drawings.
    6. All to be installed in full accordance with Manufacturer's details and recommendations.

335 FI01 Counter top washbasins

1. Description: Counter top washbasins to toilets.
2. Standard: BS 5506-3.

    2.1. Overflow class: Submit proposals.
3. Manufacturer: Armitage Shanks or similar approved. Submit proposals for agreement with the Client.

    3.1. Product reference: 48cm Concept Oval self-rimming countertop washbasin to BS 5506-3 for use with vanity unit. Submit proposals.
4. Size: 480mm wide x 400mm deep.
5. Material: Glazed, vitreous china, white to BS 1188.
6. Configuration: Vanity top (inset).
7. Tap/ chainstay/ overflow holes:
    1. 1 tap hole.
    2. No chainstay hole.
    3. Overflow hole.
8. Water supply fittings: Basin mounted Sensorflow mixer tap with automatic motion activation.

    8.1. Water supply temperature (maximum): 40°C to be confirmed by Services Engineer.

    8.2. Flow rate (maximum): 5 L/ min. at 3 bar to be confirmed by Services Engineer.

    8.3. Operation: Automatic motion activation sensor.
9. Wastes: Dished pattern chrome plated strainer waste.

    9.1. Standards: To BS EN 274-1, -2 and -3.

    9.2. Size: DN 30.

9.3. Material: Brass, chrome plated.

9.4. Tail: Slotted.

10. Traps: Bottle complete with all necessary fixings etc. for concealed under countertop mounting within vanity unit system.

10.1. Standards: To BS EN 274-1, -2 and -3.

10.2. Size: DN 30.

10.3. Material: Plastics, self colour.

10.4. Depth of seal (minimum): 75 mm.

11. Accessories: All necessary accessories required to install wash basin, tap and waste in their entirety in locations shown on drawings in accordance with manufacturer's details and recommendations and Services Engineer's details and specifications including the following:
    1. All necessary corrosion resistant fixings for concealed fixing as part of countertop system.
    2. Wash basins are to be suitably fixed and supported as necessary in accordance with manufacturer's details.
    3. All necessary above ground drainage / waste items for installation including quickfix accessories, in accordance with British Standards and relevant parts of the Building Regulations.
12. Other requirements:
    1. Wash basins must be used as a template for forming aperture in countertop.
    2. Wash basins are to be fully sealed to the countertop with white antimicrobial, anti-mold, moisture and water resistant silicone.
    3. Specialist Sub-contractor to submit drawings of all items including plans, elevations, sections, details including attachments tother works for comments prior to ordering.
    4. -Specialist Sub-contractor to supply all product literature and data sheets and samples for comments prior to ordering.
    5. Read in conjunction with Services Engineer's drawings and schedules.
    6. Read in conjunction with Cox Freeman Ltd. General arrangement drawings.
    7. All to be installed in full accordance with Manufacturer's details and recommendations.

375 Shower units

1. Description: Shower units to changing rooms.
2. Tray:

2.1. Standard: BS EN 14527.

2.1.1. Class: 1.

2.2. Manufacturer: Submit proposals.

2.2.1. Product reference: Submit proposals.

2.3. Size: Determine from general arrangement drawings and submit proposals.

2.4. Material: Submit proposals.

3. Shower fittings: To Services Engineer's details and specification.
4. Wastes: To Services Engineer's details and specification.

4.1. Standards: To BS EN 274-1, -2 and -3.

4.2. Size: To suit tray outlet.

4.3. Material: Stainless steel.

4.4. Tail: Unslotted.

5. Traps: To Services Engineer's details and specification.

5.1. Standards: To BS EN 274-1, -2 and -3.

5.2. Depth of seal (minimum): 50 mm.

6. Enclosure: Aluminium framed safety glazed screen with swing door to suit layout.
   6.1. Standard: BS EN 14428.
   6.2. Manufacturer: Submit proposals.
      6.2.1. Product reference: Submit proposals.
7. Accessories: All necessary accessories required to install, use and maintain in location shown.
8. Other requirements:
   1. Submit proposals for agreement with Client.
   2. Allow for providing a fold up, wall mounted shower seat complete with all fixings and accessories.
   3. All to be installed in accordance with Manufacturer's details.

436 Handrails and grab bars to ambulant cubicles

1. Description: Handrails and grab bars to ambulant cubicles in toilets.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals to comply with the requirements of Approved Document Part M.
3. Other requirements: Sub-contractor to supply all product literature and data sheets and samples where applicable to Client for agreement prior to ordering.

438 Mirrors

1. Description: 1 number mirror above each washbasin in toilets.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals.
3. Material: Proprietary impact resistant, framed mirror with pre-drilled fixing holes and fixings suitable for wall construction.
4. Size: Nominal 450mm wide x 750mm high to be confirmed.
5. Other:
   1. Specialist Sub-contractor to supply all product literature and data sheets and samples where applicable to Client for agreement prior to ordering.
   2. All to be installed in full accordance with Manufacturer's details and recommendations.

580 Sealant for pointing

1. Standard: EN 11600.
   1.1. Class: Submit proposals.
2. Type: Water resistant, mould and bacteria resistant sanitaryware silicone.
3. Manufacturer: Dow Corning or similar approved.
   3.1. Product reference: Submit proposals and data sheets.
4. Colour: White to be confirmed.

Execution

600 Sub-contractor's design

1. Description: Provide detailed design of all sanitary ware items along with all necessary accessories.
2. Design responsibility:
   1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.

2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.

3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

610 Installation generally

1. Assembly and fixing: Surfaces designed to falls to drain as intended.
2. Fasteners: Nonferrous or stainless steel.
3. Supply and discharge pipework: Fix before appliances.
4. Fixing: Fix appliances securely to structure. Do not support on pipework.
5. Jointing and bedding compounds: Recommended by manufacturers of appliances, accessories and pipes being jointed or bedded.
6. Appliances: Do not use. Do not stand on appliances.
7. On completion: Components and accessories working correctly with no leaks.
8. Labels and stickers: Remove.

613 Compatibility of components

1. General: Each sanitary assembly must consist of functionally compatible components, preferably obtained from a single manufacturer.
    1.1. Exceptions:

620 Noggings and bearers

1. Noggings, bearers, etc. to support sanitary appliances and fittings: Position accurately. Fix securely.

630 Tiled backgrounds other than splashbacks

1. Timing: Complete before fixing appliances.
2. Fixing appliances: Do not overstress tiles.

650 Installing WC pans

1. Floor-mounted pans: Screw fix and fit cover caps over screw heads. Do not use mortar or other beddings.
2. Seat and cover: Stable when raised.

670 Installing cisterns

1. Cistern operating components: Obtain from cistern manufacturer.
2. Inlet and flushing valves: Match to pressure of water supply.
3. Internal overflows: Into pan, to give visible warning of discharge.
4. External overflows: Fix pipes to falls and locate to give visible warning of discharge. Agree location where not shown on drawings.

710 Installing taps

1. Fixing: Secure against twisting.
2. Seal with appliance: Watertight.
3. Positioning: Hot tap to left of cold tap as viewed by user of appliance.

720 Installing wastes and overflows

1. Bedding: Waterproof jointing compound.
2. Fixing: With resilient washer between appliance and backnut.

755 Sealant bedding and pointing

1. Bedding:
    1. Bed sinks to top of worktops.
    2. Bed and point WCs / urinals to IPS panels.
2. Pointing: Joints between appliances and walls.

Ω End of Section

N25
Permanent access and safety equipment

Types of system/ equipment

210 FP01 Personal fall restraint system

1. Description: Fall restraint system to waste recycling and office roofs.
2. Type: Restraint
3. Manufacturer: Kingspan Ltd. or similar approved.
    3.1. System reference: Kingspan SafePro 2 anchor and cable system or similar approved to be fully compatible with the following roofing systems (refer to Cox Freeman drawings for extent of roof types):
        1. H43 / 120 RP01 Insulated roof cladding panel system to waste recycling building.
        2. H43 / 120 RP02 Insulated roof cladding panel system to office building.
4. Anchorage device: Energy absorbing stainless steel roof anchor posts with base plates / fixings to suit roofing type with horizontal high-strength steel cable in full accordance with Manufacturer's details and recommendations.
5. Overall system length: Specialist Sub-contractor to determine based on Cox Freeman Ltd. general arrangement roof plans.
6. Intermediate support spacing: As recommended by System Manufacturer to suit system and layout.
7. Accessories/ Other requirements:
    1. All accessories necessary to allow installation, maintenance and use of system in accordance with Manufacturer's details and recommendations.
    2. Weathering to be in full accordance with Manufacturers recommendations and to ensure that the Roofing System Warranty is maintained.
    3. Wind loadings to be determined by Specialist Sub-contractor / System Manufacturer to suit site location, exposure, etc.
    4. On completion of the installation, system to be inspected and fully tested and a test certificate covering a period of 12 months to be issued.
    5. Notice showing date and period of validity of the test certificate to be attached to the system at each access point.
    6. System to be fully compliant with BS EN 795: C.
    7. System to be fully compliant with ACR(M)002:2009 Testing of roof anchors of roofing systems.
    8. 2 number complete sets of Personal Protective Equipment PPE required to use and maintain system to be supplied (to be agreed with Client).
    9. Manufacturer / Specialist Subcontractor to submit drawings of proposed system including layout details and calculations etc. for comments prior to ordering.
    10. All supplied and installed in full accordance with Manufacturer's details.
8. Installation: In accordance with BS 7883 by the system manufacturer or a contractor approved by the system manufacturer.
9. Structural anchors: Type recommended by the system manufacturer to suit the structure/ fabric into which they will be fixed.

