

**16014**  
***Berkeley Street***  
Full specification

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## Specification

09/04/2020

Revision details:

<b>System/Section</b>	<b>Modified</b>
Deconstruction system (10-45-20/110)	No
PLC-100 Insitu Concrete - Polished Finish (10-70-15/190)	No
Precast Concrete - Architectural Concrete Finishes (10-70-15/195)	No
CLG-200 Gypsum board suspended ceiling system type A (20-10-10/110)	No
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RFG-101 Rooflight system fixed type A (20-25-75/170)	No
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Liquid applied system to hard landscaping type D (20-50-30/135)	No
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FOE-102 Office fittings, furnishings and equipment system type B (35-10-60/160)	No
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FFE-200 Parking equipment system type A (35-35-30/160)	No



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LFT-104 Lift car fit-out architectural requirements type E (80-45-45/151)	No
LFT-105 Lift car fit-out architectural requirements type F (80-45-45/151)	No

16014

# ***10 Preparatory systems***

Issued for Tender

09/04/2020

# 10-45-20/110 Deconstruction system

## System outline

### 10-45-20/110 Deconstruction system

- **Description:** The demolition and removal of the hotel fit out, all service risers, plant rooms and associated services back to primary structure and screed. This includes the demolition and removal of the remaining hotel services from the office areas.
- **System performance:** 10-45-20/210 Demolition and deconstruction objectives;  
10-45-20/240 Environmental targets;  
and 10-45-20/205 Information submittals.
- **Contract survey:**
  - **Scope of contract survey:** Prior to commencing any work examine all available information, carry out a site investigation of the existing built elements to be demolished and adjacent areas.
  - **Type of survey:** Full site investigation
  - **Survey limitations:** The site investigation should be exhaustive
  - **Timing:** Before starting work.
- **Execution:** 10-45-20/625 Statutory and private services affected by demolition;  
10-45-20/630 Location and marking of existing services;  
10-45-20/635 Disconnection of services;  
10-45-20/640 Bypass connections for supplies before demolition;  
10-45-20/645 Maintenance of existing services;  
10-45-20/660 Health hazards during demolition;  
10-45-20/675 Removal of asbestos-containing materials;  
10-45-20/680 Unforeseen hazards;  
10-45-20/690 Treatment of adjoining property affected by demolition;  
10-45-20/695 Structures and services to be retained;  
10-45-20/715 Components and materials arising from demolition;  
10-45-20/705 Management of water on the site during demolition;  
10-45-20/700 Partly demolished structures;  
10-45-20/615 Demolition generally;  
10-45-20/618 Contractor;  
10-45-20/670 Dust control;  
and 10-45-20/665 Gas and vapour risks during demolition.

## System performance

### 10-45-20/205 Information submittals

- **Method statement:**
  - **Purpose:** To demonstrate compliance with the performance requirements
  - **Contents:** 01. The form, condition and demolition methods of the structure(s)/ elements  
02. The form, location and removal methods of any toxic or hazardous materials including asbestos  
03. The type and location of adjoining or surrounding premises that may be adversely affected by noise, vibration, dust or removal of structure  
04. The identification and location of building wide services to be retained.  
05. Arrangements for ensuring the safety of other building users

- 06. Arrangements for removal of waste from site including traffic management
- 07. Arrangements to ensure the retail users are not adversely effected by noise, dust and vibrations
- **Format:** Drawings and specification
- **Timing:** With tender and submit before starting work

#### 10-45-20/210 Demolition and deconstruction objectives

- **Scope of the demolition works:** The demolition and removal of the hotel fit out, all service risers, plant rooms and associated services back to primary structure and screed. This includes the demolition and removal of the remaining hotel services from the office areas. See architects drawings 16014\_A\_(12)\_198 to 16014\_A\_(12)\_208 inclusive.

#### OTHER USES

Demolition and removal of waste to be carried out without compromising the safety, operation or comfort of the retail units and their users.

#### CORES AND RISERS

All risers, including services within, partition walls, linings and doors are to be demolished and removed. All doors, partitions, services and finishes within cores and staircases are to be demolished and removed including lifts, lift lobbies, floor, all services, walls and ceilings. The only exceptions being- rainwater pipes, risers needed to service the retained retail units and other specific exclusions included within the M&E engineers strip out information. Compartment walls between uses are to be removed except where they effect retained retail units.

#### HOTEL FIT OUT

The hotel levels (B2-08, as per architects scoping drawings) are to be completely stripped back to primary structure, including the following. The ceilings are to be removed back to the slab including all services, support profiles, ducts and finishes. All internal partitions and associated doors, linings, finishes, glazed elements and services are to be demolished and removed. All floors are to be removed back to screed including all raised access floors, floor ducts, support systems, ramps and floor finishes. All kitchens/ kitchenettes and associated cabinetry and sanitary-ware is to be completely removed. All toilets, baths and showers are to be completely removed including all sanitary ware, partition systems, services fixtures and fittings. All wall linings in highlighted area to be removed including tiled and plasterboard linings to columns and concrete walls.

#### HOTEL SERVICES IN OFFICE AREAS

Any hotel services in the office areas are to be demolished and removed.

#### BASEMENTS

All basement areas to be fully stripped out back to screed and concrete frame including the removal of plant and services. The only exceptions being- rainwater pipes, risers needed to service the retained retail units and other specific exclusions included within the M&E engineers strip out information.

#### FAÇADE

All internal linings to the façade to be removed back to concrete frame. All secondary glazing and window ledges to be removed.

SERVICES- See M&E engineers Soft Strip Scope document.

- **Structures to be retained:** The existing primary concrete structure/ frame and the floor screed is to be retained unless specified by the structural engineers intrusive site survey scope.
- **Designated items to be retained:** The façade is to be retained but stripped of all internal linings and secondary glazing. Rainwater routes and services being used by the retained retail units are to be retained. Please see M&E engineers information for other services that are to be retained.

- **Basements and voids:** Basements 1 and 2 are to be fully stripped out except those items serving the retail To be made safe but clearly identifiable

#### 10-45-20/240 Environmental targets

- **BREEAM targets:**
  - **CO2 or energy arising from site activities:** Refer to BREEAM pre assessment
  - **CO2 or energy arising from transport to and from site:** Refer to BREEAM pre assessment
  - **Water consumption arising from site activities:** Refer to BREEAM pre assessment
  - **Air (dust) pollution arising from the site:** Refer to BREEAM pre assessment
  - **Water (ground and surface) pollution occurring on the site:** Refer to BREEAM pre assessment
- **Evidence of compliance:**
  - **Requirement:** Monitor and submit report. Refer to BREEAM pre assessment
  - **Timing:** Within one week of request.

### Execution

#### 10-45-20/615 Demolition generally

- **Standard:** Subject to retention requirements specified elsewhere, de construct/ demolish structures down to primary concrete structural frame. Refer to BS 6187 and The Health and Safety at Work Act 1974, relevant current British Standards and Codes of Practice, relevant Building Regulations and Statutory requirements, Health and Safety Executive (HSE) Directives, Construction Design and Management (CDM) Regulations and Approved Code of Practice (ACOP), Control of Substances Hazardous to Health Regulations (COSHH) 2002 and the Contract Documents

#### 10-45-20/618 Contractor

- **Personnel:**
  - **Supervisory staff:**

**Required qualifications:** Experienced in the assessment of risks involved and methods of demolition to be used.
  - **Operatives:**

**Required qualifications:** Appropriately skilled and experienced in the type of work. Holding, or in training to obtain relevant Construction skills certificates of competence.

#### 10-45-20/625 Statutory and private services affected by demolition

- **Statutory services:** Execute work which may affect statutory services in accordance with the Byelaws or Regulations of the relevant Statutory Authority or Statutory Undertaker.
- **Private services:** Execute work which may affect the operation of privately supplied services in accordance with the requirements of the individual service providers

#### 10-45-20/630 Location and marking of existing services

- **Services affected by the Works:** Locate and mark positions.
- **Mains services:** Arrange with the appropriate authorities for location and marking of positions.
- **Marking:** Mark services in accordance with National Joint Utilities Group (NJUG) Volume 1. NJUG guidelines on the positioning and colour coding of underground utilities' apparatus.

#### 10-45-20/635 Disconnection of services

- **Disconnection of supplies and removal of fittings and equipment:** Arrange with the appropriate authorities and responsible private organizations. Remove fittings and equipment where indicated. See M&E strip out scope for details
- **Drains:** Locate, disconnect and seal disused drain connections. Agree where drains are to be sealed.
- **Decommissioning action plan:** See M&E Soft Strip Scope
- **Timing:** Before demolition works starts.

#### 10-45-20/640 Bypass connections for supplies before demolition

- **Temporary bypass of services:**
  - **Required actions:** Provide as necessary to maintain continuity of services to occupied areas of the site and adjoining properties.
  - **Timing:** Complete bypass of services before demolition works start.
- **Temporary shutdown of supplies:**
  - **Communications:** Disruption of services unacceptable. See M&E soft strip specification.
  - **Notice to occupiers (minimum):** See M&E soft strip specification.

#### 10-45-20/645 Maintenance of existing services

- **Unrecorded features:** Give notice if unrecorded pipes, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.
- **Requirement:** Protect existing services, drains and watercourses, including all associated structures such as manholes, inspection chambers, gullies, vent pipes and fittings still in use. Keep them free from debris.

#### 10-45-20/660 Health hazards during demolition

- **Precautions:** Protect site operatives and general public from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.
- **Dangerous openings:** Illuminate and protect. Keep safe outside working hours.
- **Unauthorized persons:** Prevent access.

#### 10-45-20/665 Gas and vapour risks during demolition

- **Requirement:** Prevent fire or explosion caused by gas or vapour.

#### 10-45-20/670 Dust control

- **Requirement:** Minimize airborne dust. Keep public roadways and footpaths clear of mud and debris.

#### 10-45-20/675 Removal of asbestos-containing materials

- **Recorded asbestos:**
  - **Position of asbestos:** See the Refurbishment and Demolition Asbestos Survey.
  - **Requirement:** Submit method statement. Removal by contractor licensed by the Health and Safety Executive and prior to other works starting in these locations.
  - **Timing:** Submit proposals
- **Discovered asbestos:**
  - **Requirement:** Give notice immediately. Do not disturb.

- **Managing personnel or organization:** Removal by contractor licensed by the Health and Safety Executive.
- **Timing:** Before other works start in these locations and following a statutory risk assessment

#### 10-45-20/680 Unforeseen hazards

- **Unrecorded voids, tanks, chemicals, etc. discovered during demolition:** Give notice immediately.
- **Removal of unforeseen hazards:** Submit method statement

#### 10-45-20/690 Treatment of adjoining property affected by demolition

- **Extent of adjoining property:** As drawings. Confirm by site survey
- **Requirements:** Minimize disturbance. Remove unnecessary or unstable projections. Make safe, secure and weathertight.
- **Foundations of adjoining property:** Do not disturb.
- **Defects exposed or becoming apparent:** Submit report.

#### 10-45-20/695 Structures and services to be retained

- **Removal of structures and services to be retained:** Cut away and strip out with care. Minimize the amount of making good needed.
- **Damage to structures and services to be retained:** Give notice and notify service authority or owner of damage arising from the execution of the works.
- **Repairs:** Submit proposals. Any damages so occasioned shall be rectified at the contractors expense.

#### 10-45-20/700 Partly demolished structures

- **Requirement:** Leave in a stable condition. Provide adequate temporary support at each stage. Prevent uncontrolled collapse. Keep safe outside working hours.

#### 10-45-20/705 Management of water on the site during demolition

- **Requirement:** Minimise water consumption and maximise re-use of water. Submit proposals.
- **Disposal of excess water:**
  - **Approvals to discharge:** Seek approval from the appropriate regulatory authority.
  - **Requirements:** Install a silt trap or catchpit where discharge is either to a sewer or surface water drain.

#### 10-45-20/715 Components and materials arising from demolition

Ω End of system

# 10-70-15/190 PLC-100 Insitu Concrete - Polished Finish

## System outline

### 10-70-15/190 PLC-100 Insitu Concrete - Polished Finish

- **Description:** Architectural worked finish to screeded concrete finish applied over structural slab. Although concrete shall be generally in accordance with the Structural Engineer's documentation, this section shall take precedence over the Structural Engineer's documentation in respect of finishes.
- **System performance:** 10-70-15/205 Structural performance, 10-70-20/245 Slip resistance of wearing surfaces, 10-70-20/240 Abrasion resistance of concrete wearing surfaces, 20-05-80/294 Surface regularity of concrete floors, 10-70-15/201 Surface Finish, 10-70-15/202 Mix, 10-70-15/203 Samples
- **Definitions:** Finishes to concrete are generally defined in accordance with Section 8.6 of the National Structural Concrete Specification - current edition.
- **Scope:** Concrete floors.
- **Dry Shrinkage:** 0.075% To BS EN 1367-4 maximum.
- **Samples:**
  - **Concrete finishes:** Pre installation mock up of all types of finished in situ concrete as agreed 1500mm x 1500mm. Location to be confirmed by Employers Agent.
  - **Applied finishes:** Sample of concrete with sealer/ applied finish.
- **Contractors existing benchmarks:** Visit site of Contractor's previous work and note the visual appearance of the concrete. The benchmark shall indicate the standards to be achieved.
- **Benchmark on-site requirements:**
  - **Floor:** The first installed and finished 1.5sqm of work. This will be reviewed by the Employer's Agent for the architect and upon acceptance it will be the benchmark quality for all following work.
- **Applied finishes and consistency:** 45-35-88/325 Concrete sealers and 10-70-20/545 Finished appearance
- **Execution:** 10-70-15/675 Unacceptable work; 10-70-15/676 Storage of materials and accessories; 10-70-15/691 Protection; 10-70-15/686 Installation of floors

## System performance

### 10-70-15/201 Surface Finish

- **Surface Hardener:** 550 Apply Flowchem SP3 or equivalent.

### 10-70-15/202 Mix

- **Proportions:** Submit proposals.
- **Concrete:** To BS EN 206-1 and BS 8500-2.
- **Designated concrete to floor:** C28/35.
- **Aggregates size (maximum):** 15mm. Percentage of aggregate exposed to meet the agreed sample.
- **Coarse recycled aggregates:** Not permitted.
- **Fine aggregate percentage:** 45-48%



- **Cement:** CEM I to BS EN 197-1
- **Other requirements of cement and combinations:** Minimum cement content 325Kgs/m<sup>3</sup>
- **Consistence Class:** S3
- **Chloride class:** CL 0.40
- **Other requirement of admixtures:** WRA (Water Reducing Admixtures).

#### 10-70-15/203 Samples

- **Finish:** Provide 5 no. 500mm x 500mm sample of the design mix with the applied surface finish illustrating the range variation and aggregate exposure ratio.
- **Movement joints:** Provide 1 no. sample of structural movement joint, minimum 500mm, including fixing proposal.
- **Dividing strips:** Provide 1 no. sample of the dividing strips, minimum 500mm, including fixing proposal.

#### 10-70-15/205 Structural performance

- **Generally:** For any structural requirements refer to the Structural Engineer's documentation and drawings.

#### 10-70-20/240 Abrasion resistance of concrete wearing surfaces

- **Abrasion resistance class:** Classification: AR1/ WS Heavy Duty.
- **Abrasion limit (maximum):** Standard: In accordance with BS 8204-2, Table 4.

#### 10-70-20/245 Slip resistance of wearing surfaces

- **Standard:** To BS 7976-2
- **Pendulum test value (minimum):** > 36 PTV wet. All to be site tested.

#### 20-05-80/294 Surface regularity of concrete floors

- **Standard:** To BS 8204-2.
- **Measurement of surface regularity of floors:** From underside of a 2 m straight edge (between points of contact) placed anywhere on surface and using a slip gauge.
- **Tolerances in surface regularity of floors:**
  - **Surface regularity class:** SR2.
  - **Location of surface regularity class:** All surfaces.
- **Abrupt changes (maximum):** 2 mm.

### Products

#### 45-35-88/325 Concrete sealers

- **Manufacturer:** Submit proposals.
- **Generally:** The sealer shall be spray applied with an airless spray. Sealer to provide a clear seal that prevents the concrete dusting, allows the surface to be wiped clean of finger marks and once applied and does not change the colour of the concrete.
- **Composition:** Submit proposals.
- **Primer:** Sealer diluted with 3% water.
- **Category:** Submit proposals.

- **Colour:** Clear. Where an opaque paint finish is required, paint using masonry paint system. Refer to Section 35-85-60.

## Custom made products

### 10-70-20/545 Finished appearance

- **Manufacturer:** Submit proposals.
- **Finish:** Polished. Finished shall match the agreed sample/ mock-up and benchmark prior to installation of the complete works.
- **Movement Joints:** Screed Subcontractors drawings are required to indicate where the Movement Joints will be required prior to the works being carried out on site. Refer to architect for indicative movement joint locations and Structural Engineer's documentation for structural movement joints.
- **Crack Control:** Screed Subcontractor to advise on measures taken to reduce the risk of cracking. Location of crack control joints to be agreed. Fill all induced crack joints with a non-shrink proprietary grout.
- **Samples:** To be provided and agreed prior to installation.
- **Drying Times:** To be controlled to reduce the risk of surface cracking.
- **Bay size (maximum):** 6500mm x 4000mm with screed depth of 75mm min. Subcontractor to confirm and advise.

## Execution

### 10-70-15/675 Unacceptable work

- **Removal and replacement:** Concrete finishes deemed as unacceptable the Contractor is to submit proposals to the Architect for the removal and re-construction of that section of the concrete.

### 10-70-15/676 Storage of materials and accessories

- **Generally:** All materials shall be suitably stored on Site, clear of the ground with protection from inclement weather and contamination by other materials, and shall be kept dry.

### 10-70-15/686 Installation of floors

- **Generally:** Refer to Structural Engineer's specification for installation of cast in place concrete.
- **Sealers:** Apply sealers to exposed surfaces in accordance with the manufacturer's recommendations. Do not apply sealers to concrete containing waterproofing admixtures.
- **Finished concrete:** Generally finished concrete surfaces shall be free of:
  1. Grout marks.
  2. Water marks.
  3. Staining.
  4. Colour variations beyond limits of Sample.
  5. Misalignment of concrete pours.
  6. Uneven distribution of aggregate mix.
- **Protection:** Protect floor finishes as far as is practical. from damage until Practical Completion.
  1. Hydraulic powered equipment shall be diapeded to avoid staining of concrete.
  2. Vehicle parking on or near the finished concrete and concrete slab shall be prohibited.
  3. No pipe cutting machine shall be used on the finished concrete.
  4. Steel shall not be placed on the finish concrete.

5. Acids and acid detergents shall not be used nor come in contact with the finished concrete.
6. Painters to use drop clothes on finished slab or near columns. If spilled or splashed, paint must be immediately removed.
7. Inform following trades that the finished concrete must be protected at all times.

#### 10-70-15/691 Protection

- **Generally:** Provide protection against the effects of weather for in situ concrete works until the building is watertight.
- **Protection of concrete:(elements/ structures):** Inform the Architect of protective measure to be applied. Provide protection for the concrete, against damage, until Practical Completion of the building.
- **Protection provided:** Protective measures shall not permanently mark or damage the concrete finishes. Do not allow water to be trapped against surfaces visible in the finished work.

Ω End of system

# 10-70-15/195 Precast Concrete - Architectural Concrete Finishes

## System outline

### 10-70-15/195 Precast Concrete - Architectural Concrete Finishes

- **Description:** Architectural finish to precast concrete elements. Although concrete shall be generally in accordance with the Structural Engineer's documentation, this section shall take precedence over the Structural Engineer's documentation in respect of finishes.
- **System performance:** 10-70-15/206 Structural performance
- **Definitions:** Finishes to concrete are generally defined in accordance with Section 8.6 of the National Structural Concrete Specification - current edition.
- **Scope:** - Precast concrete finishes.  
- Precast stairs and ramps.
- **Concrete finishes:** 10-70-20/540 Precast finish CON-201 and 10-70-20/541 Precast finish CON-202
- **Moulds:** 45-60-90/349 Precast moulds
- **Applied finishes and colour consistency:** 45-55-20/345 Colour consistency; 45-35-88/325 Concrete sealers.
- **Accessories:** 10-70-55/306 Core plugs for lifting eye concealment
- **Execution:** 10-70-15/605 Compaction; 10-70-15/611 Storage of precast units; 10-70-15/612 Installation; 10-70-15/613 Installation tolerances.
- **System completion:** 10-70-15/805 Cleaning
- **System facility management:**

## System performance

### 10-70-15/206 Structural performance

- **Generally:** Refer to the Structural Engineer's documentation and drawings.

## Products

### 10-70-55/306 Core plugs for lifting eye concealment

- **Manufacturer:** Submit proposals.
- **Material:** Circular plug of concrete core, cast with each precast- element to ensure colour match and finished to match the proposed surface treatment of the finished precast element.
- **Fixing:** Plugs inserted into lifting eye locations post installation of precast element. Plugs to be grouted in, joint to be non-visible in the final works.

### 45-35-88/325 Concrete sealers

- **Manufacturer:** Submit proposals.
- **Generally:** The sealer shall be spray applied with an airless spray. Sealer to provide a clear seal

that prevents the concrete dusting, allows the surface to be wiped clean of finger marks and once applied and does not change the colour of the concrete.

- **Composition:** Submit proposals.
- **Primer:** Sealer diluted with 3% water.
- **Category:** Submit proposals.
- **Colour:** Clear. Where an opaque paint finish is required, paint using masonry paint system. Refer to Section 35-85-60.

#### 45-55-20/345 Colour consistency

- **Generally:** Consistency of the concrete colour is essential. Select all suppliers, materials and all appropriate methods to meet the specified finish.
- **Range of variance of colour:** Based on the on-Site prototype or other benchmarks or samples an agreed acceptable colour range shall be agreed with the Architect.
- **Unacceptable variations:** Vast colour variation, aggregate transparency or loss or movement of water shall be avoided.
- **Batching:** Batch the concrete precisely and mixing thoroughly.
- **Formwork faces:** Uniform absorbency.
- **Aggregates:** From the same quarry or source of supply.

#### 45-60-90/349 Precast moulds

- **Generally:** Rigid, and dimensionally stable, non-absorptive material, warp and buckle free, that provides continuous and true precast concrete surfaces within fabrication tolerances indicated; nonreactive with concrete and suitable for producing required finishes.
- **Fabrication:** Accurately construct moulds, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes and for pre-stressing and de-tensioning operations. Coat contact surfaces of moulds with release agent before reinforcement is placed. Avoid contamination of reinforcement and pre-stressing tendons by release agent.
- **Liners:** Place form liners accurately to provide finished surface texture indicated. Provide solid backing and supports to maintain stability of liners during concrete placement. Coat form liner with form-release agent.
- **Alignment and form:** Maintain moulds to provide completed architectural precast concrete units of shapes, lines, and dimensions indicated, within fabrication tolerances specified. Form joints are not permitted on faces exposed to view in the finished work. Edge and Corner Treatment: Uniformly as shown on the Drawings.

### Custom made products

#### 10-70-20/540 Precast finish CON-201

- **Description CON-201:** Smooth concrete finish to exposed architectural precast elements.
- **Generally:** Produce a dense, even-coloured, blemish-free and high quality smooth surface finish.
- **Appearance:** Finish to be achieved use of high quality concrete and moulds. Finish with an acid-washed finish to be applied to all visible precast concrete with minor surface blemishes and no staining or discolouration.
  - A smooth, matt, dense, even-colored, blemish-free concrete surface using grey cement.
  - The finish to be uniform in colour and appearance.
  - Surfaces shall be free from discolouration caused by contamination from release agent, grout leakage, rust staining or other sources.
  - Abrupt irregularities shall be not greater than 1mm. Gradual irregularities expressed as

maximum permissible deviation from a 1.0m straightedge shall not be greater than 3mm.

- Crack widths in the exposed surfaces of the concrete shall not exceed 1mm.
  - Produce a smooth even finish with an impervious high quality resin film faced moulds arranged in an accepted regular pattern. This to match any architectural features indicated on the Drawings.
  - There shall be no uneven distribution of aggregate across all visible faces.
  - All edges to be chamfered unless otherwise indicated on Drawings.
  - Surfaces shall be free of voids, honeycombing, segregation and other defects. Voids shall be kept to an absolute minimum.
  - No more than 20mm<sup>2</sup> of air voids or blow holes for any 100mm x 100mm of exposed surfaces area. Maximum size of any visible holes is 5mm.
- Do not use cover spaces without acceptance by the Architect.

- **Reinforcement:** Refer to the Structural Engineers documentation. Reinforce all architectural precast concrete units to resist handling, transportation, and erection stresses and specified in-place loads.
- **Moulds:** Rigid, and dimensionally stable, non-absorptive material.
- **Liners:** Units of face design, texture, arrangement and configuration indicated. Use with manufacturer's recommended form release agent. Ensure this does not impair surface or joint treatments of precast concrete.
- **Release agent:** Commercially produced form release agent that does not bond with, stain or adversely affect precast concrete surfaces. Ensure this does not impair any following surface work or joint treatments of precast concrete.
- **Cast-in anchors, inserts, plates, angles and other anchorage hardware:** Fabricate anchorage hardware with sufficient anchorage and embedment to comply with design requirements. Accurately position for attachment of loose hardware, and secure in place during pre-casting operations. Locate anchorage hardware where it does not affect position of main reinforcement or concrete placement. Align all elements, including any attachment of cast in items and confirm with the Architect prior to casting.
- **Accessories:** Cast-in reglets, slots, holes, and other accessories in architectural precast concrete units as indicated on Drawings.
- **Final finishing:** Upon removal of forms and prior to the application of the final surface treatment and sealing inspect, the precast element. Where there are any cast in items (rubber strips, etc.) ensure there is no nail tear marks or grout bleeding.

#### 10-70-20/541 Precast finish CON-202

- **Generally:** The precast shall be as CON-201 except for the following requirements for visual appearance.
- **Description CON-202:** Smooth concrete finish to exposed architectural precast elements, as struck from moulds with no making good requirements.
- **Appearance:** Produce a dense, even-coloured, blemish-free and high quality smooth surface finish. Finish to be achieved use of high quality concrete and moulds. Finish with an acid-washed finish to be applied to all visible precast concrete with minor surface blemishes and no staining or discolouration.

## Execution

#### 10-70-15/605 Compaction

- **Generally:** Comply with the requirements of the Structural Engineer's documentation.
- **Tools and uniformity:** Ensure that compaction tools provide constant equal compaction rates and concrete is compacted uniformly.

**10-70-15/611 Storage of precast units**

- **Generally:** All materials shall be suitably stored on Site, clear of the ground with protection from inclement weather, kept dry and avoid contamination by other materials. Precast concrete units shall be stored so as to prevent soiling, chipping and any mechanical damage, contamination by salts and other substances.

**10-70-15/612 Installation**

- **Pre installation check:** Do not install precast concrete units until supporting members are structurally ready to receive loads from precast concrete units. Proceed with installation only after unsatisfactory conditions have been corrected.
- **Accessories:** Install clips, hangers, bearing pads, and other accessories required for connecting architectural precast concrete units to supporting members and backup materials.
- **Erection:** Erect architectural precast concrete level, plumb, and square within specified allowable tolerances. Provide temporary supports and bracing as required to maintain position, stability, and alignment of units until permanent connections are completed.
- **Temporary supports and provisions:** - Install temporary steel or plastic spacing shims as precast concrete units are being erected. Tack weld steel shims to each other to prevent shims from separating.
  - Maintain horizontal and vertical joint alignment and uniform joint width as erection work progresses.
  - Remove projecting lifting devices and grout fill voids within recessed lifting devices flush with surface of adjacent precast surfaces when recess is exposed.
- **Final connections:** Connect architectural precast concrete units in position by bolting, welding, grouting, or as otherwise indicated on shop drawings. Remove temporary shims, wedges, and spacers as soon as practical after connecting and grouting are completed. Do not permit connections to disrupt continuity of other trade elements.