210 FP02 Personal fall restraint system

1. Description: Fall restraint system to waste recycling and office roofs.
2. Type: Restraint

3. Manufacturer: To be advised by Roof Cladding Manufacturer to ensure fall restraint system is compatible with cladding.
    3.1. System reference: Anchor and cable system or similar approved to be fully compatible with the following roofing systems (refer to Cox Freeman drawings for extent of roof types):
        1. H31 / 120 RS01 Built-up roof cladding system.
4. Anchorage device: Energy absorbing stainless steel roof anchor posts with base plates / fixings to suit roofing type with horizontal high-strength steel cable in full accordance with Manufacturer's details and recommendations.
5. Overall system length: Specialist Sub-contractor to determine based on Cox Freeman Ltd. general arrangement roof plans.
6. Intermediate support spacing: As recommended by System Manufacturer to suit system and layout.
7. Accessories/ Other requirements:
    1. All accessories necessary to allow installation, maintenance and use of system in accordance with Manufacturer's details and recommendations.
    2. Weathering to be in full accordance with Manufacturers recommendations and to ensure that the Roofing System Warranty is maintained.
    3. Wind loadings to be determined by Specialist Sub-contractor / System Manufacturer to suit site location, exposure, etc.
    4. On completion of the installation, system to be inspected and fully tested and a test certificate covering a period of 12 months to be issued.
    5. Notice showing date and period of validity of the test certificate to be attached to the system at each access point.
    6. System to be fully compliant with BS EN 795: C.
    7. System to be fully compliant with ACR(M)002:2009 Testing of roof anchors of roofing systems.
    8. 2 number complete sets of Personal Protective Equipment PPE required to use and maintain system to be supplied (to be agreed with Client).
    9. Manufacturer / Specialist Subcontractor to submit drawings of proposed system including layout details and calculations etc. for comments prior to ordering.
    10. All supplied and installed in full accordance with Manufacturer's details.
8. Installation: In accordance with BS 7883 by the system manufacturer or a contractor approved by the system manufacturer.
9. Structural anchors: Type recommended by the system manufacturer to suit the structure/ fabric into which they will be fixed.

Design/ performance requirements

300 Sub-contractor's design Sub-contractor's design

1. Description: Provide detailed design of all fall protection systems.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.

3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

415 Wind loading to BS EN 1991-1-4

1. General: Design access/ safety system to withstand calculated wind loads with equipment in position of maximum exposure and in parked position.
2. Design wind pressure: Calculate to BS EN 1991-1-4.
    2.1. Basic wind velocity (Vb): To be determined by Specialist Sub-contractor.
    2.2. Altitude factor (Calt): To be determined by Specialist Sub-contractor.
    2.3. Directional factor (Cdir): To be determined by Specialist Sub-contractor.
    2.4. Seasonal factor (Cseason): To be determined by Specialist Sub-contractor.
    2.5. Probability factor (Cprob): To be determined by Specialist Sub-contractor.. .
    2.6. Terrain roughness factor (Cr): To be determined by Specialist Sub-contractor.
    2.7. Orography factor (Co): To be determined by Specialist Sub-contractor.
    2.8. External pressure coefficients (Cpe): To be determined by Specialist Sub-contractor.
    2.9. Internal pressure coefficients (Cpi): To be determined by Specialist Sub-contractor.

430 Safety

1. General: The equipment as installed must have no irregularities/ projections capable of inflicting personal injury.
2. Finished surfaces and edges of all accessible parts: Regular and smooth.

440 Design life/ Maintenance programme

1. Design life of access/ safety system: Not less than 40 years.
2. Schedule for maintenance and for replacement of components: Submit.

450 Testing of permanent suspended access equipment

1. Pre-installation testing: Test roof rig at manufacturer's/ supplier's works. The rig must be capable of lifting and sustaining a proof load of 125% of the specified rated load without suffering damage or permanent deformation.
2. Post-installation testing: Immediately on completion of installation, or when otherwise agreed, examine and test the complete installation in accordance with recommendations given in BS 6037-1, clause 14. Give adequate notice of testing arrangements.
3. Certificates for works and site testing: Submit within 7 days of completion of satisfactory acceptance tests.

460 Assessment/ Testing of anchor devices

1. Design and testing of anchors: To BS EN 795.

Fabrication, assembly and installation

510 Fabrication and assembly generally

1. Machine cutting, drilling and assembly: Carry out as much as possible in the workshop. Obtain approval for any reassembly on site.
2. Dissimilar metal surfaces of assembly components/ supports/ fixings: Isolate to prevent electrolytic corrosion.

520 Protection

1. General: Do not deliver to site any components or assemblies that cannot be installed immediately or unloaded into a suitable well protected storage area.

535 Execution generally

1. Structural members: Do not modify, cut notch or make holes in structural members without permission.
2. Frameworks: Assemble and brace, including temporary members required for installation.
   2.1. Temporary support: Do not use access systems as temporary support or strutting for other work.
3. Bolted joints
   3.1. Contact between dissimilar metals: Avoid.
   3.2. Bolts and washers: Select types, sizes and quantities of fasteners or packings and spacings to retain supported components without distortion or loss of support.
4. Welded joints: Comply with latest edition of National Structural Steelwork Specification (NSSS), Section 5.
5. Finished components: Smooth, free from distortion, cracks, burrs and sharp arrises.

540 Mechanical fixings

1. Materials: Unless otherwise recommended by equipment manufacturer:
   1.1. Connecting bolts and other fixings fully accessible for inspection: Carbon steel hot dip galvanized to BS 7371-6.
2. Nuts: Tapped after galvanizing.
   2.1. Cast-in anchors and other fixings not accessible for routine inspection: Austenitic stainless steel, grade 1.4401 (316) to BS EN 10088-1.

550 Fasteners, inserts and bolts for building in

1. Supplier: Equipment manufacturer/ supplier.

560 Fixings for securing equipment

1. Adjustment capability: Adequate three dimensional adjustment to accommodate building structure/ fabric irregularities.

570 Fixing anchor installation

1. Site drilling or cutting into structure/ fabric: Permitted only in approved locations.
2. Distance between all fixing devices and edges of supporting material: Not less than recommended by fixing manufacturer.

610 Identification and registration labels for other equipment

1. Description: For clause 210 systems.
2. Provision: Provide and fix to each piece of equipment a permanent label giving:
    2.1. Manufacturer's name, address and telephone number.
    2.2. Name and/ or reference code of model.
    2.3. Serial number and year of manufacture.
    2.4. Maximum load (in kilograms) that may be sustained by the equipment.
    2.5. Maximum number of users to be attached at any time.
    2.6. Date of installation / last inspection.
    2.7. Personal protective equipment (PPE) requirements.
    2.8. System type: restraint or arrest.
3. Location: In positions such that labels can be easily read.

640 Marking of anchor devices

1. Provision: Provide on or near each anchor device a label or other clear marking giving:
    1.1. Manufacturer's name and telephone number.
    1.2. Serial number and year of manufacture of device.
    1.3. Maximum number of personnel that may be attached to the device at any one time.
    1.4. Requirements for energy absorbers, ground clearance, etc.
2. Anchor devices intended solely for use with personal protective equipment: Indicate restriction of use by pictogram or other suitable marking on or near the device.

810 Service/ Maintenance

1. Description:
2. General: Following acceptance of the completed installation, service and maintain the equipment for the period stated below as and at intervals recommended by the manufacturer. Such maintenance to include a ‘call-out’ service during normal working hours to maintain the equipment in an acceptable and safe condition.
3. Service/ Maintenance period:

820 Operating instructions

1. Equipment and accessories: Where appropriate, mark in such a way that it is possible to identify the correct mode of operation for their safe use.

830 Operating and maintenance manual

1. General: Provide, for inclusion in the Building Manual, printed instructions and recommended procedures to be established by the Employer for operating and routinely maintaining the equipment. Provide diagrams where appropriate.
2. Content
    2.1. Instructions for assembling/ erecting equipment for use.
    2.2. Comprehensive operating instructions, including safety and emergency procedures, for all motions including upward, downward and lateral travel, and slew.
    2.3. Servicing and planned maintenance procedures, including assembly instructions where maintenance necessitates dismantling of machinery parts.
    2.4. List of replacement parts, with references.
    2.5. Recommended procedures for testing equipment.

840 As installed drawings

1. General: After commissioning/ testing of the equipment provide as installed drawings for inclusion in the Building Manual.
   1.1. Number of sets: As required by Contract Administrator.
2. Drawing content
   2.1. Contractor's name and contract number.
   2.2. Location and date of installation.
   2.3. Manufacturer's name, model and type numbers.
   2.4. General arrangement of the complete installation.
   2.5. Electrical circuit wiring diagrams complete with details and ratings of all items of equipment.

Ω End of Section

P10
Sundry insulation/ proofing work

Types of insulation

432 CB01 Ceiling void cavity barriers

1. Description: Ceiling void cavity barriers to offices.
2. Manufacturer: Rockwool or similar approved.
   2.1. Product reference: Rockwool Fire Barrier system suitable for cavity barrier installation. Submit proposals to suit requirements.
3. Fire resistance rating: To BS 476-20, 30 minutes fire integrity and 15 minutes fire insulation.
4. Locations: Concealed ceiling void cavities above office and amenities area.

   to be sub divided at maximum 20 meter spacings. Specialist Sub-contractor to determine spacing locations

   4.1. Spacing: To sub-divided concealed cavities at maximum 20 meter spacings in any direction in accordance with Table 13 of approved document part B2. Specialist Sub-contractor to determine spacing locations to suit fixing requirements of system.
5. Thickness: As required to achieve fire resistance rating and drop of curtain.
   5.1. Installation requirements:
      1. Continuous, with minimum joints and in full accordance with Manufacturer's certified details.
      2. Barrier to be fixed at head with proprietary fixing system in full accordance with Manufacturer's certified details. Structural Engineer and Specialist Sub-contractor to agree support requirements and locations.
      3. Barrier to ceilings are to be draped over boarded / suspended ceiling systems at base in full accordance with Manufacturer's certified details.
      4. Barriers to walls are to be suitably fixed back to metal stud partition / blockwork using proprietary fixing system in full accordance with Manufacturer's certified details.
      5. Extended drops where required to be installed with in full accordance with Manufacturer's certified details.
   5.2. Fasteners: In accordance with Manufacturer's certified details.
   5.3. Penetrations: Where the barrier is penetrated by services, pipework, beams, purlins etc. the barrier is to be cut locally to accommodate the penetration and then restitched as neatly as possible. The penetration member is to be sleeved each side of the cavity barrier to a minimum length of 300mm using the same material as the barrier. The sleeve is to be wired to the main barrier to prevent the sleeve becoming detached for the barrier. If the penetrating service etc. is manufactured from a low melting point material such as aluminium or plastic then the sleeving is to be extended to 1000mm either side of the barrier in full accordance with Manufacturer's instructions. All in accordance with Manufacturer's certified details.
6. Other requirements:
   1. Where cavity barrier is fixed to underside of profiled sheets ensure all profiles are filled in accordance with Manufacturer's certified details.
   2. Where cavity barrier is perpendicular roof purlins, provide structural load bearing support spanning between purlins to Structural Engineer's details in conjunction with Manufacturer's certified details.
   3. All installed in accordance with Manufacturer's certified details.

500 Sub-contractor's design

1. Description:
   Provide detailed design of cavity barrier systems including all necessary details.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions:
   Giving reasonable time for checking and commenting on submitted information.

Ω End of Section

P12
Fire stopping systems

General

110 Fire stopping system

1. Description: Provide suitable fire stopping to all fire rated items.
2. Penetration seal/ Gap filler: Submit proposals to suit each requirement.

130 Fire stopping system to individual services penetrations

1. Fire resistance: To achieve the same level of fire resistance as fire rated walls / floor.
2. Penetration seal: Submit proposals.
    2.1. Size: To suit each requirement.
3. Gap sealer: Submit proposals to suit each requirement.
4. Capping sealant: Submit proposals to suit each requirement.
    4.1. Colour: Submit proposals.

140 Fire stopping system to multiple services penetrations

1. Fire resistance: To achieve the same level of fire resistance as fire rated walls / floor.
2. Board barrier
    2.1. Material: Submit proposals to suit each requirement.
        2.1.1. Thickness: Submit proposals to suit each requirement.
        2.1.2. Number of layers: Submit proposals to suit each requirement.
    2.2. Framing: Submit proposals to suit each requirement.
    2.3. Finish: Submit proposals to suit each requirement.
3. Gap sealer: Submit proposals to suit each requirement.
4. Capping sealant: Submit proposals to suit each requirement.
    4.1. Colour: Submit proposals.

150 Loose fire stopping

1. Fire resistance: Submit proposals to suit each requirement.
2. Penetration seal: Submit proposals to suit each requirement.
    2.1. Size: Submit proposals to suit each requirement.

160 Linear gap sealing

1. Fire resistance: Submit proposals to suit each requirement.
2. Gap width or height (nominal): Submit proposals to suit each requirement.
3. Gap filler: Submit proposals to suit each requirement.
4. Capping sealant: Submit proposals to suit each requirement.
    4.1. Colour: Submit proposals.

System performance

200 Sub-contractor's design

1. Description: Provide detailed design of all fire stopping with all associated items and accessories.
2. Design responsibility:

1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.

3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

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. Resistance to fire: As shown on Cox Freeman Ltd. drawings.
2. Reaction to fire: To meet the requirements of approved document part B.
3. Smoke resistance
    3.1. Air leakage rate (maximum): To meet the requirements of approved document part B.

Products

305 Product certification

1. Certification: For products specified generically, submit evidence of compliance with the specification.
2. Acceptable evidence: To be confirmed by Client / Client's Insurers:
    1. Listing in CERTIFIRE Register
    2. Agrément certificate
    3. Listing in LPCB Register.

360 FS01 Horizontal fire stopping

1. Description: Horizontal fire stopping system between offices first floor slab and adjacent external wall constructions.
2. Standard: To BS EN 13162.
   Tested and assessed to BS 476: Part 20.
   Tested to BS EN 1366-4: 2006 and classified to BS EN 13501-2.

3. Manufacturer: Rockwool or similar approved.
   3.1. Product reference: Rockwool Firepro SP fire stop system or similar approved.
4. Material: Foil faced stone wool slab.
   4.1. Thickness: To achieve fire resistance.
5. Fixing: Proprietary fixing bracket system suitable for cavity widths required.
6. Fire resistance: To BS EN 13501-2, EI 60 (60 minutes fire integrity and 60 minutes fire insulation). To BS EN 476, 60/60 (60 minutes fire integrity and 60 minutes fire insulation).
7. Reaction to fire: To BS EN 13501-1, Class A1.
8. Other:
   1. Where fire stop abuts internal skin of cladding the fire stop is to be cut to suit cladding profile. Complete fire stop and fixing brackets are to be installed with full accordance with Manufacturer's instructions.
   2. Installed in full accordance with Manufacturer's certified details to meet performance requirements and the requirements of approved document Part B.

360 FS02 Vertical fire stopping

1. Description: Vertical fire stopping system to concealed cavities in office and amenities area.
2. Standard: To BS EN 13162.
   Tested and assessed to BS 476: Part 20.
   Tested to BS EN 1366-4: 2006 and classified to BS EN 13501-2.
3. Manufacturer: Rockwool or similar approved.
   3.1. Product reference: Rockwool Firepro SP fire stop system or similar approved.
4. Material: Foil faced stone wool slab.
   4.1. Thickness: To achieve fire resistance.
5. Fixing: Proprietary fixing bracket system suitable for cavity widths required.
6. Fire resistance: To BS EN 13501-2, EI 30 and E15 (30 minutes fire integrity and 15 minutes fire insulation).
   To BS EN 476, 30/15 (30 minutes fire integrity and 15 minutes fire insulation).
7. Reaction to fire: To BS EN 13501-1, Class A1.
8. Other:
   1. Where fire stop abuts internal skin of cladding the fire stop is to be cut to suit cladding profile. Complete fire stop and fixing brackets are to be installed with full accordance with Manufacturer's instructions.
   2. Installed in full accordance with Manufacturer's certified details to meet performance requirements and the requirements of approved document Part B.

Execution

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: Agree with Client / Client's Insurer.

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.

710 Installing mineral wool batts

1. Installing batts: Fit tight into void between the penetrating services and the surrounding construction to form a solid barrier.
    1.1. Brackets: In accordance with Manufacturer's certified details.
        1.1.1. Bracket fixing: In accordance with Manufacturer's certified details.
2. Face of batts: Flush with the surface of wall, floor or soffit.
3. Joints between batts: In accordance with Manufacturer's certified details.
4. Gaps between services and barrier: Seal with fire resisting 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): Agree with Contract Administrator.

Ω End of Section

P20
Unframed isolated trims/ skirtings/ sundry items

To be read with preliminaries/ general conditions

100 Sub-contractor's design

1. Description: Provide detailed design of all unframed isolated trims/ skirtings/ sundry items.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

110 UT01 Softwood skirtings

1. Description: Softwood skirtings to rooms with carpet tile floor finishes.
2. Quality of wood and fixing: To BS 1186-3.
    2.1. Species: Submit proposals.
    2.2. Class: Submit proposals.
3. Moisture content at time of fixing: To be determined by Specialist Sub-contractor to suit areas of use.
4. Preservative treatment: Submit proposals.
5. Profile: Pencil rounded, to be agreed with Client.
    5.1. Finished size: 19mm x 95 mm, to be agreed with Client.
6. Finish as delivered: Prepared and primed, as section M60, ready to receive paint finish, to be agreed with Client.
7. Fixing: To be determined by Specialist Sub-contractor to suit each wall type

110 UT02 Softwood architraves

1. Description: Softwood architraves to office building doors.
2. Quality of wood and fixing: To BS 1186-3.

2.1. Species: Submit proposals.

2.2. Class: Submit proposals.

3. Moisture content at time of fixing: To be determined by Specialist Sub-contractor to suit areas of use.
4. Preservative treatment: Submit proposals.
5. Profile: Pencil rounded, to be agreed with Client.

5.1. Finished size: 19mm x 70mm, to be agreed with Client.

6. Finish as delivered: Prepared and primed, as section M60, ready to receive paint finish, to be agreed with Client.
7. Fixing: To be determined by Specialist Sub-contractor to suit each wall type

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: Mitre, unless shown otherwise.
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 to be determined by Specialist Sub-contractor / Door Supplier based on general arrangement drawings and Client's requirements .
2. Fixing: As sections L10 and L20.

General

100 Sub-contractor's design

1. Description: Provide detailed design of ironmongery and associated items.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

120 Ironmongery range selected by Sub-contractor

1. Source: Single co-ordinated range.
2. Notification: Submit details of selected range, manufacturer and/ or supplier.
3. Principal material/ finish: Satin stainless steel, grade 1.4401 (316) to be agreed with Client.
4. Items unavailable within selected range: Submit proposals.

140 Samples

1. General: Before placing orders with suppliers submit labelled samples of the following: All items .
    1.1. Conformity: Retain samples on site for the duration of the Contract. Ensure conformity of ironmongery as delivered with labelled samples.

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:
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:
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

310 Single axis door hinges

1. Description:
2. Standard: To BS EN 1935.
    2.1. Hinges to doors on escape routes and fire/ smoke control doors: CE marked.
3. Manufacturer:
    3.1. Product reference:
4. Type:
5. Size:
6. Material/ finish:
7. Hinge grade:
8. Other requirements:

315 Performance specification for single axis door hinges

1. Description:
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:
    3.2. Durability:
    3.3. Test door mass:
    3.4. Suitability for use on fire/ smoke doors:
    3.5. Safety: 1.

3.6. Corrosion resistance:
3.7. Security - Burglar resistance:
3.8. Hinge grade:
4. Type:
5. Size:
6. Material/ finish:
7. Other requirements:

320 Door hinges

1. Description:
2. Manufacturer:
2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:
6. Other requirements:

350 Door track and running gear

1. Description:
2. Standard: To BS EN 1527.
3. Manufacturer:
3.1. Product reference:
4. Track type:
5. Category of door:
6. Opening dimensions:
7. Accessories:
8. Operation: Smooth and quiet.
8.1. Safety: Doors not able to come off track when in use.

360 Performance specification for door track and running gear

1. Description:
2. Standard: To BS EN 1527.
3. Minimum classification grades
3.1. Category of use: - (no classification).
3.2. Durability:
3.3. Door mass:
3.4. Fire resistance:
3.5. Safety: - (no classification).
3.6. Corrosion resistance:
3.7. Security: - (no classification).
3.8. Category of door:
3.9. Initial friction:
4. Opening dimensions:
5. Accessories:
6. Operation: Smooth and quiet.

6.1. Safety: Doors not able to come off track when in use.

Window hanging devices

365 Single axis window hinges

1. Description:
2. Standard: To BS EN 1935.
3. Manufacturer:
   3.1. Product reference:
4. Type:
5. Size:
6. Material/ finish:
7. Hinge grade:
8. Other requirements:

370 Window hinges

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:

380 Sliding friction stay hinges

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:

385 Pivot hinges

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Material/ finish:

390 Spiral sash balances

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Sash heights:
4. Sash weight:
5. Type:
6. Material/ finish:

395 Boxed sash hanging fittings

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Axle pulleys:
4. Cords/ Chains:
5. Weights:
   5.1. Matched to weights of glazed sashes.
6. Other requirements:

Door operating devices

410 Overhead door closers

1. Description:
2. Standard: To BS EN 1154.
   2.1. Door closing devices to fire/ smoke control doors: CE marked.
3. Manufacturer:
   3.1. Product reference:
4. Type:
5. Power size:
6. Other functions:
7. Casing finish:
8. Operational adjustment
   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.
   8.4. Closing against smoke seals of fire doors: Positive. No gaps.