**10-70-15/613 Installation tolerances**

- **Generally:** Erect architectural precast concrete units level, plumb, square, and in alignment. Tolerances shall be non-cumulative.
- **Tolerances:** - Within the length of any joint (including in-line continuations across transverse joints) the greatest width shall not vary by more than  $\pm 2\text{mm}$ . Any variation shall be evenly distributed with no sudden changes.
  - Unit edges at a joint out of parallel shall not taper by more than 3mm, in overall height of joint between units.
  - The average width of an individual joint between units, compared with the nominal design width of the joint as specified, shall not vary by more than  $\pm 2\text{mm}$ .
  - A jog in alignment of a unit edge from one unit to another shall not exceed 2mm.
- **Aligning heads:** Aligning heads shall be incorporated into the units so as to be concealed in the final works.
- **Repairs:** Repair architectural precast concrete units if permitted by the Architect. The Architect reserves the right to reject repaired units that do not comply with requirements.
  - Mix patching materials and repair units so cured patches blend with colour, texture, and uniformity of adjacent exposed surfaces and show no apparent line of demarcation between original and repaired work, when viewed in typical daylight illumination from a distance of 6 m.
  - Remove and replace damaged architectural precast concrete units when repairs do not comply with requirements.

## System completion

### 10-70-15/805 Cleaning

- **Generally:** Clean surfaces of precast concrete units exposed to view.
- **Following trade work:** Clean mortar, plaster, fireproofing, weld slag, and other material from concrete surfaces and adjacent materials immediately.
- **Marks and stains:** Clean exposed surfaces of precast concrete units after erection and completion of joint treatment to remove weld marks, other markings, dirt, and stains. Perform cleaning procedures, if necessary, according to precast concrete fabricator's recommendations. Protect other work from staining or damage due to cleaning operations.
- **Materials:** Do not use cleaning materials or processes that could change the appearance of exposed precast concrete finishes or damage adjacent materials.

Ω End of system



16014

## ***20 Roof, floor and paving systems***

Issued for Tender

09/04/2020

## 20-10-10/110 CLG-200 Gypsum board suspended ceiling system - type A

### System outline

#### 20-10-10/110 CLG-200 Gypsum board suspended ceiling system type A

- **Type:** A
- **Description:** Suspended plasterboard ceiling system
- **System performance:** 20-10-10/205 Design submittals;  
20-10-10/207 Gypsum board ceiling systems design requirements;  
20-10-10/210 Structural performance;  
and 20-10-10/215 Durability.
- **System manufacturer:** British Gypsum
- **System reference:** CasoLine MF suspended ceiling system or equivalent.
- **Suspension system:**
  - **Hanger type:** Contractor's design. Submit proposals for a suitable corrosion resistant hanger in thickness/ gauge to meet the performance requirements. Hangers to BS EN 14195.
  - **Top fixings:** Contractor's design. Submit proposals for suitable corrosion resistant fixings to meet the performance requirements.
  - **Primary grid centres:** Contractor's design. Submit proposals in accordance with the manufacturer's recommendations to meet the performance requirements.
  - **Hanger centres:** Contractor's design. Submit proposals in accordance with the manufacturer's recommendations to meet the performance requirements.
  - **Secondary grid centres:** Contractor's design. Submit proposals in accordance with the manufacturer's recommendations to meet the performance requirements.
- **Linings:** 1 x 12.5 mm Gyproc WallBoard or equivalent to BS EN 942.
- **Finishing:** Taped seamless finish, Skim coat plaster finish and paint. Tape to BS EN 13963, Type 1.
- **Primer/ Sealer:**
  - **Type:** One coat of Gyproc Drywall Primer or equivalent.
- **Accessories:** All accessories necessary to complete the installation, including plywood patressing where required.  
45-45-50/390 Pattressing type A
- **Perimeter:** 25mm shadow gap from wall or soffit.  
10mm gap between ceiling systems.
- **Execution:** 20-10-10/605 Preliminary installation;  
20-10-10/610 Installing suspension grids for boarded ceilings;  
20-10-10/640 Installing boarded ceilings and soffits;  
20-10-10/645 Installing plasterboard to metal framing;  
and 20-10-10/675 Installing integrated services in suspended ceilings. 20-10-10/690 Chasing cables in plasterboard
- **System completion:** 20-10-10/830 Operation and maintenance manual.

## System performance

### 20-10-10/205 Design submittals

- **Detailed design:**
  - **Requirement:** The Contractor is to complete the design.
  - **Purpose:** To complete the detailed design in line with the Employers Requirements design intent.
  - **Submittals:** Typical plan and section drawings at suitable scales.
  - **Timing:** During detailed design stage and before works commence on site.
  - **Format:** Drawings and specifications in both digital and paper, BIM compliant format.

### 20-10-10/207 Gypsum board ceiling systems design requirements

- **Standards:** To BS 8000-0, BS 8212 and BS EN 13964.
- **Materials, components and details:** Use only the same as those tested and identified in assessment reports.
- **Integrated services fittings:** Supported independently of ceiling grid.  
Lighting cables in typical office spaces to be recessed

### 20-10-10/210 Structural performance

- **Standard:** To BS EN 13964.
- **Loads:**
  - **General:** The ceiling system must safely support all specified loads, including services fittings.
  - **Uniform distributed loads:** Imposed loads:  $L/500$ , and not greater than 4.0 mm
  - **Point loads:** Refer to Mechanical and Electrical equipment list for ceiling mounted services.
- **Deflection of grid between points of support (maximum):**  $0.0025 \times \text{span}$ .

### 20-10-10/215 Durability

- **Standard:** To BS EN 13964.
- **Exposure classification:** Class A.

## Execution

### 20-10-10/605 Preliminary installation

- **Installation requirements:** Complete an area of suspended ceiling in an agreed location.
- **Purpose:** For use as an installation benchmark reference sample.
- **Position:** To be agreed with the Architect.
- **Extent of area:** First  $10\text{m}^2$
- **Features to be included:** All features including concealed + mounted services.
- **Timing:** Construct and obtain approval of appearance before proceeding with general installation. Retain undisturbed until completion of suspended ceiling installation.

**20-10-10/610 Installing suspension grids for boarded ceilings**

- **Standard:** To BS EN 13964.
- **Alignment:** Grid components to be accurately aligned and levelled.
- **Stability:** Suspension grid to be secured and braced to give a stable ceiling system resistant to design loads and pressures.
- **Hangers:** Install vertical or near vertical, without bends or kinks. Do not allow hangers to press against fittings, services, or insulation covering ducts/ pipes. Provide additional hangers as necessary to carry specified additional loads.
- **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.
- **Setting out:**
  - **Height above finished floor level:** Refer (45) series drawings.
  - **Ceiling voids:** Refer (45) series drawings.
  - **Ceiling section centres (nominal):** Contractor's choice.
  - **Primary support channel centres (nominal):** Contractor's choice.
  - **Hanger centres (nominal):** Contractor's choice.
  - **Bracing:** Provide bracing and stiffening at upstands, partition heads, access hatches, etc.
  - **Bulkheads:** Support and brace to provide alignment and stability. Provide additional support at base of high upstands.
- **Fixing hanger tops:**
  - **General criteria:** Verify suitability of structural soffit for proposed fixing method. Do not use cartridge or powder activated methods. Do not use rivets for top fixing angle or strap hangers.
  - **Concrete:** Drill and insert suitable expanding anchors. Do not use cast-in or shot-fired fixings.
  - **Aerated concrete:** Fix through from the top of concrete units and provide a system of primary support channels.
  - **Structural steel:** Drill to receive self-tapping screws or bolt fixings, or use proprietary flange clips. Clips should only be used with wire hangers.
  - **Metal roof decking:** Fix to sides of liner tray corrugations using self-tapping stainless steel screws.
  - **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. Avoid fixing into underside of joists.
  - **Hollow structural members:** Submit fixing proposals.

**20-10-10/640 Installing boarded ceilings and soffits**

- **Standard:** To BS EN 13964.
- **Sequence:** Fix boards to dry-lined walls and partitions before installing ceilings.
- **Orientation of boards:** Fix with long edges at right angles to supports. Stagger ends in adjacent rows.
- **Cut boards:** Cuts to be neat and accurate.
- **Fixings:** Dry wall screws at 230 mm. Reduce to 150 mm at board ends and around room perimeter.
- **Board edges:** All edges to be fully supported. Set heads of screws [fasteners] below board surface and fill flush with surface prior to decoration.

- **Movement joints:** Provide as appropriate for the area of ceiling system and/ or to coincide with movement joints in surrounding structure.
- **Openings:** Cuts to be neat and accurate, to suit sizes and edge details of fittings. Do not distort ceiling system.

#### 20-10-10/645 Installing plasterboard to metal framing

- **Ceiling linings:** Fix securely.
- **Fixing centres (maximum):**
  - **Single layer boarding:** 300 mm centres generally and 200 mm centres at external angles.
  - **Multi-layer boarding:** Inner layers at 300 mm centres round perimeters; face layer at 300 mm centres.
- **Distance of screws from edges of boards (minimum):** 10 mm.
- **Screw heads:** Set in a depression. Do not break paper or gypsum core.

#### 20-10-10/675 Installing integrated services in suspended ceilings

- **Criteria:** Position services accurately, support adequately. Align and level in relation to the ceiling and suspension system. Do not diminish performance of ceiling system.
- **Small fittings:** Support with rigid backing boards or other suitable means. Do not damage or distort the ceiling.
- **Surface spread of flame rating of additional supporting material:** Not less than ceiling material.
- **Services outlets:**
  - **Supported by ceiling system:** Provide additional hangers.
  - **Independently supported:** Provide flanges to support ceiling system.
- **Services in ceiling void:** Space beneath installed services to be sufficient for installation and removal of ceiling system components and periodic removal and replacement of infill units.

#### 20-10-10/690 Chasing cables in plasterboard

- **Location:** Lighting cables to be recessed into plasterboard. Confirm location with architect and MEP consultant prior to execution.
- **Execution:** Submit proposals.
- **Finishing:** Consistent and flush with plasterboard, ready for paint finish.

### System completion

#### 20-10-10/830 Operation and maintenance manual

- **Contents:**
  - **Cleaning:** Cleaning methods and materials.
  - **Decoration:** Recommendations for redecoration.
  - **Fire rating:** Ceiling systems intended for fire protection - limitations placed on subsequent alterations and maintenance procedures, to ensure that their fire performance is not impaired.
  - **Point loads:** Maximum number, position and value of point loads that can be applied to ceiling system after installation.

Ω End of system

## 20-10-10/110 CLG-100 Gypsum board soffit lined ceiling system - type B

### System outline

#### 20-10-10/110 CLG-100 Gypsum board soffit lined ceiling system type B

- **Description:** Monolithic plasterboard soffit lined ceiling system
- **System performance:** 20-10-10/205 Design submittals; 20-10-10/207 Gypsum board ceiling systems design requirements; 20-10-10/210 Structural performance; and 20-10-10/215 Durability.
- **System manufacturer:** British Gypsum
- **System reference:** GypLyner UNIVERSAL ceiling
- **Suspension system:**
  - **Type:** Gypframe GL8 Track  
Gypframe GL2, GL9 or GL12 Bracket  
Gypframe GL1 Lining Channel
- **Linings:** 1 x 12.5 mm Gyproc WallBoard or equivalent to BS EN 942.
- **Finishing:** Taped seamless finish, Skim coat plaster finish and paint. Tape to BS EN 13963, Type 1.
- **Primer/ Sealer:** One coat of Gyproc Drywall Primer or equivalent.
- **Perimeter:** 25mm shadow gap from wall or soffit.  
10mm gap between ceiling systems.
- **Execution:** 20-10-10/605 Preliminary installation; 20-10-10/640 Installing boarded ceilings and soffits; 20-10-10/645 Installing plasterboard to metal framing; and 20-10-10/690 Chasing cables in plasterboard.
- **System completion:** 20-10-10/830 Operation and maintenance manual.

### System performance

#### 20-10-10/205 Design submittals

- **Detailed design:**
  - **Requirement:** The Contractor is to complete the design.
  - **Purpose:** To complete the detailed design in line with the Employers Requirements design intent.
  - **Submittals:** Typical plan and section drawings at suitable scales.
  - **Timing:** During detailed design stage and before works commence on site.
  - **Format:** Drawings and specifications in both digital and paper, BIM compliant format.

#### 20-10-10/207 Gypsum board ceiling systems design requirements

- **Standards:** To BS 8000-0, BS 8212 and BS EN 13964.
- **Materials, components and details:** Use only the same as those tested and identified in assessment reports.

- **Integrated services fittings:** Supported independently of ceiling grid.  
Lighting cables in typical office spaces to be recessed

#### 20-10-10/210 Structural performance

- **Standard:** To BS EN 13964.
- **Loads:**
  - **General:** The ceiling system must safely support all specified loads, including services fittings.
  - **Uniform distributed loads:** Imposed loads: L/500, and not greater than 4.0 mm
  - **Point loads:** Refer to Mechanical and Electrical equipment list for ceiling mounted services.
- **Deflection of grid between points of support (maximum):** 0.0025 x span.

#### 20-10-10/215 Durability

- **Standard:** To BS EN 13964.
- **Exposure classification:** Class A.

### Execution

#### 20-10-10/605 Preliminary installation

- **Installation requirements:** Complete an area of suspended ceiling in an agreed location.
- **Purpose:** For use as an installation benchmark reference sample.
- **Position:** To be agreed with the Architect.
- **Extent of area:** First 10m<sup>2</sup>
- **Features to be included:** All features including concealed + mounted services.
- **Timing:** Construct and obtain approval of appearance before proceeding with general installation. Retain undisturbed until completion of suspended ceiling installation.

#### 20-10-10/640 Installing boarded ceilings and soffits

- **Standard:** To BS EN 13964.
- **Sequence:** Fix boards to dry-lined walls and partitions before installing ceilings.
- **Orientation of boards:** Fix with long edges at right angles to supports. Stagger ends in adjacent rows.
- **Cut boards:** Cuts to be neat and accurate.
- **Fixings:** Dry wall screws at 230 mm. Reduce to 150 mm at board ends and around room perimeter.
- **Board edges:** All edges to be fully supported. Set heads of screws [fasteners] below board surface and fill flush with surface prior to decoration.
- **Movement joints:** Provide as appropriate for the area of ceiling system and/ or to coincide with movement joints in surrounding structure.
- **Openings:** Cuts to be neat and accurate, to suit sizes and edge details of fittings. Do not distort ceiling system.

#### 20-10-10/645 Installing plasterboard to metal framing

- **Ceiling linings:** Fix securely.
- **Fixing centres (maximum):**

- **Single layer boarding:** 300 mm centres generally and 200 mm centres at external angles.
- **Multi-layer boarding:** Inner layers at 300 mm centres round perimeters; face layer at 300 mm centres.
- **Distance of screws from edges of boards (minimum):** 10 mm.
- **Screw heads:** Set in a depression. Do not break paper or gypsum core.