412 Performance specification for overhead door closers

1. Description:
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:
   3.2. Durability: 8.
   3.3. Door closer power size:
   3.4. Suitability for use on fire/ smoke doors:
   3.5. Safety: 1.
   3.6. Corrosion resistance:
4. Type:
5. Other functions:
6. Casing finish:
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.

450 Floor springs

1. Description:
2. Standard: To BS EN 1154.
   2.1. Door closing devices to fire/ smoke control doors: CE marked.
3. Manufacturer:
   3.1. Product reference:
4. Power size:
5. Other functions:
6. Material/ finish:
7. Operational adjustment
   7.1. Variable power: Matched to size, weight and location 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.

452 Performance specification for floor springs

1. Description:
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:
   3.2. Durability: 8.
   3.3. Door closer power size:
   3.4. Suitability for use on fire/ smoke doors:
   3.5. Safety: 1.
   3.6. Corrosion resistance:
4. Other functions:
5. Material/ finish:
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.

471 Electromagnetic hold open/ swing free devices

1. Description:
2. Standard: To BS EN 1155.
   2.1. Electromagnetic devices to fire/ smoke control doors: CE marked.
3. Manufacturer:
   3.1. Product reference:
4. Type:
5. Material/ finish:
6. Electric supply:

7. Means of release: Alarm system and/ or failure of power supply.
8. Test switch: Located in a convenient position adjacent to door.
9. Operational adjustment of integral closer
    9.1. Variable power: Matched to size, weight and location of doors.
    9.2. Latched doors: Override latches and/ or door seals when fitted.
    9.3. Unlatched doors: Hold shut under normal working conditions.

472 Performance specification for electromagnetic hold open/ swing Free devices

1. Description:
2. Standard: To BS EN 1155.
    2.1. Electromagnetic devices to fire/ smoke control doors: CE marked.
3. Type:
4. Minimum classification grades
    4.1. Category of use: 3.
    4.2. Durability:
    4.3. Hold open power size:
    4.4. Suitability for use on fire/ smoke doors: 1.
    4.5. Safety: 1.
    4.6. Corrosion resistance:
5. Material/ finish:
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.

481 Door coordinators

1. Description:
2. Standard: To BS EN 1158.
    2.1. Door coordinators to fire/ smoke control doors: CE marked.
3. Manufacturer:
    3.1. Product reference:
    3.2. Material/ finish:
4. Application: To all single swing double doors with rebated meeting stiles and fitted with self closers.

482 Performance specification for door coordinators

1. Description:
2. Standard: To BS EN 1158.
    2.1. Door coordinators to fire/ smoke control doors: CE marked.
3. Minimum classification grades
    3.1. Category of use: 3.
    3.2. Durability:

3.3. Door coordinator size:
3.4. Suitability for use on fire/ smoke doors:
3.5. Safety: 1.
3.6. Corrosion resistance:

4. Material/ finish:
5. Application: To all single swing double doors with rebated meeting stiles and fitted with self closers.
6. Selection criteria: Provide types that:
   6.1. Require the minimum amount of material to be removed from the door and frame.
   6.2. Are suitable for the size of rebates.

490 Uncontrolled door closers

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Material/ finish:
5. Action:
6. Operation
   6.1. Power: To suit the size and weight of doors to which they are fitted.
   6.2. Unlatched doors: Hold closed under normal conditions.

Door securing devices

510 Thief resistant door locks

1. Description:
2. Standard: To BS 3621 and Kitemarked.
3. Manufacturer:
   3.1. Product reference:
4. Type:
5. Backset:
6. Material/ finish:
7. Keying:

515 Door locks

1. Description:
2. Standard: To BS EN 12209.
3. Manufacturer:
   3.1. Product reference:
4. Type:
5. Backset:
6. Material/ finish:
7. Keying:

525 Performance specification for door locks and latches

1. Description:

2. Standard: To BS EN 12209.
3. Minimum classification grades
   3.1. Category of use:
   3.2. Durability:
   3.3. Door mass and closing force:
   3.4. Suitability for use on fire/ smoke doors:
   3.5. Safety: 0.
   3.6. Corrosion resistance and temperature:
   3.7. Security and drill resistance:
   3.8. Field of door application:
   3.9. Type of key operation and locking:
   3.10. Type of spindle operation:
   3.11. Key identification requirement:
4. Backset:
5. Material/ finish:
6. Keying:

530 Special function door locks

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Backset:
5. Material/ finish:
6. Keying:

540 Door latches

1. Description:
2. Standard: To BS EN 12209.
3. Manufacturer:
   3.1. Product reference:
4. Type:
5. Backset:
6. Material/ finish:
7. Latch spring strength: Select to prevent unsprung lever handles drooping.

565 Padlocks

1. Description:
2. Standard: To BS EN 12320.
3. Manufacturer:
   3.1. Product reference:
4. Size:
5. Case:
6. Shackle:
7. Accessories:

8. Keying:

566 Performance specification for padlocks

1. Description:
2. Standard: To BS EN 12320.
3. Minimum classification grades
   3.1. Category of use: – Grade 1.
   3.2. Durability:
   3.3. Corrosion resistance:
   3.4. Security:
4. Size:
5. Case:
6. Shackle:
7. Accessories:
8. Keying:

571 Emergency exit devices

1. Description:
2. Standard: To BS EN 179.
   2.1. Emergency exit devices for locked doors on escape routes: CE marked.
3. Manufacturer:
   3.1. Product reference:
4. Type:
5. Material/ finish:
6. Additional requirements:

572 Performance specification for emergency exit devices

1. Description:
2. Standard: To BS EN 179.
   2.1. Emergency exit devices for locked doors on escape routes: CE marked.
3. Minimum classification grades
   3.1. Category of use: 3.
   3.2. Durability:
   3.3. Door mass:
   3.4. Suitability for use on fire/ smoke doors:
   3.5. Safety: 1.
   3.6. Corrosion resistance:
   3.7. Security:
   3.8. Projection of operating element:
   3.9. Type of operation:
4. Material/ finish:
5. Additional requirements:

577 Panic exit devices

1. Description:

2. Standard: To BS EN 1125.
   2.1. Panic exit devices for locked doors on escape routes: CE marked.
3. Manufacturer:
   3.1. Product reference:
4. Type:
5. Material/ finish:
6. Additional requirements:

578 Performance specification for panic exit devices

1. Description:
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:
   3.3. Door mass:
   3.4. Suitability for use on fire/ smoke doors:
   3.5. Safety: 1.
   3.6. Corrosion resistance:
   3.7. Security: 2.
   3.8. Projection of bar:
   3.9. Type of bar operation:
4. Material/ finish:
5. Additional requirements:

582 Door bolts

1. Description:
2. Standard: To BS EN 12051.
3. Manufacturer:
   3.1. Product reference:
4. Type:
5. Size:
6. Material/ finish:
7. Additional requirements:

584 Performance specification for door bolts

1. Description:
2. Standard: To BS EN 12051.
3. Minimum classification grades
   3.1. Category of use:
   3.2. Number of test cycles:
   3.3. Door mass: - (no classification).
   3.4. Fire safety:
   3.5. Safety in use:
   3.6. Corrosion resistance:

3.7. Security:

4. Type:
5. Size:
6. Material/ finish:
7. Additional requirements:

586 Privacy indicator bolts

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Material/ finish:
5. Emergency release facility: Required.

Window securing devices

590 Window espagnolette bolts

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Backset:
6. Material/ finish:
7. Additional requirements:

592 Sash fasteners

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:
6. Additional requirements:

593 Sash screws

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:
6. Additional requirements:

594 Fanlight catches

1. Description:

2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Material/ finish:
5. Additional requirements:

596 Casement/ Sash mortice bolts

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:
6. Additional requirements:

Door furniture

610 Lever handles

1. Description:
2. Standard: To BS EN 1906.
3. Manufacturer:
   3.1. Product reference:
4. Style:
5. Size:
6. Material/ finish:
7. Mounting:
8. Additional requirements:

620 Door knobs

1. Description:
2. Standard: To BS EN 1906.
3. Manufacturer:
   3.1. Product reference:
4. Style:
5. Size:
6. Material/ finish:
7. Mounting:
8. Additional requirements:

622 Performance specification for lever handle sets

1. Description:
2. Standard: To BS EN 1906.
3. Minimum classification grades
   3.1. Category of use:
   3.2. Durability:
   3.3. Door mass: - (no classification).

3.4. Fire resistance:
3.5. Safety:
3.6. Corrosion resistance:
3.7. Security:
3.8. Type of operation:
4. Style:
5. Size:
6. Material/ finish:
7. Mounting:
8. Additional requirements:

625 Performance specification for knob sets

1. Description:
2. Standard: To BS EN 1906.
3. Minimum classification grades
3.1. Category of use:
3.2. Durability:
3.3. Door mass: - (no classification).
3.4. Fire resistance:
3.5. Safety:
3.6. Corrosion resistance:
3.7. Security:
3.8. Type of operation:
4. Style:
5. Size:
6. Material/ finish:
7. Mounting:
8. Additional requirements:

641 Pull handles

1. Description:
2. Standard: To BS 8424.
3. Manufacturer:
3.1. Product reference:
4. Shape:
5. Diameter:
6. Distance between centres:
7. Material/ finish:
8. Mounting:
9. Additional requirements:

651 Performance specification for pull handles

1. Description:
2. Standard: To BS 8424.
3. Minimum classification grades

   3.1. Category of use:
   3.2. Durability: 2.
   3.3. Door mass: - (no classification).
   3.4. Suitability for use on fire/ smoke doors:
   3.5. Safety: 1.
   3.6. Corrosion resistance:
4. Shape:
5. Diameter:
6. Distance between centres:
7. Material/ finish:
8. Mounting:
9. Additional requirements …….

670 Push plates

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Size:
4. Material/ finish:
5. Mounting:
6. Additional requirements:

680 Midrail plates

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Size:
4. Material/ finish:
5. Mounting:
6. Additional requirements:

690 Kick plates

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Size:
4. Material/ finish:
5. Mounting:
6. Additional requirements:

710 Escutcheons

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Material/ finish:

4. Keyhole type:
5. Usage:

720 Door stops

1. Manufacturer:
   1.1. Product reference:
2. Type:
3. Usage:

730 Letter plates

1. Description:
2. Standard: To BS EN 13724.
3. Manufacturer:
   3.1. Product reference:
4. Operation:
5. Size:
6. Material/ finish:
7. Features:

731 Performance specification for letter plates

1. Description:
2. Standard: To BS EN 13724.
3. Minimum classification grades
   3.1. Type of aperture: 4.
   3.2. Aperture size:
   3.3. Corrosion resistance:
   3.4. Security: 2.
4. Operation:
5. Material/ finish:
6. Features:

735 Internal letter flaps

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:

750 Limiting door stays

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:

5. Material/ finish:
6. Features:

760 Door holders

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:

770 Padlock hasp and staple

1. Manufacturer:
   1.1. Product reference:
2. Type:
3. Size:
4. Material/ finish:

811 Door mounted coat hooks

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Material/ finish:

850 Threshold weatherstrip

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:

855 Weatherstrip to door head and jambs

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:

860 Door seals for

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:

4. Size:
5. Material/ finish:

890 Door viewers

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Angle of vision:
4. Material/ finish:
5. Viewer body diameter:
6. Door thickness:

895 Door mounted air transfer grilles

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:

896 Door mounted fire resisting air transfer grilles

1. Manufacturer:
   1.1. Product reference:
2. Type:
3. Size:
4. Fire resistance:
5. Material/ finish:

897 Door mounted fire resisting air transfer grilles with smoke shutter

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Fire resistance:
6. Material/ finish:
7. Activator: Smoke detection and/ or fire alarm system.

Window furniture

900 Casement handles

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Material/ finish:

5. Features:

905 Casement stays

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:
6. Features:

910 Window lever handles

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Material/ finish:
5. Features:

925 Over centre casement stays

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:
6. Features:

930 Friction restrictor casement stays

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:
6. Features:

935 Remote window openers

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Material/ finish:
5. Features:

940 Sash lift handles

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish …… .

950 Sash eyes

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ finish:

960 Weatherstrip to windows

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Type:
4. Size:
5. Material/ Finish:

Ω End of Section

Q40
Fencing

Fencing systems

350 SF01 Steel palisade fencing

1. Manufacturer: Submit proposals.
    1.1. Product reference: Palisade security fence complete with anti-tamper fixings etc. Submit proposals for agreement with Client.
2. Standard: To BS 1722-12, type SP 24, Security fencing.
3. Height: 2400mm to be confirmed.
4. Pales: Corrugated 'W'.
5. Pale tops: Triple pointed and splayed.
    5.1. Finish: Polyester powder-coated to BS 1722-16.
        5.1.1. Colour: To BS 4800, 14 C 40 green, to be confirmed.
6. Fixings: Anti-tamper, security fixings.
7. Centres of posts (maximum): 2.75 m.
8. Method of setting posts
    8.1. Holes: As recommended by Fencing Manufacturer to suit ground type.
    8.2. Embedded length: As recommended by Fencing Manufacturer to suit ground type.
    8.3. Completely filled to ground level with concrete.
9. Bottom of fencing: Maximum ground clearance 50 mm, additional rail fixed to pales 100 mm from bottom with two intermediate supports.
10. Accessories: All necessary accessories required to install system in locations shown in accordance with Manufacturer's details.
11. Access control:
    1. Personnel gate as clause 570 SG01.
    2. Vehicle access gates as clause 570 SG02.
12. Conformity: Submit manufacturer's and installer's certificates, to BS 1722-12.
13. Other:
    1. To be supplied and installed in full accordance with Manufacturer's details.
    2. Submit samples of posts, fence type and colour for agreement prior to ordering.
    3. Submit detailed drawings of proposal for comments prior to manufacture.
    4. Read in conjunction with Cox Freeman Ltd. drawings.

Gates, posts and stiles

570 SG01 Personnel gates

1. Manufacturer: As Fencing Manufacturer.
    1.1. Product reference: Personnel swing gate as part of clause 350 SF01 fencing system. Submit proposals.
2. Sizes: 1000mm clear opening width x height to match fencing system. Final size to be confirmed.
3. Posts: Galvanized steel posts to match fencing system.
4. Finish as delivered: Polyester powder-coated to BS 1722-16 to match fencing system.
    4.1. Colour: To BS 4800, 14 C 40 green, to be confirmed and to match fencing system.
5. Fittings:

1. Anti-tamper security hinges as Manufacturer's recommendations.
2. Locking device with escape ironmongery.
3. Shoot bolt and pocket.
4. Final details to be agreed with Client.

5.1. Finish: To match fencing system.

6. Method of fixing: As recommended by Fencing Manufacturer.
7. Accessories:
    1. To be supplied and installed in full accordance with Manufacturer's details.
    1. Submit samples of posts, gate type, fittings and colour for agreement prior to ordering.
    2. Submit detailed drawings of proposal for comments prior to manufacture.
    3. Read in conjunction with Cox Freeman Ltd. drawings.

570 SG02 Vehicle access gates

1. Manufacturer: As Fencing Manufacturer.

    1.1. Product reference: Double swing vehicle access gate as part of clause 350 SF01 fencing system. Submit proposals.

2. Sizes: Width to suit carrageway x height to match fencing system. Final size to be confirmed.
3. Posts: Galvanized steel posts to match fencing system.
4. Finish as delivered: Polyester powder-coated to BS 1722-16 to match fencing system.

    4.1. Colour: To BS 4800, 14 C 40 green, to be confirmed and to match fencing system.

5. Fittings:
    1. Anti-tamper security hinges as Manufacturer's recommendations.
    2. Locking device.
    3. Rollers where required.
    4. Shoot bolts and pockets.
    5. Final details to be agreed with Client.

    5.1. Finish: To match fencing system.

6. Method of fixing: As recommended by Fencing Manufacturer.
7. Accessories:
    1. To be supplied and installed in full accordance with Manufacturer's details.
    1. Submit samples of posts, gate type, fittings and colour for agreement prior to ordering.
    2. Submit detailed drawings of proposal for comments prior to manufacture.
    3. Read in conjunction with Cox Freeman Ltd. drawings.

Accessories - Not Used

Execution

700 Sub-contractor's design

1. Description: Provide detailed design of all fencing and gate systems complete with all associated items and accessories.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.

3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.

3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

710 Installation generally

1. Set out and erect
    1.1. Alignment: Straight lines or smoothly flowing curves.
    1.2. Tops of posts: Following profile of the ground.
    1.3. Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.
    1.4. Fixings: All components securely fixed.

720 Setting posts in concrete

1. Standard: To BS 8500-2.
2. Mix: Designated concrete not less than GEN1 or Standard prescribed concrete not less than ST2.
3. Alternative mix for small quantities: 50 kg Portland cement to 150 kg fine aggregate to 250 kg 20 mm nominal maximum size coarse aggregate, medium workability.
4. Admixtures: Do not use.
5. Holes: Excavate neatly and with vertical sides.
6. Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.
7. Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

730 Exposed concrete foundations

1. Filling: Compact until air bubbles cease to appear on the upper surface.
2. Finishing: Weathered to shed water and trowelled smooth.

740 Setting posts in earth

1. Holes: Excavated neatly, with vertical sides and as small as practicable to allow refilling.
2. Filling: Position posts/ struts and replace excavated material, well rammed as filling proceeds.

Completion

910 Cleaning

1. General: Leave the works in a clean, tidy condition.
2. Surfaces: Clean immediately before handover.

920 Fixings

1. All components: Tighten.
   1.1. Timing: Before handover.

930 Gates

1. Hinges, latches and closers: Adjust to provide smooth operation. Lubricate where necessary.
   1.1. Timing: Before handover.

Ω End of Section

Q41
Barriers/ guardrails

Types of barriers/ guardrails

110 BG02 Guardrail systems

1. Standard: To BS 7818.
2. Manufacturer: Kee Safety Limited or similar approved.
   2.1. Product reference: Kee Klamp Safety or similar approved. Submit proposals for agreement with Client.
3. Height above datum (minimum): 1100mm finished level.
4. Rails and posts
   4.1. Material/ Protection: Galvanised cast iron to BS EN ISO 1461 after fabrication.
5. Infill
   5.1. Class B - Normal duty, to be confirmed by Specialist Sub-contractor for area of use.
   5.2. Type: Single sub-rail.
   5.3. Material/ Protection: Galvanised cast iron to BS EN ISO 1461 after fabrication.
6. Base plate: Standard proprietary base plate to external finishes in area of use.
7. Fixings: As recommended by Manufacturer to suit external finishes in area of use.
   7.1. Material for fixings: Similar material or coating to the connected items, or isolating washers/ bushes provided to prevent bimetallic corrosion.
   7.2. Resistance to vandalism: Submit proposals.
8. Other requirements: All necessary accessories required to install the system where shown in full accordance with System Manufacturer's details including main and intermediate uprights, top and midrails, bends, d-ends, base plates, etc.
9. Performance verification: Submit a certificate of the restraint system's conformity to BS 7818, issued by a United Kingdom Accreditation Service (UKAS) independent laboratory, prior to ordering materials.
10. Other requirements:
    1. Refer to Cox Freeman ltd. general arrangement drawings for extent and location.
    2. Specialist Sub-contractor to detail system to suit locations and configurations shown.
    3. All components to be designed and detailed by Specialist Sub-contractor.
    4. Site dimensions to be taken / checked prior to manufacture.
    5. Specialist Sub-contractor to submit drawings and information for comments prior to fabrication.
    6. Fabricated off site and assembled on site.
    7. Guardrails are to be capable of resisting all horizontal forces given in BS EN 1991-1-1 and all requirements of Approved Document Part K of the Building Regulations.

Performance/ inspection/ testing

301 Sub-contractor's design

1. Description: Provide detailed design of guard rails and pedestrian restraint system along with all associated items.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.

2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.

3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

330 Verification of anchorages

1. Description:
2. Certification: Four weeks prior to installation, submit certificates from a United Kingdom Accreditation Service (UKAS) independent laboratory, stating that for tests in accordance with BS 5080-1, anchorages are capable of resisting the design loading.
3. Tolerance: Certification must include the maximum tolerance of hole size and evidence that load can be supported when anchor is installed in holes having these tolerances.