#### 20-10-10/690 Chasing cables in plasterboard

- **Location:** Lighting cables to be recessed into plasterboard. Confirm location with architect and MEP consultant prior to execution.
- **Execution:** Submit proposals.
- **Finishing:** Consistent and flush with plasterboard, ready for paint finish.

### System completion

#### 20-10-10/830 Operation and maintenance manual

- **Contents:**
  - **Cleaning:** Cleaning methods and materials.
  - **Decoration:** Recommendations for redecoration.
  - **Fire rating:** Ceiling systems intended for fire protection - limitations placed on subsequent alterations and maintenance procedures, to ensure that their fire performance is not impaired.
  - **Point loads:** Maximum number, position and value of point loads that can be applied to ceiling system after installation.

Ω End of system



## 20-10-10/110 CLG-203 Gypsum board suspended ceiling system - type C

### System outline

#### 20-10-10/110 CLG-203 Gypsum board suspended ceiling system type C

- **Description:** Suspended plasterboard ceiling system with MR board
- **System performance:** 20-10-10/205 Design submittals;  
20-10-10/207 Gypsum board ceiling systems design requirements;  
20-10-10/210 Structural performance;  
and 20-10-10/215 Durability.
- **System manufacturer:** British Gypsum
- **System reference:** CasoLine MF suspended ceiling system or equivalent.
- **Suspension system:**
  - **Type:** Gypframe GL8 Track  
Gypframe GL2, GL9 or GL12 Bracket  
Gypframe GL1 Lining Channel
- **Linings:** 1 x 12.5 mm Gyproc Moisture Resistant WallBoard or equivalent to BS EN 942.
- **Finishing:** Taped seamless finish, Skim coat plaster finish and paint. Tape to BS EN 13963, Type 1.
- **Primer/ Sealer:**
  - **Type:** One coat of Gyproc Drywall Primer or equivalent.
- **Accessories:** All accessories necessary to complete the installation, including plywood patressing where required.  
45-45-50/390 Pattressing type A
- **Perimeter:** 25mm shadow gap from wall or soffit.  
10mm gap between ceiling systems.
- **Execution:** 20-10-10/605 Preliminary installation;  
20-10-10/610 Installing suspension grids for boarded ceilings;  
20-10-10/640 Installing boarded ceilings and soffits;  
20-10-10/645 Installing plasterboard to metal framing;  
and 20-10-10/675 Installing integrated services in suspended ceilings. 20-10-10/690 Chasing cables in plasterboard
- **System completion:** 20-10-10/830 Operation and maintenance manual.

### System performance

#### 20-10-10/205 Design submittals

- **Detailed design:**
  - **Requirement:** The Contractor is to complete the design.
  - **Purpose:** To complete the detailed design in line with the Employers Requirements design intent.
  - **Submittals:** Typical plan and section drawings at suitable scales.
  - **Timing:** During detailed design stage and before works commence on site.
  - **Format:** Drawings and specifications in both digital and paper, BIM compliant format.

#### 20-10-10/207 Gypsum board ceiling systems design requirements

- **Standards:** To BS 8000-0, BS 8212 and BS EN 13964.
- **Materials, components and details:** Use only the same as those tested and identified in assessment reports.
- **Integrated services fittings:** Supported independently of ceiling grid.  
Lighting cables in typical office spaces to be recessed

#### 20-10-10/210 Structural performance

- **Standard:** To BS EN 13964.
- **Loads:**
  - **General:** The ceiling system must safely support all specified loads, including services fittings.
  - **Uniform distributed loads:** Imposed loads: L/500, and not greater than 4.0 mm
  - **Point loads:** Refer to Mechanical and Electrical equipment list for ceiling mounted services.
- **Deflection of grid between points of support (maximum):** 0.0025 x span.

#### 20-10-10/215 Durability

- **Standard:** To BS EN 13964.
- **Exposure classification:** Class A.

### Execution

#### 20-10-10/605 Preliminary installation

- **Installation requirements:** Complete an area of suspended ceiling in an agreed location.
- **Purpose:** For use as an installation benchmark reference sample.
- **Position:** To be agreed with the Architect.
- **Extent of area:** First 10m<sup>2</sup>
- **Features to be included:** All features including concealed + mounted services.
- **Timing:** Construct and obtain approval of appearance before proceeding with general installation. Retain undisturbed until completion of suspended ceiling installation.

#### 20-10-10/610 Installing suspension grids for boarded ceilings

- **Standard:** To BS EN 13964.
- **Alignment:** Grid components to be accurately aligned and levelled.
- **Stability:** Suspension grid to be secured and braced to give a stable ceiling system resistant to design loads and pressures.
- **Hangers:** Install vertical or near vertical, without bends or kinks. Do not allow hangers to press against fittings, services, or insulation covering ducts/ pipes. Provide additional hangers as necessary to carry specified additional loads.
- **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.
- **Setting out:**
  - **Height above finished floor level:** Refer (45) series drawings.

- **Ceiling voids:** Refer (45) series drawings.
- **Ceiling section centres (nominal):** Contractor's choice.
- **Primary support channel centres (nominal):** Contractor's choice.
- **Hanger centres (nominal):** Contractor's choice.
- **Bracing:** Provide bracing and stiffening at upstands, partition heads, access hatches, etc.
- **Bulkheads:** Support and brace to provide alignment and stability. Provide additional support at base of high upstands.
- **Fixing hanger tops:**
  - **General criteria:** Verify suitability of structural soffit for proposed fixing method. Do not use cartridge or powder activated methods. Do not use rivets for top fixing angle or strap hangers.
  - **Concrete:** Drill and insert suitable expanding anchors. Do not use cast-in or shot-fired fixings.
  - **Aerated concrete:** Fix through from the top of concrete units and provide a system of primary support channels.
  - **Structural steel:** Drill to receive self-tapping screws or bolt fixings, or use proprietary flange clips. Clips should only be used with wire hangers.
  - **Metal roof decking:** Fix to sides of liner tray corrugations using self-tapping stainless steel screws.
  - **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. Avoid fixing into underside of joists.
  - **Hollow structural members:** Submit fixing proposals.

#### 20-10-10/640 Installing boarded ceilings and soffits

- **Standard:** To BS EN 13964.
- **Sequence:** Fix boards to dry-lined walls and partitions before installing ceilings.
- **Orientation of boards:** Fix with long edges at right angles to supports. Stagger ends in adjacent rows.
- **Cut boards:** Cuts to be neat and accurate.
- **Fixings:** Dry wall screws at 230 mm. Reduce to 150 mm at board ends and around room perimeter.
- **Board edges:** All edges to be fully supported. Set heads of screws [fasteners] below board surface and fill flush with surface prior to decoration.
- **Movement joints:** Provide as appropriate for the area of ceiling system and/ or to coincide with movement joints in surrounding structure.
- **Openings:** Cuts to be neat and accurate, to suit sizes and edge details of fittings. Do not distort ceiling system.

#### 20-10-10/645 Installing plasterboard to metal framing

- **Ceiling linings:** Fix securely.
- **Fixing centres (maximum):**
  - **Single layer boarding:** 300 mm centres generally and 200 mm centres at external angles.
  - **Multi-layer boarding:** Inner layers at 300 mm centres round perimeters; face layer at 300 mm centres.
- **Distance of screws from edges of boards (minimum):** 10 mm.
- **Screw heads:** Set in a depression. Do not break paper or gypsum core.

#### 20-10-10/675 Installing integrated services in suspended ceilings

- **Criteria:** Position services accurately, support adequately. Align and level in relation to the ceiling and suspension system. Do not diminish performance of ceiling system.
- **Small fittings:** Support with rigid backing boards or other suitable means. Do not damage or distort the ceiling.
- **Surface spread of flame rating of additional supporting material:** Not less than ceiling material.
- **Services outlets:**
  - **Supported by ceiling system:** Provide additional hangers.
  - **Independently supported:** Provide flanges to support ceiling system.
- **Services in ceiling void:** Space beneath installed services to be sufficient for installation and removal of ceiling system components and periodic removal and replacement of infill units.

#### 20-10-10/690 Chasing cables in plasterboard

- **Location:** Lighting cables to be recessed into plasterboard. Confirm location with architect and MEP consultant prior to execution.
- **Execution:** Submit proposals.
- **Finishing:** Consistent and flush with plasterboard, ready for paint finish.

### System completion

#### 20-10-10/830 Operation and maintenance manual

- **Contents:**
  - **Cleaning:** Cleaning methods and materials.
  - **Decoration:** Recommendations for redecoration.
  - **Fire rating:** Ceiling systems intended for fire protection - limitations placed on subsequent alterations and maintenance procedures, to ensure that their fire performance is not impaired.
  - **Point loads:** Maximum number, position and value of point loads that can be applied to ceiling system after installation.

Ω End of system

## 20-10-20/190 CLG-201 Unit (modular) suspended ceiling system - type A

### System outline

#### 20-10-20/190 CLG-201 Unit (modular) suspended ceiling system type A

- **Description:** Feature Ceiling with Timber Grid Batten in Lift Lobbies
- **System performance:** 20-10-20/205 Design submittals;  
20-10-20/210 Demountable suspended ceiling design requirements type A;  
20-10-20/220 Durability;  
20-10-20/230 Structural performance;  
20-10-20/250 Fire performance to BS EN 13501;  
and 20-10-20/260 Acoustic performance.
- **System manufacturer:** Submit proposals. Bespoke Ceiling.
- **Battens:** Bespoke elm batten attached to exposed ceiling grid. Refer to drawings (35)\_240.
- **Ceiling support:** Submit proposals.
- **Support fasteners:** Submit proposals.
- **Ceiling units:** Plywood panels finished with elm veneer.
- **Samples required:** 20-10-20/505 Prototypes.
- **Execution:** 20-10-20/615 Installing demountable suspended ceilings generally.
- **System completion:** Cleaning of the installed system.  
Operation and maintenance manuals.  
Maintenance by the Contractor during the defects liability period.

### System performance

#### 20-10-20/205 Design submittals

- **Detailed design:**
  - **Requirement:** Complete the design of the system to BS EN 13964.
  - **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
  - **Submittals:** Typical plan, elevation and section drawings at suitable scales.
  - **Timing:** Before manufacture.
  - **Format:** Drawings and specification in BIM compliant format.

#### 20-10-20/210 Demountable suspended ceiling design requirements type A

- **Standard:** To BS EN 13964.
- **Access:** Access panels indicated on drawings.
- **Materials, components and details:** Use only the same as those tested and identified in assessment reports.
- **Integrated services fittings:** Supported independently of suspended ceiling grid.

#### 20-10-20/220 Durability

- **Exposure classification:** To BS EN 13964, Class A.

#### 20-10-20/230 Structural performance

- **Loads:**
  - **General requirements:** The ceiling system must safely support all anticipated loads, including services fittings.
  - **Additional loads or pressures to be sustained by ceiling system:** Luminaires and downlighters as drawings and electrical schedule.
- **Deflection (maximum) between points of support:**
  - **Span under 1200 mm:** Span/ 400
  - **Span 1200–1800 mm:** Span/ 500
  - **Span over 1800 mm:** Span/ 600
- **Test standard:** To BS EN 13964.

#### 20-10-20/250 Fire performance to BS EN 13501

- **Reaction to fire classification:**
  - **Ceiling soffit surfaces:** To BS EN 13501-1. Surface applied finishes shall satisfy a class B-s3-d2 in accordance with BS EN 13501-1 rating in accordance with the requirements of Building Regulations and the requirements of the Building Control Officer, unless otherwise specified.
  - **Ceiling void surfaces:** To BS EN 13501-1. Surface applied finishes shall satisfy a class B-s3-d2 in accordance with BS EN 13501-1 rating in accordance with the requirements of Building Regulations and the requirements of the Building Control Officer, unless otherwise specified.
- **Fire resistance:**
  - **Overall fire resistance (stability, integrity, insulation):** To BS EN 1365-2, REI 120
  - **Ceiling resistance (integrity, insulation):** To BS EN 1365-2, EI 120

#### 20-10-20/260 Acoustic performance

- **Sound absorption:**
  - **Standards:** Measured in accordance with BS EN ISO 354 and rated in accordance with BS EN ISO 11654

### Custom made products

#### 20-10-20/505 Prototypes

- **Requirement:** Mock-up to include one full infill panel.
- **Purpose:** For use as a reference sample.
- **Timing:** Before ordering for project.

### Execution

#### 20-10-20/615 Installing demountable suspended ceilings generally

- **Standard:** To BS EN 13964

- **Height above finished floor level:** Refer (35) series drawings.
- **Stability:** Where required, install additional bracing and stiffening to give a stable ceiling system resistant to design loads and pressures.
- **Out of sequence working:** Supply and fix initial tiles for early fixing of ceiling mounted services; Supply and fix initial tiles for early fixing of heat/ smoke detectors; and Supply and fix initial tiles for early fixing of sprinkler heads.
- **Protective coverings:** Protective coverings to be removed at completion.

Ω End of system

## 20-10-20/190 CLG-202 Unit (modular) suspended ceiling system - type B

### System outline

#### 20-10-20/190 CLG-202 Unit (modular) suspended ceiling system type B

- **Description:** Feature Illuminated glass ceiling to office reception and upper floors lift lobby
- **System performance:** 20-10-20/205 Design submittals;  
20-10-20/220 Durability;  
20-10-20/230 Structural performance;  
20-10-20/250 Fire performance to BS EN 13501;  
and 20-10-20/210 Demountable suspended ceiling design requirements type B.
- **System manufacturer:** RENTEX® Wand- und Deckensysteme GmbH  
Junkersring 11, 76344 Eggenstein-Leopoldshafen, Germany  
Phone: +49 721 783810  
www.rentex-systeme.de
- **Ceiling units:** 45-80-40/301 Rentex Glass Ceiling Light
- **Ceiling support:** Glass supported by aluminium profiles as per manufacturer's standard product details.
- **Samples required:** 20-10-20/505 Prototypes.
- **System accessories:** All accessories necessary to complete the installation and as per manufacturer's requirements.
- **Execution:** 20-10-20/605 Demountable suspended ceiling preliminary installation;  
20-10-20/615 Installing demountable suspended ceilings generally;  
20-10-20/620 Setting out demountable suspended ceilings;  
and 20-10-20/710 Installing integrated services in demountable suspended ceilings.
- **System completion:** 20-10-20/840 Spares for demountable suspended ceilings;  
20-10-20/895 Verification of performance;  
and 20-10-20/830 Operation and maintenance manual.