Installation

405 Competence

1. Operatives: Contractors must employ competent operatives.
2. Qualifications: Submit certification of training.

480 Concrete foundations for posts

1. Excavations: To have vertical sides. Dispose of all arisings. Blind excavation bottoms with a 50 mm layer of concrete.
2. Concrete mix: To BS 8500-2, Designated mix not less than GEN 4 or Standard mix not less than ST5. Do not use admixtures.
3. Placing concrete: Fill holes to the specified depth and fully compact. Do not backfill for at least four days.
4. Temporary support to posts: Provide for a at least four days after placing concrete.

490 Damage repair to galvanized surfaces

1. Areas of repair: Minor damage, including fixings and fittings.
    1.1. Total area of repair not to exceed 0.5% of total surface area.
    1.2. Each area not to exceed 1000 mm².
2. Renovation: Use low melting point zinc alloy repair rods or powders or at least two coats of zinc-rich paint to BS 4652.

Completion

900 Documentation

1. Contents
   1.1. General product information.
   1.2. Installation information.
   1.3. Inspection and maintenance reports.
2. Number of copies: Agree with Contract Administrator.
3. Submission: Agree with Contract Administrator.

Ω End of Section

Q50
Site/ street furniture/ equipment

Gates, barriers and parking controls

100 Sub-contractor's design

1. Description: Provide detailed design of site / street furniture / equipment along with all associated items.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.
    2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
    3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
    4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.
4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

190 BS01 'I' section bollards

1. Description: 'I' section cast in bollard protection to waste recycling building and site.
2. Manufacturer: Submit proposals.
    2.1. Product reference: Submit proposals.
3. Material: Steel.
    3.1. Finish as delivered: Hot-dip galvanized to BS EN ISO 1461.
    3.2. Colour: Yellow. Submit proposals for agreement with Client.
4. Height above ground: 1200mm, to be agreed with Client.
5. Sectional size: 203mm x 203mm 'I' section, to be agreed with Client.
6. Top: Domed.
7. Method of fixing: Root, 300 mm below ground, set in concrete base, to be agreed with Client.
8. Other requirements:
    1. Refer to Cox Freeman ltd. general arrangement drawings for extent and location.
    2. Specialist Sub-contractor to detail system to suit locations and configurations shown.

3. All components to be designed and detailed by Specialist Sub-contractor.
4. Site dimensions to be taken / checked prior to manufacture.
5. Specialist Sub-contractor to submit drawings and information for comments prior to fabrication.

Site and street furniture

210 CS01 Cycle shelter

1. Manufacturer: Glasdon U.K. Ltd. or similar approved.
   1.1. Product reference: Bi-Store Cycle Shelter or similar approved. Submit proposals for agreement with Client.
2. Size: To be confirmed by Manufacturer
   2.1. Width: 3680mm
   2.2. Depth: 2430mm
   2.3. Height: 2230mm
3. Frame: Heavy duty box section with anti-tamper fixings.
   3.1. Material: Steel, hot dip galvanized to BS EN ISO 1461.
   3.2. Finish: Polyester powder coated.
   3.3. Colour: To be confirmed.
4. Cladding: Roof and end panels.
   4.1. Material: Polycarbonate panels.
   4.2. Colour: Clear.
5. Stands:
   5.1. Type: Sheffield type stands cast into slab.
   5.2. Material: Steel, hot dip galvanized to BS EN ISO 1461.
   5.3. Number: 5 number hoops to accommodate 10 number cycles.
6. Accessories: All necessary accessories required to install cycle shelters in locations shown.
7. Method of fixing: In accordance with Manufacturer's details in conjunction with Structural Engineer.
8. Other:
   1. Provide cost option for profiled metal roof and wall cladding as alternative to polycarbonate.
   2. Refer to Cox Freeman Ltd. drawings for location etc.
   3. Install in full accordance with Manufacturer's details and recommendations.
   4. Provide product data sheets, certification and relevant samples for agreement with Client prior to ordering.
   5. Allow for providing 2 number shelters to give a combined number of 20 cycle spaces. Final amounts to be confirmed as part of planning process.

Installation

510 Concrete foundations generally

1. Standard: To BS 8500-2.
2. Concrete: To Structural Engineer's details.
3. Admixtures: Do not use.
4. Foundation holes: Neat vertical sides.

5. Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

515 Setting components in concrete

1. Holes: To Structural Engineer's details.
2. Components: Accurately positioned and securely supported.
3. Concrete fill: Fully compacted as filling proceeds.
4. Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.
5. Temporary component support: Maintain undisturbed for minimum 48 hours.

Ω End of Section

R10
Rainwater drainage systems

General

110 Gravity rainwater drainage system

1. Rainwater outlets: Detail, number, size and location to be determined by Specialist Sub-contractor.
2. Gutters: Proprietary eaves gutter to be fully compatible with roofing system.
3. Pipework: Proprietary preheated steel rain water down pipes.
4. Below ground drainage: Refer to Structural Engineer's details and specification.
5. Disposal: Refer to Structural Engineer's details and specification.
6. Controls: Refer to Structural Engineer's details and specification.
7. Accessories: All necessary accessories required to allow installation of the gravity rainwater drainage system to Manufacturer's details and recommendations.

121 Siphonic rainwater drainage system

1. Rainwater outlets: Proprietary. Detail, number, size and location to be determined by Specialist Sub-contractor.
2. Gutters: Insulated gutter H31 / 234 IG01 and associated rain water outlets / pipes etc.
3. Pipework: Submit proposals as part of design.
4. Below ground drainage: Refer to Structural Engineer's details and specifications.
5. Accessories:
    1. All necessary accessories required to install, use and maintain system in full accordance with the Manufacturer's details.
    2. Insulation to outlet pipes, down pipes and carrier pipes where required to prevent condensation occurring.

System performance

210 Design

1. Design: Complete the design of the rainwater drainage systems.
2. Standard
    2.1. To BS EN 12056-3, clauses 3–7, Annex A and National Annexes.
    2.2. To BS EN 12056-5, clauses 3, 4, 6 and 11.
3. Proposals: Submit drawings, technical information, calculations and manufacturers’ literature.

221 Collection and distribution of rainwater

1. General: Complete, and without leakage or noise nuisance.

230 Design parameters - general

1. Roof and gutter construction and finish: Refer to Cox Freeman Ltd. drawings and specification.
2. Design rate of rainfall: As BS EN 12056-3, National Annex NB.2.
    2.1. Category: To be determined by Specialist Sub-contractor.
3. Design life of building: 40 years, to be confirmed by Client.
4. Available capacity of existing below ground drainage (maximum): To be determined by Specialist Sub-contractor in conjunction with Structural Engineer.

5. Other:
    1. Specialist Sub-contractor to provide calculations, specifications and fully dimensioned and detailed drawings including all relevant manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Contractor and Structural Engineer to show compliance with the performance specification. Specialist Sub-contractor is to submit proposals and agree detail risk category and risk management for all gutters / drainage systems with Client's Insurer.
    2. Overflow arrangements: Specialist Sub-contractor to submit details of location, depth and size of overflows from each gutter.

235 Design parameters - siphonic rainwater drainage system

1. System designer: Specialist Sub-contractor.
2. System design: To operate on siphonic principles so as to be regularly self cleansing in normal use.
3. Pipework
    3.1. Airtight at maximum and minimum operating pressures.
    3.2. To accommodate thermal movement without damage to fixings and joints or excess stress, abrasion or noise.
4. Design water depth after design rainfall of 2 minutes duration (maximum): Specialist Sub-contractor is to submit proposals and agree detail risk category and risk management with Client's Insurer.
5. Overflow arrangements: Specialist Sub-contractor to submit details of location, depth and size of overflows from each gutter. Refer to gutter specification for further information H31 / 234 IG01.
6. Siphonic flow velocity (minimum): To be determined by Specialist Sub-contractor to ensure system is regular self cleansing.
7. Pressure imbalance (maximum): To be determined by Specialist Sub-contractor to prevent excessive imbalance and reduced flow rate.
8. Operational pressure (maximum): To be determined by Specialist Sub-contractor to prevent excessive vacuum.
9. Other: Specialist Sub-contractor to provide calculations, specifications and fully dimensioned and detailed drawings including all relevant manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Contractor and Structural Engineer to show compliance with the performance specification.

240 Sub-contractor's design

1. Description:
   Provide detailed design of all roof drainage systems including drainage calculations.
2. Design responsibility:
    1. Provide detailed design to satisfy specified performance criteria and general arrangement drawings and coordinate with the detailed design of related and adjacent work including determining types, sizes and locations of fixings etc.
    2. Check all dimensions (critical or otherwise) on site and to report to the Architect / Principal Contractor of any discrepancies between proposed dimensions and on site dimensions.
    3. It is the responsibility of the Sub-Contractor to conform with all relevant British Standards and that the performance of the element of works complies with the required Building Regulations on a performance level and any other relevant requirements of the performance specification. Information is to be supplied to the Architect / Principal Contractor to show compliance with this requirement.
3. Design and production information:
    1. Fully dimensioned and detailed drawings are to be submitted to the Architect / Principal Contractor for comments prior to installation.

2. All drawings are to include all relevant Manufacturers' information and be fully coordinated with other relevant information either from other Sub-Contractors or Architect / Principal Structural Engineer to show compliance with the performance specification.
3. All drawings are to be of a suitable scale and show all interfaces with other trades / specifications where required and other design elements required by the Sub-Contractor to complete the works.
4. All relevant material colours are to be submitted to the Architect / Principal Contractor prior to installation, with samples where required.