### System performance

#### 20-10-20/205 Design submittals

- **Detailed design:**
  - **Requirement:** Complete the design of the system to BS EN 13964.
  - **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
  - **Submittals:** Typical plan, elevation and section drawings at suitable scales.
  - **Timing:** Before manufacture.
  - **Format:** Drawings and specification in BIM compliant format.

#### 20-10-20/210 Demountable suspended ceiling design requirements type B

- **Standard:** To BS EN 13964.
- **Access:** Infill units fully demountable as per manufacturer's details.



- **Materials, components and details:** Use only the same as those tested and identified in assessment reports.
- **Integrated services fittings:** Supported independently of suspended ceiling grid.

#### 20-10-20/220 Durability

- **Exposure classification:** To BS EN 13964, Class A.

#### 20-10-20/230 Structural performance

- **Loads:**
  - **General requirements:** The ceiling system must safely support all anticipated loads, including services fittings.
  - **Additional loads or pressures to be sustained by ceiling system:** Luminaires and downlighters as drawings and electrical schedule.
- **Deflection (maximum) between points of support:**
  - **Span under 1200 mm:** Span/ 400
  - **Span 1200–1800 mm:** Span/ 500
  - **Span over 1800 mm:** Span/ 600
- **Test standard:** To BS EN 13964.

#### 20-10-20/250 Fire performance to BS EN 13501

- **Reaction to fire classification:**
  - **Ceiling soffit surfaces:** To BS EN 13501-1. Surface applied finishes shall satisfy a class B-s3-d2 in accordance with BS EN 13501-1 rating in accordance with the requirements of Building Regulations and the requirements of the Building Control Officer, unless otherwise specified.
  - **Ceiling void surfaces:** To BS EN 13501-1. Surface applied finishes shall satisfy a class B-s3-d2 in accordance with BS EN 13501-1 rating in accordance with the requirements of Building Regulations and the requirements of the Building Control Officer, unless otherwise specified.
- **Fire resistance:**
  - **Overall fire resistance (stability, integrity, insulation):** To BS EN 1365-2, REI 120
  - **Ceiling resistance (integrity, insulation):** To BS EN 1365-2, EI 120

## Products

#### 45-80-40/301 Rentex Glass Ceiling Light

- **Manufacturer:** RENTEX® Wand- und Deckensysteme GmbH  
Junkersring 11, 76344 Eggenstein-Leopoldshafen, Germany  
Phone: +49 721 783810  
www.rentex-systeme.de
- **Product:** Glass Ceiling Light
- **Glass Type:** Frosted Glass
- **Glass Thickness:** 6mm

## Custom made products

### 20-10-20/505 Prototypes

- **Requirement:** Mock-up to include one full infill panel.
- **Purpose:** For use as a reference sample.
- **Timing:** Before ordering for project.

## Execution

### 20-10-20/605 Demountable suspended ceiling preliminary installation

- **Installation requirements:** Complete an area of suspended ceiling in an agreed location.
- **Position:** To be agreed with architect.
- **Extent of area:** One complete bay of wall (double-height) and ceiling installation.
- **Features to be included:** All features including corner piece, concealed and mounted services.
- **Timing:** Construct and obtain approval of appearance before proceeding with general installation. Retain undisturbed until completion of demountable suspended ceiling installation.

### 20-10-20/615 Installing demountable suspended ceilings generally

- **Standard:** To BS EN 13964
- **Height above finished floor level:** Refer (35) series drawings.
- **Stability:** Where required, install additional bracing and stiffening to give a stable ceiling system resistant to design loads and pressures.
- **Out of sequence working:** Supply and fix initial tiles for early fixing of ceiling mounted services; Supply and fix initial tiles for early fixing of heat/ smoke detectors; and Supply and fix initial tiles for early fixing of sprinkler heads.
- **Protective coverings:** Protective coverings to be removed at completion.

### 20-10-20/620 Setting out demountable suspended ceilings

- **Appearance of completed ceiling:** To manufacturer's product standards.
- **Building elements and features to which the ceiling systems relate:** Give notice if not square, straight or level.
- **Grid:** Position to suit infill unit sizes. Allow for permitted deviations from nominal sizes of infill unit. Refer (45) series drawings.
- **Infill and access units, integrated services:** Fit correctly and align.
- **Edge or perimeter infill units size (minimum):** Refer (35) series drawings.
- **Corner infill units size (minimum):** Refer (35) series drawings.
- **Infill joints and exposed suspension members:** Straight, aligned and parallel to walls.

### 20-10-20/710 Installing integrated services in demountable suspended ceilings

- **Criteria:** Position services accurately, support adequately. Align and level in relation to the ceiling and suspension system. Do not diminish performance of ceiling system.
- **Small fittings:** Support with rigid backing boards or other suitable means. Do not damage or distort the ceiling.

- **Surface spread of flame rating of additional supporting material:** Not less than ceiling material.
- **Services outlets:**
  - **Supported by ceiling system:** Provide additional hangers.
  - **Independently supported:** Provide flanges to support ceiling system.
- **Services in ceiling void:** Space beneath installed services to be sufficient for installation and removal of ceiling system components and periodic removal and replacement of infill units.

## System completion

### 20-10-20/830 Operation and maintenance manual

- **Contents:**
  - **Replacement:** Correct methods for removing and replacing components.
  - **Cleaning:** Cleaning methods and materials.
  - **Decoration:** Recommendations for redecoration.
  - **Fire rating:** Ceiling systems intended for fire protection - limitations placed on subsequent alterations and maintenance procedures, to ensure that their fire performance is not impaired.
  - **Point loads:** Maximum number, position and value of point loads that can be applied to ceiling system after installation.

### 20-10-20/840 Spares for demountable suspended ceilings

- **Spares to be supplied:** To be agreed with client.

### 20-10-20/895 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 20-15-90/120 PAV- 101 Flag and slab bound paving system - type A

### System outline

#### 20-15-90/120 PAV-101 Flag and slab bound paving system type A

- **Description:** Concrete flags to external pavements
- **System performance:** 20-15-90/255 Slip and skid resistance of unit pavements.  
Note where specification of the Landscape designer and the Architect differ the Landscape designer's information take precedent.
- **System manufacturer:** Refer to Landscape Designer's information.
- **Samples required:** 20-15-90/305 Product samples type A.
- **Pavement Lights:** 45-20-60/325 Precast concrete glazed pavement panels
- **Execution:** Install in accordance with manufacturers information.  
Allow for tolerances (lipping to adjacent surfaces when installed, surface flatness of the complete panels with installed glass lenses).

### System performance

#### 20-15-90/255 Slip and skid resistance of unit pavements

- **Slip resistance value – water wet (minimum):**
  - **Level surfaces:** To BS 7976-2, PTV of 36.
- **Skid resistance:** PSV to HA DMRB 7.5.1 of 65.
- **Demonstrating performance:**
  - **Submittals:** Test results on existing example system.
  - **Testing company:** UKAS accredited (or European equivalent).

### Products

#### 20-15-90/305 Product samples type A

- **Manufacturer:** Landscape designer's choice.
- **Submittals:** Submit proposals.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project.

#### 45-20-60/325 Precast concrete glazed pavement panels

- **Manufacturer:** Luxcrete Ltd. Unit 2, Firbank Industrial Estate, Dallow Road, Luton, Bedfordshire, LU1 1TW, 01582 488 767 | 0208 9657292  
enquiries@luxcrete.co.uk
- **Panel configuration:** Bespoke.
- **Panel size:**

- **Overall size (length x width x depth):** Max. 1500 x 4440 x 165mm
- **Clear span:** Max 1500mm
- **Bearing (minimum):** Min. 100mm
- **Glazing units:**
  - **Type:** Paver with regular lens pattern
  - **Form:** Manufacturer's standard.
  - **Face dimensions (l x b, or diameter):** 100 x 100mm
  - **Thickness (h):** Manufacturer's standard.
  - **Centre spacing:** 165mm
  - **Pattern:** Manufacturer's standard.
  - **Colour:** Natural
  - **Surface finish:** Sand blasted
- **Ventilation provision through panel:** Cast in galvanized cast iron ventilator units
- **Concrete:**
  - **Type:** Proprietary to BS 8500-1 and BS 8500-2.
  - **Identity:** Manufacturer's mix reference
  - **Colour:** Natural
  - **Wearing surface finish:** Trowlled
  - **Soffit surface finish:** As cast
- **Concrete reinforcement:**
  - **Carbon steel:** To BS 4449, BS 4482, BS 4483 and BS EN 13877-3 as appropriate.
  - **Cutting and bending:** To BS 8666.
  - **Condition at time of placement:** Clean, free of corrosive pitting, loose materials and substances that may adversely affect reinforcement, concrete, or bond between the two.
- **Cast-in lifting sockets:** As per manufacturer's standards

Ω End of system

## 20-15-90/120 PAV- 103 Flag and slab bound paving system - type B

### System outline

#### 20-15-90/120 PAV-103 Flag and slab bound paving system type B

- **Description:** Porcelain stone pavers to Dover Yard alley.
- **System performance:** 20-15-90/255 Slip and skid resistance of unit pavements.  
Note where specification of the Landscape designer and the Architect differ the Landscape designer's information take precedent.
- **System manufacturer:** Refer to Landscape Designer's information.
- **Standard:** To BS 7533-12.
- **Execution:** Install in accordance with manufacturers information.  
Allow for tolerances (lipping to adjacent surfaces when installed).

### System performance

#### 20-15-90/255 Slip and skid resistance of unit pavements

- **Slip resistance value – water wet (minimum):**
  - **Level surfaces:** To BS 7976-2, PTV of 36.
- **Skid resistance:** PSV to HA DMRB 7.5.1 of 65.
- **Demonstrating performance:**
  - **Submittals:** Test results on existing example system.
  - **Testing company:** UKAS accredited (or European equivalent).

Ω End of system

## 20-15-90/140 PAV- 102 Small unit mortar-bedded paving system

### System outline

#### 20-15-90/140 PAV-102 Small unit mortar-bedded paving system

- **Description:** Granite cobbles to external pavements.
- **System performance:** 20-15-90/255 Slip and skid resistance of unit pavements.  
Note where specification of the Landscape designer and the Architect differ the Landscape designer's information take precedent.
- **System manufacturer:** Refer to Landscape Designer's information.
- **Waterproofing:** As per clause 20-50-30/135 Liquid applied system to hard landscaping type D
- **Samples required:** 20-15-90/305 Product samples type B.
- **Execution:** Install in accordance with manufacturers information.  
Allow for tolerances (lipping to adjacent surfaces when installed).

### System performance

#### 20-15-90/255 Slip and skid resistance of unit pavements

- **Slip resistance value – water wet (minimum):**
  - **Level surfaces:** To BS 7976-2, PTV of 36.
- **Skid resistance:** PSV to HA DMRB 7.5.1 of 65.
- **Demonstrating performance:**
  - **Submittals:** Test results on existing example system.
  - **Testing company:** UKAS accredited (or European equivalent).

### Products

#### 20-15-90/305 Product samples type B

- **Manufacturer:** Charcon Hard Landscaping or similar approved.
- **Submittals:** Submit proposals.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project.

#### 45-20-64/310 Natural stone cobbles

- **Supplied by:** Submit proposals.
- **Cobbles:** Refer to Landscape designer's specification.
- **Size:** 150 x 150 x 150mm
- **Colour:** Submit proposals for landscape designer approval.

- **Washing:** Required.

Ω End of system



## 20-25-75/170 RFG-101 Rooflight system fixed - type A

### System outline

#### 20-25-75/170 RFG-101 Rooflight system fixed type A

- **Description:** Bespoke trapezoidal type A linked plateau roof lights split into four sections - fixed.
- **System performance:** 20-25-75/210 General system performance of rooflights, roof windows and roof ventilators;  
20-25-75/227 Durability of rooflights, roof windows and roof ventilators;  
20-25-75/230 Structural performance of rooflights, roof windows and roof ventilators;  
20-25-75/254 Avoidance of condensation on rooflights, roof windows and roof ventilators;  
and 20-25-75/270 Acoustic performance of rooflights, roof windows and roof ventilators – weighted sound reduction index.
- **System manufacturer:** The Roof Light Company, Wychwood business Centre, Milton Road, Shipton-under-Wychwood, OX7 6XU.  
Web: [www.therooflightcompany.co.uk](http://www.therooflightcompany.co.uk)  
Email: [info@therooflightcompany.co.uk](mailto:info@therooflightcompany.co.uk)  
Tel: +44(0) 1993 833108
- **Rooflight:** Bespoke trapezoidal type A linked plateau roof light. Refer to 16014\_(47)\_101 for clear internal dimensions.
- **Installation fasteners:** Coach bolts fixed through fixing lugs
- **Trim:** Structural kerb to all four sides.
- **Ironmongery:** Fixed with bosses.
- **Glazing details:** 6mm SGG Planitherm One II toughened outer, 16mm 90% argon filled cavity, 11.5mm annealed laminate with lonomer interlayer inner.
- **Blind:** Submit proposals. Motorised operation.
- **Samples required:** Cross section as per manufacturer's standard.
- **System accessories:** Including internal linings which have been pre treated and finished in white RAL 9010. Linings can also be painted on site.
- **Execution:** To be in accordance with the manufacturer's installation details. 20-25-75/610 Preconstruction survey for rooflights, roof windows and roof ventilators;  
20-25-75/615 Workmanship for rooflights, roof windows and roof ventilators generally;  
20-25-75/605 Preliminary installation of rooflights, roof windows and roof ventilators;  
20-25-75/620 Protection of rooflight, roof window and roof ventilator components  
and 20-25-75/645 Forming kerbs for rooflights, roof windows and roof ventilators.
- **System completion:** Cleaning of the installed system; Testing the installed system; Operation and maintenance manuals; Spares; Maintenance by the Contractor during the defects liability period.

### System performance

#### 20-25-75/210 General system performance of rooflights, roof windows and roof ventilators

- **Standard:** BS EN 14351-1.

#### 20-25-75/227 Durability of rooflights, roof windows and roof ventilators

- **Operation and strength characteristics:** To BS 6375-2.

- **Minimum design life:** 25 years.
- **Secondary components:**
  - **Design life duration:** Submit details for each product together with required maintenance regime, replacement periods and methods of replacement.
- **Electrolytic corrosion:** Prevent.
- **Submittals:** Prior to completion of detailed design, submit required maintenance regime, replacement periods and methods of replacement for approval.

#### 20-25-75/230 Structural performance of rooflights, roof windows and roof ventilators

- **General criteria:** Resist wind loads, dead loads and design live loads.
- **Deflections and movements:** Accommodate without damage.
- **General movement:** Accommodate anticipated building movement.

#### 20-25-75/254 Avoidance of condensation on rooflights, roof windows and roof ventilators

- **Standard:** To BS 5250 and BS EN ISO 13788.
- **Requirement:** The risk of condensation markedly reduced on internal surfaces of framing members or glazing/ infilling in the designated conditions.
- **Condensation risk:** Determine risk in accordance with BS 5250, Annex D and provide effective vapour control.

#### 20-25-75/270 Acoustic performance of rooflights, roof windows and roof ventilators – weighted sound reduction index

- **Standards:** Laboratory tested in accordance with BS EN ISO 10140-2 and rated in accordance with BS EN ISO 717-1.
- **Testing company:** UKAS accredited (or European equivalent).

### Execution

#### 20-25-75/605 Preliminary installation of rooflights, roof windows and roof ventilators

- **Purpose:** For use as an installation reference sample.
- **Timing:** Construct and obtain approval of appearance before proceeding with general installation. Retain undisturbed until completion of glazing installation.

#### 20-25-75/610 Preconstruction survey for rooflights, roof windows and roof ventilators

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

#### 20-25-75/615 Workmanship for rooflights, roof windows and roof ventilators generally

- **Integrity:** Roof window system installations must be wind and watertight under all conditions with full allowance made for deflections and other movements.
- **Materials:**
  - **Compatibility:** Glass and plastics, surround materials, sealers, primers and paints and clear finishes to be used together to be compatible. Avoid contact between glazing panes and/ or units and alkaline materials such as cement and lime.

- **Protection:** Keep materials dry until fixed. Protect insulating glass units and plastics glazing units from the sun and other heat sources.

#### **20-25-75/620 Protection of rooflight, roof window and roof ventilator components**

- **Requirement:** In accordance with any product or installer warranties, and under conditions to prevent warp, twist, damage to component structure, fittings and surfaces, including damage caused by exposure to temperature extremes and contact with deleterious materials.

#### **20-25-75/645 Forming kerbs for rooflights, roof windows and roof ventilators**

- **Setting out:** Form around opening and fix to exact finished level.
- **Components:**
  - **Kerbs:**
    - Material:** Timber
    - Fixing:** Screws
  - **Flashings:**
    - Material:** As per manufacturer's standard

Ω End of system

## 20-25-75/170 RFG-102 Rooflight system openable - type B

### System outline

#### 20-25-75/170 RFG-102 Rooflight system openable type B

- **Description:** Bespoke rectangular type A linked plateau roof lights split into two sections - openable.
- **System performance:** 20-25-75/210 General system performance of rooflights, roof windows and roof ventilators;  
20-25-75/227 Durability of rooflights, roof windows and roof ventilators;  
20-25-75/230 Structural performance of rooflights, roof windows and roof ventilators;  
20-25-75/254 Avoidance of condensation on rooflights, roof windows and roof ventilators;  
and 20-25-75/270 Acoustic performance of rooflights, roof windows and roof ventilators – weighted sound reduction index.
- **System manufacturer:** The Roof Light Company, Wychwood business Centre, Milton Road, Shipton-under-Wychwood, OX7 6XU.  
Web: [www.therooflightcompany.co.uk](http://www.therooflightcompany.co.uk)  
Email: [info@therooflightcompany.co.uk](mailto:info@therooflightcompany.co.uk)  
Tel: +44(0) 1993 833108
- **Rooflight:** Bespoke trapezoidal type A linked plateau roof light. Refer to 16014\_(47)\_103 for clear internal dimensions.
- **Installation fasteners:** Coach bolts fixed through fixing lugs
- **Trim:** Structural frame to all four sides.
- **Ironmongery:** Motorised including control panel and switch.
- **Glazing details:** 6mm SGG Planitherm One II toughened outer, 16mm 90% argon filled cavity, 11.5mm annealed laminate with Ionomer interlayer inner.
- **Hardware:** Operating hardware.
- **Operation:** Motorised including control panel and switch located in the lift lobby on level 2.
- **System accessories:** Including internal linings which have been pre treated and finished in white RAL 9010.  
Motor type to be confirmed at design stage.
- **Execution:** To be in accordance with the manufacturer's installation details. 20-25-75/610 Preconstruction survey for rooflights, roof windows and roof ventilators;  
20-25-75/615 Workmanship for rooflights, roof windows and roof ventilators generally;  
20-25-75/605 Preliminary installation of rooflights, roof windows and roof ventilators;  
20-25-75/620 Protection of rooflight, roof window and roof ventilator components  
and 20-25-75/645 Forming kerbs for rooflights, roof windows and roof ventilators.
- **System completion:** Cleaning of the installed system; Testing the installed system; Operation and maintenance manuals; Spares; Maintenance by the Contractor during the defects liability period.

### System performance

#### 20-25-75/210 General system performance of rooflights, roof windows and roof ventilators

- **Standard:** BS EN 14351-1.

**20-25-75/227 Durability of rooflights, roof windows and roof ventilators**

- **Operation and strength characteristics:** To BS 6375-2.
- **Minimum design life:** 25 years.
- **Secondary components:**
  - **Design life duration:** Submit details for each product together with required maintenance regime, replacement periods and methods of replacement.
- **Electrolytic corrosion:** Prevent.
- **Submittals:** Prior to completion of detailed design, submit required maintenance regime, replacement periods and methods of replacement for approval.

**20-25-75/230 Structural performance of rooflights, roof windows and roof ventilators**

- **General criteria:** Resist wind loads, dead loads and design live loads.
- **Deflections and movements:** Accommodate without damage.
- **General movement:** Accommodate anticipated building movement.

**20-25-75/254 Avoidance of condensation on rooflights, roof windows and roof ventilators**

- **Standard:** To BS 5250 and BS EN ISO 13788.
- **Requirement:** The risk of condensation markedly reduced on internal surfaces of framing members or glazing/ infilling in the designated conditions.
- **Condensation risk:** Determine risk in accordance with BS 5250, Annex D and provide effective vapour control.

**20-25-75/270 Acoustic performance of rooflights, roof windows and roof ventilators – weighted sound reduction index**

- **Standards:** Laboratory tested in accordance with BS EN ISO 10140-2 and rated in accordance with BS EN ISO 717-1.
- **Testing company:** UKAS accredited (or European equivalent).

**Execution**

**20-25-75/605 Preliminary installation of rooflights, roof windows and roof ventilators**

- **Purpose:** For use as an installation reference sample.
- **Timing:** Construct and obtain approval of appearance before proceeding with general installation. Retain undisturbed until completion of glazing installation.

**20-25-75/610 Preconstruction survey for rooflights, roof windows and roof ventilators**

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

**20-25-75/615 Workmanship for rooflights, roof windows and roof ventilators generally**

- **Integrity:** Roof window system installations must be wind and watertight under all conditions with full allowance made for deflections and other movements.

- **Materials:**

- **Compatibility:** Glass and plastics, surround materials, sealers, primers and paints and clear finishes to be used together to be compatible. Avoid contact between glazing panes and/ or units and alkaline materials such as cement and lime.
- **Protection:** Keep materials dry until fixed. Protect insulating glass units and plastics glazing units from the sun and other heat sources.

#### **20-25-75/620 Protection of rooflight, roof window and roof ventilator components**

- **Requirement:** In accordance with any product or installer warranties, and under conditions to prevent warp, twist, damage to component structure, fittings and surfaces, including damage caused by exposure to temperature extremes and contact with deleterious materials.

#### **20-25-75/645 Forming kerbs for rooflights, roof windows and roof ventilators**

- **Setting out:** Form around opening and fix to exact finished level.
- **Components:**
  - **Kerbs:**

**Material:** Timber

**Fixing:** Screws
  - **Flashings:**

**Material:** As per manufacturer's standard

Ω End of system

## 20-50-30/135 RFS-101 Liquid applied inverted roof covering system - type A

### System outline

#### 20-50-30/135 RFS-101 Liquid applied inverted roof covering system type A

- **Description:** Hot melt inverted roof covering system - stone pavers.
- **System performance:** 20-50-30/210 Roof covering design;  
20-50-30/240 Thermal design;  
20-50-30/260 Fire performance – external;  
and 20-50-30/270 Durability.
- **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.  
Tel: 01473 257 671. Fax: 01473 230 761. Email: technical@bauder.co.uk
- **Preparation:**
  - **Horizontal work:** " Surfaces to be coated:
    - Firmly fixed, clean, dry, smooth, free from frost, contaminants, loose material, voids, protrusions and organic growths.
    - Compatible with coating system." Preliminary work: Complete (including formation of upstands, kerbs, box gutters, sumps, grooves, chases, expansion joints, and fixing of battens, fillets, anchoring plugs/ strips, etc.).  
" Moisture content and stability: Must not impair integrity of roof.  
" All concrete surfaces shall be cured a minimum of 14 days and shall be dry. All concrete placed into a profiled metal deck shall be cured a minimum of 60 days.  
" Concrete Surfaces shall be to a wood float finish and uniform. Steel float finishes are too smooth and can produce laitance on its surface, which will need to be removed, prior to priming. Please refer to the manufacturer's Installation and Quality Assurance Manual for important information.  
" Where provided, the falls/cross-falls should be designed to 1:40 to achieve minimum finished falls of 1:80 to comply with drainage requirements of BS 6229:2003 and current codes of practice BS 8217:2005. No deflections or back-falls present if the deck is designed to achieve a 0° level finished surface.  
" Before priming and application of the membrane, the substrate shall be clean and dry, free from surface water, ice, snow or frost, dust, dirt, oil, grease, curing compounds of any foreign matter detrimental to the adhesion of the hot applied rubberised bitumen system. Any scaling or laitance concrete shall be sandblasted off.  
" Voids, cracks, holes, honeycombs and other damaged horizontal or vertical surfaces shall be repaired before application of the membrane.  
" The contractor shall review all surfaces to receive the membrane and report any discrepancies prior to installing the waterproofing system.  
Use Bauder Polymer Primer for timber substrate structure.
  - **Skirtings and vertical work:** " Preliminary reinforcement strip: The correct reinforcement strip must first be applied at all right angled abutments, penetrations, outlets and fixings etc before the application of the Bakor 790-11 detailing (except for when the alternative two-layer SBS membrane system is used). Please see clause 750. If unsure about the correct reinforcing material for any given situation, please refer to the Bauder Installation and Quality Assurance Manual or contact Bauder's Technical Department for confirmation or further information.  
" Waterproofing application:
    - First layer: Bakor 790-11 hot melt rubberised bitumen membrane, applied 3mm thick up the upstands and out onto the deck a minimum of 200mm.

- Reinforcement: Bauder Polyester reinforcing sheet to be embedded into the first layer of Bakor 790-11, up the upstands, and dressed down and out onto the flat by 75mm. Laps to be a minimum of 10mm. The reinforcing sheet must be applied when the hot melt rubberised bitumen is still hot in order to ensure a full adhesion and a partial bitumen bleed through.
- Second layer: Bakor 790-11 hot melt rubberised bitumen membrane, onto the deck and upstand over the reinforcement layer, 3mm thick up the upstands and out onto the deck a minimum of 200mm ensuring to "feather" down towards the edge.
- Protection layer to upstands: as specified above.
- Termination Bar: Proprietary Termination Bar to be used to fix the waterproofing and access/protection which terminates on a vertical plane. Fixings to be at a minimum 300mm centres. Bauder Mastic Sealant to be applied in a neat bead both behind and along the top edge of the termination bar.
- Top edges of coatings: Where not protected by flashings, apply into chases cut to a depth of not less than 10 mm.
- Completion of chases: When coatings are fully cured, prepare chase by priming with Bauder Mastic Sealant primer and apply sealant as per manufacturer's instructions.
- Sealant: Bauder Mastic Sealant.
- **Liquid applied waterproof coating:**
  - **Type:** BAUDER BAKOR MONOLITHIC MEMBRANE ROOF SYSTEM. Hot applied; rubberised bitumen with reinforcement layer; fully bonded system; product code: 790-11 Hot Melt Waterproofing
  - **Reinforcement:** " Appropriate 150 mm wide reinforcement strip, applied centrally to the nick of the upstand i.e. taken 75 mm up the vertical and 75 mm out to the horizontal. Apply to all junctions at abutment upstands, penetrations and outlets, also to joints and fixings in discontinuous unit substrates. Bed in a preliminary application of Bakor hot melt coating. Smooth out wrinkles and press into coating to exclude air. Lap all joints between lengths. " Bauder Polyester reinforcing strip: suitable with concrete decks where the upstand is either monolithically cast insitu, subsequently cast insitu or constructed from brick or block work. " Bauder Neoprene Reinforcement: to be used in all other situations i.e. plywood or OSB substrates with abutment upstands or kerbs constructed from the same material, timber or metal sheeting. This reinforcement must also be used at all outlets, penetrations, fixings etc.
  - **Surface treatment:** Access coating bitumen membrane with 60g/m2 glass tissue reinforcement; fully bonded into the upper most layer of the 790-11; product code: AP1 Coating Access Sheet.
- **Insulation:**
  - **Type:** High performance rigid expanded polystyrene insulation; lightweight; high compressive strength; resistant to water; product code: JFRI 200 Insulation
  - **Fixing:** As recommended by the system manufacturer.
- **Water control layer:** " Setting out: To be rolled out loose over the Insulation. The material should be dressed up all upstand abutments and details to the height of the surfacing. " Laps: The material is to be lapped a minimum of 300mm in a direction that helps shed water from the roof rather than beneath the membrane. " The ballast loading /landscaping should be applied immediately after the vapour permeable membrane to ensure it is secure against wind uplift. product code: JFRI VPM
- **Ballast:** 45-20-64/345 Paving tiles.
- **System accessories:** Bauder Polymer Primer
- **Execution:** GENERAL WORKMANSHIP REQUIREMENTS  
Installation of the Bauder waterproofing system may only be carried out by trained and certified operatives approved by Bauder Ltd and who carry current ID badges. These should be available for inspection at all times.