4. Timing of submissions: Giving reasonable time for checking and commenting on submitted information.

Products

332 EG01 Profiled eaves gutter

1. Standard: To BS EN 612
2. Manufacturer: Kingspan Insulated Panels or similar approved.
   2.1. Product reference: Kingspan's powder coated steel Highline Gutter System.
3. Profile: Highline profile.
4. Gauge: As recommended by Gutter Manufacturer to suit application.
5. Size: To be sized by Specialist Sub-contractor
6. Finish: Precoated Kingspan XL Forte.
7. Colour: Refer to Cox Freeman Ltd. drawings.
8. Brackets: Gutter support arms to suit roof cladding profile to Gutter Manufacturer's details. Gutter support arms are to be provide where required to Specialist Sub-contractor's details in conjunction with Gutter Manufacturer's recommendations to suit loadings etc.
   8.1. Fixings: As recommended by Manufacturer to suit application.
      8.1.1. Size: As recommended by Manufacturer to suit application.
9. Accessories: All necessary accessories required to allow installation of the gutter to Manufacturer's details and recommendations in locations shown including all internal and external corners, stop ends, T-sections, sumps, overflows and weirs, joints, outlet details.
10. Other requirements:
    1. Gutter is to be sized by Specialist Sub-contractor to suit location of use and to be designed to accommodate continuous storm intensity in accordance with BS EN 12056 to the general size and shape illustrated / required complete with all necessary stop ends, overflows, gutter supports etc. Calculations are to be submitted to support the actual sizing and numbers and types of outlets required to comply with the code(s) using rainfall rates accurately interpolated from graphs within BS EN 12056 - to comply with designated required life of building (30 years) ie. not taken to next highest graph O/A for calculation purposes.
    2. Gutters are to be installed and jointed in full accordance with Manufacturer's details and recommendations.
    3. Specialist Sub-contractor is to determine the number, diameter and locations of all rain water outlets required to drain gutter.
    4. RWP locations to be determined by Specialist Sub-contractor in conjunction with the Structural Engineer to suit below ground drainage / column positions etc.
    5. Provide overflow weirs to ends of all gutters.
    6. Refer to Cox Freeman Ltd. drawings for indicative details of gutter.
    7. Fix in full accordance with Manufacturer's details.
    8. Gutter testing: Block all outlets, fill gutters to overflow level and after 5 minutes closely inspect for leakage and rectify as required.

11. Maintenance: Building owner to consider any future maintenance of the gutters and associated rainwater drainage system as part of their own risk assessment, using specialist cleaning contractors with their own access equipment.

332 EG02 Profiled eaves gutter

1. Standard: To BS EN 612
2. Manufacturer: Euroclad Group Ltd or similar approved.
   2.1. Product reference: Euroclad precoated profiles eaves gutter system.
3. Profile: Euroclad profile. Submit proposals.
4. Gauge: As recommended by Gutter Manufacturer to suit application.
5. Size: To be sized by Specialist Sub-contractor
6. Finish: Precoated Colorcoat HPS200 Ultra.
7. Colour: Refer to Cox Freeman Ltd. drawings.
8. Brackets: Gutter support arms to suit roof cladding profile to Gutter Manufacturer's details. Gutter support arms are to be provide where required to Specialist Sub-contractor's details in conjunction with Gutter Manufacturer's recommendations to suit loadings etc.
   8.1. Fixings: As recommended by Manufacturer to suit application.
      8.1.1. Size: As recommended by Manufacturer to suit application.
9. Accessories: All necessary accessories required to allow installation of the gutter to Manufacturer's details and recommendations in locations shown including all internal and external corners, stop ends, T-sections, sumps, overflows and weirs, joints, outlet details.
10. Other requirements:
    1. Gutter is to be sized by Specialist Sub-contractor to suit location of use and to be designed to accommodate continuous storm intensity in accordance with BS EN 12056 to the general size and shape illustrated / required complete with all necessary stop ends, overflows, gutter supports etc. Calculations are to be submitted to support the actual sizing and numbers and types of outlets required to comply with the code(s) using rainfall rates accurately interpolated from graphs within BS EN 12056 - to comply with designated required life of building (30 years) ie. not taken to next highest graph O/A for calculation purposes.
    2. Gutters are to be installed and jointed in full accordance with Manufacturer's details and recommendations.
    3. Specialist Sub-contractor is to determine the number, diameter and locations of all rain water outlets required to drain gutter.
    4. RWP locations to be determined by Specialist Sub-contractor in conjunction with the Structural Engineer to suit below ground drainage / column positions etc.
    5. Provide overflow weirs to ends of all gutters.
    6. Refer to Cox Freeman Ltd. drawings for indicative details of gutter.
    7. Fix in full accordance with Manufacturer's details.
    8. Gutter testing: Block all outlets, fill gutters to overflow level and after 5 minutes closely inspect for leakage and rectify as required.
11. Maintenance: Building owner to consider any future maintenance of the gutters and associated rainwater drainage system as part of their own risk assessment, using specialist cleaning contractors with their own access equipment.

360 Sealant for gutters

1. Type: As recommended by Gutter Manufacturer.

395 RW01 Rain water pipes

1. Manufacturer: As gutter manufacturer.

1.1. Product reference: Proprietary square profile rain water down pipes.

2. Finish: Precoated steel - Kingspan XL Forte.
3. Colour: Refer to Cox Freeman Ltd. drawings.
4. Jointing: As recommended by Manufacturer.
5. Brackets: Proprietary brackets finished to match down pipes at spacings recommended by Manufacturer.
   5.1. Fixings: As recommended by Manufacturer to suit cladding.
      5.1.1. Size: As recommended by Manufacturer to suit cladding.
6. Accessories: All necessary accessories required to allow installation of the of the rain water pipework and gutter system to Manufacturer's details and recommendations in required locations including all access/rodding hatches, swan necks, support clips etc.
7. Other: Number, size and location to be determined by Specialist Sub-contractor.

395 RW02 Rain water pipes

1. Manufacturer: As gutter manufacturer.
   1.1. Product reference: Proprietary square profile rain water down pipes.
2. Finish: Precoated steel - Colorcoat HPS200 Ultra.
3. Colour: Refer to Cox Freeman Ltd. drawings.
4. Jointing: As recommended by Manufacturer.
5. Brackets: Proprietary brackets finished to match down pipes at spacings recommended by Manufacturer.
   5.1. Fixings: As recommended by Manufacturer to suit cladding.
      5.1.1. Size: As recommended by Manufacturer to suit cladding.
6. Accessories: All necessary accessories required to allow installation of the of the rain water pipework and gutter system to Manufacturer's details and recommendations in required locations including all access/rodding hatches, swan necks, support clips etc.
7. Other: Number, size and location to be determined by Specialist Sub-contractor.

Custom made products - Not Used

Execution

600 Preparation

1. Work to be completed before commencing work specified in this section
   1.1. Below ground drainage. Alternatively, make temporary arrangements for dispersal of rainwater without damage or disfigurement of the building fabric and surroundings.
   1.2. Painting of surfaces which will be concealed or inaccessible.

605 Installation generally

1. Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
2. Plastics and galvanized steel pipes: Do not bend.
3. Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
4. Protection
   4.1. Fit purpose made temporary caps to prevent ingress of debris.
   4.2. Fit access covers, cleaning eyes and blanking plates as the work proceeds.

610 Fixing and jointing gutters

1. Joints: Watertight
2. Brackets: Securely fixed.
   2.1. Fixings: As Manufacturer's recommendations.
      2.1.1. Fixing centres: As Manufacturer's recommendations.
   2.2. Additional brackets: Where necessary to maintain support and stability, provide at joints in gutters and near angles and outlets.

630 Installing rainwater outlets

1. Fixing: Secure. Fix before connecting pipework.
   1.1. Method: As Manufacturer's recommendations.
2. Junctions between outlets and pipework: Accommodate movement in structure and pipework.

635 Fixing pipework

1. Pipework: Fix securely, plumb and/ or true to line.
2. Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
3. Externally socketed pipes and fittings: Fix with sockets facing upstream.
4. Additional supports: Provide as necessary to support junctions and changes in direction.
5. Vertical pipes
   5.1. Provide a loadbearing support at least at every storey level.
   5.2. Tighten fixings as work proceeds so that every storey is self supporting.
   5.3. Wedge joints in unsealed metal pipes to prevent rattling.
6. Wall and floor penetrations: Isolate pipework from structure.
   6.1. Pipe sleeves: As section P31.
   6.2. Masking plates: Fix at penetrations if visible in the finished work.
7. Expansion joint pipe sockets: Fix rigidly to buildings. Elsewhere, provide brackets and fixings that allow pipes to slide.

650 Jointing pipework and gutters

1. General: Joint with materials and fittings that will make effective and durable connections.
2. Jointing differing pipework and gutter systems: Use adaptors intended for the purpose.
3. Cut ends of pipes and gutters: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
4. Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
5. Junctions: Form with fittings intended for the purpose.
6. Jointing material: Strike off flush. Do not allow it to project into bore of pipes and fittings.
7. Surplus flux, solvent jointing materials and cement: Remove.

675 Cutting coated pipework and gutters

1. Cutting: Recoat bare metal.

690 Electrical continuity - pipework

1. Joints in metal pipes with flexible couplings: Clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

695 Electrical continuity - gutters

1. Joints in metal gutters: Purpose made links supplied by the gutter manufacturer to ensure electrical continuity.

700 Access for testing and maintenance

1. General: Install pipework and gutters with adequate clearance to permit testing, cleaning and maintenance, including painting where necessary.
2. Access fittings and rodding eyes: Position so that they are not obstructed.

Completion

900 Testing generally

1. Dates for testing: Give notice.
   1.1. Period of notice (minimum): To be agreed with Contract Administrator.
2. Preparation
   2.1. Pipework: Complete, securely fixed, free from defects, obstruction and debris before testing.
3. Testing
   3.1. Supply clean water, assistance and apparatus.
   3.2. Do not use smoke to trace leaks.
4. Records: Submit a record of tests.

910 Gutter test

1. Preparation: Temporarily block all outlets.
2. Testing: Fill gutters to overflow level and after 5 minutes closely inspect for leakage.

915 Maintenance instructions

1. General: At completion, submit printed instructions recommending procedures for maintenance of the rainwater installation, including full details of recommended inspection, cleaning and repair procedures.

920 Immediately before handover

1. Construction rubbish, debris, swarf, temporary caps and fine dust which may enter the rainwater system: Remove. Do not sweep or flush into the rainwater system.
2. Access covers, rodding eyes, outlet gratings and the like: Secure complete with fixings.

Ω End of Section

Z10
Purpose made joinery

To be read with preliminaries/ general conditions.

110 Fabrication

1. Standard: To BS 1186-2.
2. Sections: Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.
   2.1. Machined surfaces: Smooth and free from tearing, wooliness, chip bruising and other machining defects.
3. Joints: Tight and close fitting.
4. Assembled components: Rigid. Free from distortion.
5. Screws: Provide pilot holes.
   5.1. Screws of 8 gauge (4 mm diameter) or more and screws into hardwood: Provide clearance holes.
   5.2. Countersink screws: Heads sunk at least 2 mm below surfaces visible in completed work.
6. Adhesives: Compatible with wood preservatives applied and end uses of timber.

120 Cross section dimensions of timber

1. General: Dimensions on drawings are finished sizes.
2. Maximum permitted deviations from finished sizes
   2.1. Softwood sections: To BS EN 1313-1:-
      2.1.1. Clause 6 for sawn sections.
   2.2. Hardwood sections: To BS EN 1313-2:-
      2.2.1. Clause 6 for sawn sections.
      2.2.2. Clause NA.3 for further processed sections.

130 Preservative treated wood

1. Cutting and machining: Completed as far as possible before treatment.
2. Extensively processed timber: Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.
3. Surfaces exposed by minor cutting and/ or drilling: Treat as recommended by main treatment solution manufacturer.

140 Moisture content

1. Wood and wood based products: Maintained within range specified for the component during manufacture and storage.

210 Laminated plastics veneered boards/ panels

1. Fabrication: To British Laminated Plastics Fabricators Association Ltd (BLF) fabricating standards.
2. Balancing veneer: From decorative veneer manufacturer and of similar composition. Applied to reverse side of core material.
3. Finished components: Free from defects, including bow, twist, scratches, chipping, cracks, pimpling, indentations, glue marks, staining and variations in colour and pattern.
4. Joints visible in completed work: Tight butted, true and flush.

220 Wood veneered boards/ panels

1. Core material and veneers: Conditioned before bonding.
2. Setting out: Veneer features and grain pattern aligned regularly and symmetrically unless instructed otherwise.
3. Balancing veneer: Applied to reverse side of core material.
   3.1. Moisture and temperature movement characteristics: As facing veneer.
4. Veneer edges: Tight butted and flush, with no gaps.
5. Tolerance of veneer thickness (maximum): ± 0.5 mm.
6. Finished components: Free from defects, including bow, twist, scratches, chipping, splits, blebs, indentations, glue marks and staining.
7. Surface finish: Fine, smooth, free from sanding marks.

250 Finishing

1. Surfaces: Smooth, even and suitable to receive finishes.
   1.1. Arrises: Eased unless shown otherwise on drawings.
2. End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.

Ω End of Section

Z11
Purpose made metalwork

To be read with preliminaries/ general conditions.

310 Materials generally

1. Grades of metals, section dimensions and properties: To appropriate British Standards. When not specified, select grades and sections appropriate for the purpose.
2. Prefinished metal: May be used if methods of fabrication do not damage or alter appearance of finish, and finish is adequately protected.
3. Fasteners: To appropriate British Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.

320 Steel long and flat products

1. Hot rolled structural steels (excluding structural hollow sections and tubes): To BS EN 10025-1.
2. Fine grain steels, including special steels: To BS EN 10025-3 and -4.
3. Steels with improved atmospheric corrosion resistance: To BS EN 10025-5.

330 Steel plate, sheet and strip

1. Plates and wide flats, high yield strength steel: To BS EN 10025-6.

340 Hot rolled steel plate, sheet and strip

1. Flat products, high yield strength for cold forming: To BS EN 10149-1, -2 and -3.
2. Carbon steel sheet and strip for cold forming: To BS EN 10111.
3. Narrow strip, formable steel and steel for general engineering purposes: To BS 1449-1.8 and BS 1449-1.14.

350 Cold rolled steel plate, sheet and strip

1. Steel sections: To BS EN 10162.
2. Flat products, high yield strength micro-alloyed steels for cold forming: To BS EN 10268.
3. Carbon steel flat products for cold forming: To BS EN 10130 and BS EN 10131.
4. Uncoated carbon steel narrow strip for cold forming: To BS EN 10139 and BS EN 10140.
5. Narrow strip steel for general engineering purposes: To BS EN 10132-1, -2, and -3.
6. Carbon steel flat products for vitreous enamelling: To BS EN 10209.

360 Coated steel flat products

1. Hot dip zinc coated carbon steel sheet and strip for cold forming: To BS EN 10346 and BS EN 10143.
2. Hot dip zinc coated structural steel sheet and strip: To BS EN 10143 and BS EN 10346.
3. Hot dip zinc-aluminium (za) coated sheet and strip: To BS EN 10346.
4. Hot dip aluminium-zinc (az) coated sheet and strip: To BS EN 10346.
5. Organic coated flat products: To BS EN 10169.

370 Steel structural hollow sections (SHS)

1. Non alloy and fine grain steels, hot finished: To BS EN 10210-1 and -2.
2. Non-alloy and fine grain steels, cold formed welded: To BS EN 10219-2.
3. Weather resistant steels, hot finished: To BS 7668.

380 Other steel sections

1. Equal flange tees: To BS EN 10055.
2. Equal and unequal angles: To BS EN 10056-1 and -2.
3. Wire, carbon steel for general engineering purposes: To BS 1052.
4. Wire and wire products, general: To BS EN 10218-2.
5. Tubes
    5.1. Seamless circular: To BS EN 10297-1.
    5.2. Seamless cold drawn: To BS EN 10305-1.
    5.3. Welded and cold sized square and rectangular: To BS EN 10305-5.
    5.4. Welded circular: To BS EN 10296-1.
    5.5. Welded cold drawn: To BS EN 10305-2.
    5.6. Welded cold sized: To BS EN 10305-3.

400 Stainless steel products

1. Chemical composition and physical properties: To BS EN 10088-1.
2. Sheet, strip and plate: To BS EN 10088-2.
3. Semi-finished products bars, rods and sections: To BS EN 10088-3.
4. Wire: To BS EN 1088-3.
5. Tubes
    5.1. Welded circular: To BS EN 10296-2.
    5.2. Seamless circular: To BS EN 10297-2.

410 Aluminium alloy products

1. Designations
    1.1. Designation system, chemical composition and forms: To BS EN 573-1, -2, -3 and -5.
    1.2. Temper designations: To BS EN 515.
2. Sheet, strip and plate: To BS EN 485-1 to -4.
3. Cold drawn rods, bars and tubes: To BS EN 754-1 and -2.
4. Extruded rods, bars, tubes and profiles: To BS EN 755-1 and -2.
5. Drawn wire: To BS EN 1301-1, -2 and -3.
6. Rivet, bolt and screw stock: To BS 1473.
7. Structural sections: To BS 1161.

420 Copper alloy products

1. Sheet, strip, plate and circles for general purposes: To BS EN 1652.
2. Sheet and strip for building purposes: To BS EN 1172.
3. Rods: To BS EN 12163.
4. Profiles and rectangular bars: To BS EN 12167.
5. Wire: To BS EN 12166.
6. Tubes: To BS EN 12449.

Fabrication

515 Fabrication generally

1. Contact between dissimilar metals in components: Avoid.

2. Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
   2.1. Moving parts: Free moving without binding.
3. Corner junctions of identical sections: Mitre.

520 Cold formed work

1. Profiles: Accurate, with straight arrises.

525 Adhesive bonding

1. Preparation of surfaces of metals to receive adhesives
   1.1. Degrease.
   1.2. Abrade mechanically or chemically etch.
   1.3. Prime: To suit adhesive.
2. Adhesive bond: Form under pressure.

527 Welding

1. Description: Where required and to suit application.
2. Welding procedures
   2.1. Method and standard:
      1. Steel: Metal arc welding to BS EN 1011-1 and -2.
      2. Stainless steel: TIG welding to BS EN 1011-3.
      3. Aluminium alloys: TIG or MIG welding to BS EN 1011-4.
   2.2. Welding Procedure Specification (WPS): Submit before commencement of welding where applicable.
3. Preparation
   3.1. Joint preparation: Clean thoroughly.
   3.2. Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.
4. Jointing
   4.1. Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
   4.2. Dissimilar metals: Welding not permitted.
   4.3. Strength requirements: Welds to achieve design loads.
   4.4. Heat straightening: Submit proposals.
   4.5. Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds.
   4.6. Tack welds: Use only for temporary attachment.
   4.7. Jigs: Provide to support and restrain members during welding.
   4.8. Filler plates: Submit proposals.
   4.9. Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater.
   4.10. Weld terminations: Clean and sound.

530 Stainless steel fabrication

1. Guillotining or punching: Do not use for metal thicknesses greater that 10 mm.
2. Thermal cutting
   2.1. Carbonation in the heat affected zone: Remove, after cutting.
3. Bending

3.1. Plates or bars: Cold bending radius not less than material thickness.
3.2. Tubes: Cold bending radius not less than 2 x tube diameter.

4. Welding: In addition to general welding requirements:
4.1. Protect adjacent surfaces from weld spatter.
4.2. Pickle all welds before post fabrication treatments.

5. Protection: Provide protection to fabricated components during transit and on site.

555 Brazing

1. Standard: To BS EN 14324.
2. Testing
2.1. Destructive testing: To BS EN 12797.
2.2. Nondestructive testing: To BS EN 12799.

Finishing

710 Finishing welded and brazed joints visible in complete work

1. Standard: To BS EN ISO 8501-3.
1.1. Preparation grade: Provide sample and agree acceptable grade with Client.
2. Butt joints: Smooth, and flush with adjacent surfaces.
3. Fillet joints: Neat.
4. Grinding: Grind smooth where indicated on drawings.

745 Preparation for application of coatings

1. General: Complete fabrication, and drill fixing holes before applying coatings.
2. Paint, grease, flux, rust, burrs and sharp arrises: Remove.

750 Liquid organic coating for aluminium alloy components

1. Standard: To BS 4842.

760 Zinc and cadmium plating of iron and steel surfaces

1. Zinc plating: To BS EN ISO 2081.
2. Cadmium plating: To BS EN ISO 2082.

770 Chromium plating

1. Standard: To BS EN ISO 1456.

780 Galvanizing

1. Standard: To BS EN ISO 1461.
2. Preparation
2.1. Vent and drain holes: Provide in accordance with BS EN ISO 14713-1 and -2. Seal after sections have been drained and cooled.
2.2. Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
2.3. Welding slag: Remove.
2.4. Component cleaning: To BS EN ISO 8501-3.
2.5. Grade:

790 Vitreous enamelling

1. Standard: To BS EN ISO 28722.
2. Substrate metal: Steel to BS EN 10209.

Completion

910 Documentation

1. Submit
   1.1. Manufacturer's maintenance instructions.
   1.2. Guarantees, warranties, test certificates, record schedules and log books.

920 Completion

1. Protection: Remove.
2. Cleaning and maintenance: Carry out in accordance with procedures detailed in fabricators' guarantees.

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

Z22
Sealants

Products

310 Joints

1. Description: Where required and to suit application.
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: Submit proposals for rectification.

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

Specification created using NBS Chorus