Workmanship must comply with current industry Codes of Practice (or alternatively Bauder Ltd's specification where otherwise stated). Non-compliant workmanship will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued.

All waterproofing materials and system components must be supplied by Bauder Ltd, unless otherwise stated. Any sub-standard materials or un-authorised alternatives will be rejected.

Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System must be carried out by properly trained and qualified tradesmen.

Any structural damage, peculiarities or details discovered that might affect the performance of the Bauder system, should be reported immediately to the client's representative and Bauder Limited in order that they may assist in overcoming the problem.

Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the Bauder Site Technician until all associated trades are complete and the roof areas are clear from all debris and protection layers.

It is imperative that the Bauder Approved contractor conforms to the workmanship criteria as listed above. Any deviation will result in the contract being considered unguaranteeable.

All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and recommissioned on completion of the roofing works in accordance with the client's detailed specification.

Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new waterproofing.

If any items of plant/equipment are to be situated on the finished roof, a sacrificial layer of Bauder capping sheet is to be loose laid beneath. This is to extend a minimum 25mm past the point of contact on all sides. In the case of heavy items it may be necessary to introduce a load-spreading slab, please contact Bauder for further advice.

All lead work to be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Sheet Association.

- **System completion: INSPECTION**

Coating surfaces: Check when cured for pinholes and discontinuities.

Defective areas: Apply another layer of coating.

Interim and final roof inspections: This is a requirement for guarantee and must to be carried out in strict accordance with the Bauder Limited requirements.

The final inspection of the waterproofing and the Electronic roof integrity test. must be carried out and approved by Bauder prior to any landscaping being installed. This is mandatory for the issue of the guarantee.

Notification: It is the responsibility of the approved contractor to advise the Bauder Field Technician when the roof is ready for the Final Inspection.

If project needs to follow NHBC Requirements: The waterproofing must be visually inspected and electronically tested for waterproofing integrity, faults rectified, and retested prior to the installation of any landscaping products. The results of the test(s) should be made available to the NHBC.

**COMPLETION**

Roof areas: Clean.

- Outlets: Clear.

- Flashings: Dressed into place.

Work necessary to provide a weather tight finish: Complete.

Storage of materials on finished surface: Not permitted.

Completed coatings: Protect against damage from traffic and adjacent or high level working.

## System performance

### 20-50-30/210 Roof covering design

- **General:**
  - **Waterproof covering:** Secure and weathertight.
  - **Roof surfaces:** Free draining.

### 20-50-30/240 Thermal design

- **Requirement:** Determine type and thickness of insulation to satisfy thermal performance.
- **Thermal transmittance (U-value) of roof (maximum):** 0.15 W/m<sup>2</sup>·K.

### 20-50-30/260 Fire performance – external

- **External fire exposure:**
  - **Standard:** To BS EN 13501-5.
  - **Requirement:** BROOF (t4).

### 20-50-30/270 Durability

- **System warranty:** 15 years.

## Products

### 45-20-64/345 Paving tiles

- **Manufacturer:** To Landscape Designer's Specification
- **Tile material:** Porcelain Stone / Natural Stone
- **Colour:** Submit proposals.
- **Finish:** Submit proposals.
- **Plan shape:** Square
- **Size (minimum):** 600 x 600 mm
- **Thickness (minimum):** 10.5 mm

Ω End of system

## 20-50-30/135 RFS-102 Liquid applied inverted roof covering system - type B

### System outline

#### 20-50-30/135 RFS-102 Liquid applied inverted roof covering system type B

- **Description:** Hot melt inverted roof covering system - concrete pavers.
- **System performance:** 20-50-30/210 Roof covering design;  
20-50-30/240 Thermal design;  
20-50-30/260 Fire performance – external;  
and 20-50-30/270 Durability.
- **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.  
Tel: 01473 257 671. Fax: 01473 230 761. Email: technical@bauder.co.uk
- **Preparation:**
  - **Horizontal work:** " Surfaces to be coated:
    - Firmly fixed, clean, dry, smooth, free from frost, contaminants, loose material, voids, protrusions and organic growths.
    - Compatible with coating system." Preliminary work: Complete (including formation of upstands, kerbs, box gutters, sumps, grooves, chases, expansion joints, and fixing of battens, fillets, anchoring plugs/ strips, etc.).  
" Moisture content and stability: Must not impair integrity of roof.  
" All concrete surfaces shall be cured a minimum of 14 days and shall be dry. All concrete placed into a profiled metal deck shall be cured a minimum of 60 days.  
" Concrete Surfaces shall be to a wood float finish and uniform. Steel float finishes are too smooth and can produce laitance on its surface, which will need to be removed, prior to priming. Please refer to the manufacturer's Installation and Quality Assurance Manual for important information.  
" Where provided, the falls/cross-falls should be designed to 1:40 to achieve minimum finished falls of 1:80 to comply with drainage requirements of BS 6229:2003 and current codes of practice BS 8217:2005. No deflections or back-falls present if the deck is designed to achieve a 0° level finished surface.  
" Before priming and application of the membrane, the substrate shall be clean and dry, free from surface water, ice, snow or frost, dust, dirt, oil, grease, curing compounds of any foreign matter detrimental to the adhesion of the hot applied rubberised bitumen system. Any scaling or laitance concrete shall be sandblasted off.  
" Voids, cracks, holes, honeycombs and other damaged horizontal or vertical surfaces shall be repaired before application of the membrane.  
" The contractor shall review all surfaces to receive the membrane and report any discrepancies prior to installing the waterproofing system.  
Use Bauder Polymer Primer for timber substrate structure.
  - **Skirtings and vertical work:** " Preliminary reinforcement strip: The correct reinforcement strip must first be applied at all right angled abutments, penetrations, outlets and fixings etc before the application of the Bakor 790-11 detailing (except for when the alternative two-layer SBS membrane system is used). Please see clause 750. If unsure about the correct reinforcing material for any given situation, please refer to the Bauder Installation and Quality Assurance Manual or contact Bauder's Technical Department for confirmation or further information.  
" Waterproofing application:
    - First layer: Bakor 790-11 hot melt rubberised bitumen membrane, applied 3mm thick up the upstands and out onto the deck a minimum of 200mm.

- Reinforcement: Bauder Polyester reinforcing sheet to be embedded into the first layer of Bakor 790-11, up the upstands, and dressed down and out onto the flat by 75mm. Laps to be a minimum of 10mm. The reinforcing sheet must be applied when the hot melt rubberised bitumen is still hot in order to ensure a full adhesion and a partial bitumen bleed through.
- Second layer: Bakor 790-11 hot melt rubberised bitumen membrane, onto the deck and upstand over the reinforcement layer, 3mm thick up the upstands and out onto the deck a minimum of 200mm ensuring to "feather" down towards the edge.
- Protection layer to upstands: as specified above.
- Termination Bar: Proprietary Termination Bar to be used to fix the waterproofing and access/protection which terminates on a vertical plane. Fixings to be at a minimum 300mm centres. Bauder Mastic Sealant to be applied in a neat bead both behind and along the top edge of the termination bar.
- Top edges of coatings: Where not protected by flashings, apply into chases cut to a depth of not less than 10 mm.
- Completion of chases: When coatings are fully cured, prepare chase by priming with Bauder Mastic Sealant primer and apply sealant as per manufacturer's instructions.
- Sealant: Bauder Mastic Sealant.
- **Liquid applied waterproof coating:**
  - **Type:** BAUDER BAKOR MONOLITHIC MEMBRANE ROOF SYSTEM. Hot applied; rubberised bitumen with reinforcement layer; fully bonded system; product code: 790-11 Hot Melt Waterproofing
  - **Reinforcement:** " Appropriate 150 mm wide reinforcement strip, applied centrally to the nick of the upstand i.e. taken 75 mm up the vertical and 75 mm out to the horizontal. Apply to all junctions at abutment upstands, penetrations and outlets, also to joints and fixings in discontinuous unit substrates. Bed in a preliminary application of Bakor hot melt coating. Smooth out wrinkles and press into coating to exclude air. Lap all joints between lengths. " Bauder Polyester reinforcing strip: suitable with concrete decks where the upstand is either monolithically cast insitu, subsequently cast insitu or constructed from brick or block work. " Bauder Neoprene Reinforcement: to be used in all other situations i.e. plywood or OSB substrates with abutment upstands or kerbs constructed from the same material, timber or metal sheeting. This reinforcement must also be used at all outlets, penetrations, fixings etc.
  - **Surface treatment:** Access coating bitumen membrane with 60g/m2 glass tissue reinforcement; fully bonded into the upper most layer of the 790-11; product code: AP1 Coating Access Sheet.
- **Insulation:**
  - **Type:** High performance rigid expanded polystyrene insulation; lightweight; high compressive strength; resistant to water; product code: JFRI 200 Insulation
- **Water control layer:** " Setting out: To be rolled out loose over the Insulation. The material should be dressed up all upstand abutments and details to the height of the surfacing. " Laps: The material is to be lapped a minimum of 300mm in a direction that helps shed water from the roof rather than beneath the membrane. " The ballast loading /landscaping should be applied immediately after the vapour permeable membrane to ensure it is secure against wind uplift. product code: JFRI VPM
- **Ballast:** 45-20-64/395 Precast concrete flags type A.
- **System accessories:** Bauder Polymer Primer
- **Execution:** GENERAL WORKMANSHIP REQUIREMENTS  
Installation of the Bauder waterproofing system may only be carried out by trained and certified operatives approved by Bauder Ltd and who carry current ID badges. These should be available for inspection at all times.  
Workmanship must comply with current industry Codes of Practice (or alternatively Bauder

Ltd's specification where otherwise stated). Non-compliant workmanship will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued.

All waterproofing materials and system components must be supplied by Bauder Ltd, unless otherwise stated. Any sub-standard materials or un-authorised alternatives will be rejected. Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System must be carried out by properly trained and qualified tradesmen. Any structural damage, peculiarities or details discovered that might affect the performance of the Bauder system, should be reported immediately to the client's representative and Bauder Limited in order that they may assist in overcoming the problem.

Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the Bauder Site Technician until all associated trades are complete and the roof areas are clear from all debris and protection layers.

It is imperative that the Bauder Approved contractor conforms to the workmanship criteria as listed above. Any deviation will result in the contract being considered unguaranteeable.

All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and recommissioned on completion of the roofing works in accordance with the client's detailed specification.

Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new waterproofing.

If any items of plant/equipment are to be situated on the finished roof, a sacrificial layer of Bauder capping sheet is to be loose laid beneath. This is to extend a minimum 25mm past the point of contact on all sides. In the case of heavy items it may be necessary to introduce a load-spreading slab, please contact Bauder for further advice.

All lead work to be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Sheet Association.

- **System completion: INSPECTION**

Coating surfaces: Check when cured for pinholes and discontinuities.

Defective areas: Apply another layer of coating.

Interim and final roof inspections: This is a requirement for guarantee and must to be carried out in strict accordance with the Bauder Limited requirements.

The final inspection of the waterproofing and the Electronic roof integrity test (refer clause 920) must be carried out and approved by Bauder prior to any landscaping being installed. This is mandatory for the issue of the guarantee.

Notification: It is the responsibility of the approved contractor to advise the Bauder Field Technician when the roof is ready for the Final Inspection.

If project needs to follow NHBC Requirements: The waterproofing must be visually inspected and electronically tested for waterproofing integrity, faults rectified, and retested prior to the installation of any landscaping products. The results of the test(s) should be made available to the NHBC.

**COMPLETION**

Roof areas: Clean.

- Outlets: Clear.

- Flashings: Dressed into place.

Work necessary to provide a weather tight finish: Complete.

Storage of materials on finished surface: Not permitted.

Completed coatings: Protect against damage from traffic and adjacent or high level working.

## System performance

### 20-50-30/210 Roof covering design

- **General:**
  - **Waterproof covering:** Secure and weathertight.
  - **Roof surfaces:** Free draining.

### 20-50-30/240 Thermal design

- **Requirement:** Determine type and thickness of insulation to satisfy thermal performance.
- **Thermal transmittance (U-value) of roof (maximum):** 0.15 W/m<sup>2</sup>·K.

### 20-50-30/260 Fire performance – external

- **External fire exposure:**
  - **Standard:** To BS EN 13501-5.
  - **Requirement:** BROOF (t4).

### 20-50-30/270 Durability

- **System warranty:** 15 years.

## Products

### 45-20-64/395 Precast concrete flags type A

- **Manufacturer:** Marshalls
- **Standard:** To BS EN 1339.
- **Physical properties:**
  - **Colour:** Mid Grey
  - **Finish:** Coarse textured.
  - **Profile:**
    - Flag type:** Regular square.
    - Arrises:** Square
  - **Dimensions and associated tolerances:**
    - Nominal sizes:** 600 x 600 x 50 mm
    - Tolerances on plan dimension and thickness (nominal):** Class 1.
    - Tolerances on diagonals:** Manufacturer's standard.
  - **Slip resistance:** USRV to BS EN 1339 of 55.

Ω End of system

## 20-50-30/135 RFS-103

### Liquid applied inverted roof covering system - type C

#### System outline

#### 20-50-30/135 RFS-103

#### Liquid applied inverted roof covering system type C

- **Description:** Hot melt inverted roof covering system - extensive green roof.
- **System performance:** 20-50-30/210 Roof covering design;  
20-50-30/240 Thermal design;  
20-50-30/260 Fire performance – external;  
and 20-50-30/270 Durability.
- **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.  
Tel: 01473 257 671. Fax: 01473 230 761. Email: technical@bauder.co.uk
- **Preparation:**
  - **Horizontal work:** " Surfaces to be coated:
    - Firmly fixed, clean, dry, smooth, free from frost, contaminants, loose material, voids, protrusions and organic growths.
    - Compatible with coating system." Preliminary work: Complete (including formation of upstands, kerbs, box gutters, sumps, grooves, chases, expansion joints, and fixing of battens, fillets, anchoring plugs/ strips, etc.).  
" Moisture content and stability: Must not impair integrity of roof.  
" All concrete surfaces shall be cured a minimum of 14 days and shall be dry. All concrete placed into a profiled metal deck shall be cured a minimum of 60 days.  
" Concrete Surfaces shall be to a wood float finish and uniform. Steel float finishes are too smooth and can produce laitance on its surface, which will need to be removed, prior to priming. Please refer to the manufacturer's Installation and Quality Assurance Manual for important information.  
" Where provided, the falls/cross-falls should be designed to 1:40 to achieve minimum finished falls of 1:80 to comply with drainage requirements of BS 6229:2003 and current codes of practice BS 8217:2005. No deflections or back-falls present if the deck is designed to achieve a 0° level finished surface.  
" Before priming and application of the membrane, the substrate shall be clean and dry, free from surface water, ice, snow or frost, dust, dirt, oil, grease, curing compounds of any foreign matter detrimental to the adhesion of the hot applied rubberised bitumen system. Any scaling or laitance concrete shall be sandblasted off.  
" Voids, cracks, holes, honeycombs and other damaged horizontal or vertical surfaces shall be repaired before application of the membrane.  
" The contractor shall review all surfaces to receive the membrane and report any discrepancies prior to installing the waterproofing system.
  - **Skirtings and vertical work:** " Preliminary reinforcement strip: The correct reinforcement strip must first be applied at all right angled abutments, penetrations, outlets and fixings etc before the application of the Bakor 790-11 detailing (except for when the alternative two-layer SBS membrane system is used). Please see clause 750. If unsure about the correct reinforcing material for any given situation, please refer to the Bauder Installation and Quality Assurance Manual or contact Bauder's Technical Department for confirmation or further information.  
" Waterproofing application:
    - First layer: Bakor 790-11 hot melt rubberised bitumen membrane, applied 3mm thick up the upstands and out onto the deck a minimum of 200mm.



- Reinforcement: Bauder Polyester reinforcing sheet to be embedded into the first layer of Bakor 790-11, up the upstands, and dressed down and out onto the flat by 75mm. Laps to be a minimum of 10mm. The reinforcing sheet must be applied when the hot melt rubberised bitumen is still hot in order to ensure a full adhesion and a partial bitumen bleed through.
- Second layer: Bakor 790-11 hot melt rubberised bitumen membrane, onto the deck and upstand over the reinforcement layer, 3mm thick up the upstands and out onto the deck a minimum of 200mm ensuring to "feather" down towards the edge.
- Protection layer to upstands: as specified above.
- Termination Bar: Proprietary Termination Bar to be used to fix the waterproofing and access/protection which terminates on a vertical plane. Fixings to be at a minimum 300mm centres. Bauder Mastic Sealant to be applied in a neat bead both behind and along the top edge of the termination bar.
- Top edges of coatings: Where not protected by flashings, apply into chases cut to a depth of not less than 10 mm.
- Completion of chases: When coatings are fully cured, prepare chase by priming with Bauder Mastic Sealant primer and apply sealant as per manufacturer's instructions.
- Sealant: Bauder Mastic Sealant.  
Use Bauder Polymer Primer for timber substrate structure.
- **Liquid applied waterproof coating:**
  - **Type:** BAUDER BAKOR MONOLITHIC MEMBRANE ROOF SYSTEM. Hot applied; rubberised bitumen with reinforcement layer; fully bonded system; product code: 790-11 Hot Melt Waterproofing
  - **Reinforcement:** " Appropriate 150 mm wide reinforcement strip, applied centrally to the nick of the upstand i.e. taken 75 mm up the vertical and 75 mm out to the horizontal. Apply to all junctions at abutment upstands, penetrations and outlets, also to joints and fixings in discontinuous unit substrates. Bed in a preliminary application of Bakor hot melt coating. Smooth out wrinkles and press into coating to exclude air. Lap all joints between lengths.  
" Bauder Polyester reinforcing strip: suitable with concrete decks where the upstand is either monolithically cast insitu, subsequently cast insitu or constructed from brick or block work.  
" Bauder Neoprene Reinforcement: to be used in all other situations i.e. plywood or OSB substrates with abutment upstands or kerbs constructed from the same material, timber or metal sheeting. This reinforcement must also be used at all outlets, penetrations, fixings etc.
  - **Surface treatment:** Access coating bitumen membrane with 60g/m<sup>2</sup> glass tissue reinforcement; fully bonded into the upper most layer of the 790-11; product code: AP1 Coating Access Sheet.
- **Insulation:**
  - **Type:** High performance rigid expanded polystyrene insulation; lightweight; high compressive strength; resistant to water; product code: JFRI 200 Insulation
- **Water control layer:** " Setting out: To be rolled out loose over the Insulation. The material should be dressed up all upstand abutments and details to the height of the surfacing.  
" Laps: The material is to be lapped a minimum of 300mm in a direction that helps shed water from the roof rather than beneath the membrane.  
" The ballast loading /landscaping should be applied immediately after the vapour permeable membrane to ensure it is secure against wind uplift.  
product code: JFRI VPM
- **Ballast:** Extensive green roof system. Refer to 40-40-45/125
- **System accessories:** Bauder Polymer Primer
- **Execution:** GENERAL WORKMANSHIP REQUIREMENTS  
Installation of the Bauder waterproofing system may only be carried out by trained and certified operatives approved by Bauder Ltd and who carry current ID badges. These should be available for inspection at all times.



Workmanship must comply with current industry Codes of Practice (or alternatively Bauder Ltd's specification where otherwise stated). Non-compliant workmanship will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued.

All waterproofing materials and system components must be supplied by Bauder Ltd, unless otherwise stated. Any sub-standard materials or un-authorised alternatives will be rejected.

Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System must be carried out by properly trained and qualified tradesmen.

Any structural damage, peculiarities or details discovered that might affect the performance of the Bauder system, should be reported immediately to the client's representative and Bauder Limited in order that they may assist in overcoming the problem.

Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the Bauder Site Technician until all associated trades are complete and the roof areas are clear from all debris and protection layers.

It is imperative that the Bauder Approved contractor conforms to the workmanship criteria as listed above. Any deviation will result in the contract being considered unguaranteeable.

All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and recommissioned on completion of the roofing works in accordance with the client's detailed specification.

Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new waterproofing.

If any items of plant/equipment are to be situated on the finished roof, a sacrificial layer of Bauder capping sheet is to be loose laid beneath. This is to extend a minimum 25mm past the point of contact on all sides. In the case of heavy items it may be necessary to introduce a load-spreading slab, please contact Bauder for further advice.

All lead work to be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Sheet Association.

- **System completion: INSPECTION**

Coating surfaces: Check when cured for pinholes and discontinuities.

Defective areas: Apply another layer of coating.

Interim and final roof inspections: This is a requirement for guarantee and must to be carried out in strict accordance with the Bauder Limited requirements.

The final inspection of the waterproofing and the Electronic roof integrity test (refer clause 920) must be carried out and approved by Bauder prior to any landscaping being installed. This is mandatory for the issue of the guarantee.

Notification: It is the responsibility of the approved contractor to advise the Bauder Field Technician when the roof is ready for the Final Inspection.

If project needs to follow NHBC Requirements: The waterproofing must be visually inspected and electronically tested for waterproofing integrity, faults rectified, and retested prior to the installation of any landscaping products. The results of the test(s) should be made available to the NHBC.

**COMPLETION**

Roof areas: Clean.

- Outlets: Clear.

- Flashings: Dressed into place.

Work necessary to provide a weather tight finish: Complete.

Storage of materials on finished surface: Not permitted.

Completed coatings: Protect against damage from traffic and adjacent or high level working.

## System performance

### 20-50-30/210 Roof covering design

- **General:**
  - **Waterproof covering:** Secure and weathertight.
  - **Roof surfaces:** Free draining.

### 20-50-30/240 Thermal design

- **Requirement:** Determine type and thickness of insulation to satisfy thermal performance.
- **Thermal transmittance (U-value) of roof (maximum):** 0.15 W/m<sup>2</sup>·K.

### 20-50-30/260 Fire performance – external

- **External fire exposure:**
  - **Standard:** To BS EN 13501-5.
  - **Requirement:** BROOF (t4).

### 20-50-30/270 Durability

- **System warranty:** 15 years.

Ω End of system

## 20-50-30/135 Liquid applied system to hard landscaping - type D

### System outline

#### 20-50-30/135 Liquid applied system to hard landscaping type D

- **Description:** Hot melt waterproofing to hard landscaping above basement.  
Part of PAV-102 and PAV-103
- **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.  
Tel: 01473 257 671. Fax: 01473 230 761. Email: technical@bauder.co.uk
- **Preparation:**
  - **Horizontal work:** Use Bauder Polymer Primer for timber substrate structure.
- **Liquid applied waterproof coating:**
  - **Type:** BAUDER BAKOR MONOLITHIC MEMBRANE ROOF SYSTEM. Hot applied; rubberised bitumen with reinforcement layer; fully bonded system; product code: 790-11 Hot Melt Waterproofing
  - **Reinforcement:** " Appropriate 150 mm wide reinforcement strip, applied centrally to the nick of the upstand i.e. taken 75 mm up the vertical and 75 mm out to the horizontal. Apply to all junctions at abutment upstands, penetrations and outlets, also to joints and fixings in discontinuous unit substrates. Bed in a preliminary application of Bakor hot melt coating. Smooth out wrinkles and press into coating to exclude air. Lap all joints between lengths.  
" Bauder Polyester reinforcing strip: suitable with concrete decks where the upstand is either monolithically cast insitu, subsequently cast insitu or constructed from brick or block work.  
" Bauder Neoprene Reinforcement: to be used in all other situations i.e. plywood or OSB substrates with abutment upstands or kerbs constructed from the same material, timber or metal sheeting. This reinforcement must also be used at all outlets, penetrations, fixings etc.
  - **Surface treatment:** Access coating bitumen membrane with 60g/m2 glass tissue reinforcement; fully bonded into the upper most layer of the 790-11; product code: AP1 Coating Access Sheet.
- **Ballast:** Refer to Landscape Designer's information.
- **System accessories:** Bauder Polymer Primer
- **Execution:** GENERAL WORKMANSHIP REQUIREMENTS  
Installation of the Bauder waterproofing system may only be carried out by trained and certified operatives approved by Bauder Ltd and who carry current ID badges. These should be available for inspection at all times.  
Workmanship must comply with current industry Codes of Practice (or alternatively Bauder Ltd's specification where otherwise stated). Non-compliant workmanship will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued.  
All waterproofing materials and system components must be supplied by Bauder Ltd, unless otherwise stated. Any sub-standard materials or un-authorized alternatives will be rejected.  
Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System must be carried out by properly trained and qualified tradesmen.  
Any structural damage, peculiarities or details discovered that might affect the performance of the Bauder system, should be reported immediately to the client's representative and Bauder Limited in order that they may assist in overcoming the problem.  
Where building works are to be carried out by other trades, following completion of the

waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the Bauder Site Technician until all associated trades are complete and the roof areas are clear from all debris and protection layers.

It is imperative that the Bauder Approved contractor conforms to the workmanship criteria as listed above. Any deviation will result in the contract being considered unguaranteeable.

All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and recommissioned on completion of the roofing works in accordance with the client's detailed specification.

Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new waterproofing.

If any items of plant/equipment are to be situated on the finished roof, a sacrificial layer of Bauder capping sheet is to be loose laid beneath. This is to extend a minimum 25mm past the point of contact on all sides. In the case of heavy items it may be necessary to introduce a load-spreading slab, please contact Bauder for further advice.

All lead work to be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Sheet Association.

Ω End of system

## 20-50-30/185 RFS-201 Reinforced bitumen membrane warm roof covering system - type A

### System outline

#### 20-50-30/185 RFS-201 Reinforced bitumen membrane warm roof covering system type A

- **Description:** Reinforced bitumen membrane warm roof covering system torch applied - stone pavers.
- **System performance:** 20-50-30/210 Roof covering design;  
20-50-30/240 Thermal design;  
20-50-30/260 Fire performance – external;  
and 20-50-30/270 Durability.  
Secure, free draining and weather tight.
- **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.  
Tel: 01473 257 671. Fax: 01473 230 761. Email: technical@bauder.co.uk
- **Preparation:**
  - **Horizontal work:** Substrates generally: Secure, clean, dry, smooth, and free from frost, contaminants, voids and protrusions.  
Falls: Where provided, the falls/cross-falls should be designed to 1:40 to achieve minimum finished falls of 1:80 to comply with drainage requirements of BS 6229:2003 and current codes of practice BS 8217:2005. No deflections or back-falls present if the deck is designed to achieve a 0 $\phi$ X level finished surface.  
Preliminary work: Complete including:
    - Grouting of deck slab joints, application of surface screed (including falls if specified).
    - Formation of abutment upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
    - Fixing of battens, fillets and anchoring plugs/strips as required.Moisture content and stability of substrate: Must not impair roof integrity. Please note that cast in-situ concrete decks with steel trapezoidal formers need 60 days to dry out and cure before they can be waterproofed. Otherwise, 30 days.  
Preparation: The new concrete/ screed deck to be allowed to cure thoroughly, remove rough edges, and surface defects. If the surface is very rough a skin screed of concrete to be applied to give a smooth surface.  
Bauder Multi-Purpose Primer or Bauder SA Bonding Primer
  - **Skirtings and vertical work:**
- **Air and vapour control layer:**
  - **Type:** Product code: EVA 35 Vapour control layer.  
Thickness 3.5mm. Weight 4.5Kg/m<sup>2</sup>.  
Torch bonded elastomeric membrane incorporating tear resistant aluminium aluminium lining to ensure complete impermeability.
  - **Attachment:** Attachment: Generally, fully bonded to deck substrate in accordance with manufacturer's requirements. However, for new concrete, the vapour barrier should be partially bonded (in the approved Bauder manner) to meet the requirements of the current codes of practice.  
Side and end laps: minimum 100 mm, with all laps torch sealed to provide a continuous bitumen bead extrusion. Installation methods as recommended by manufacturer.  
Penetrations: Fully seal using bonding methods recommended by manufacturer.  
Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like: Enclose, with vapour control layer:

- Dressed up 150 mm above surface of insulation, thus providing 100 mm (minimum) seal when overlapped by the roof covering.

- **Insulation:**

- **Type:** Product code: PIR Flatboard insulation.  
Thickness varies - typically 140mm. Weight 4.2Kg/m<sup>2</sup>
- **Fixing:** Setting out:
  - Long edges: Fully supported.
  - End edges: Fully supported.
  - Joints: close butted together.
  - End joints: Stagger.

Bedding: Bonded to the upper surface of the Vapour barrier using suitable Bauder Polyurethane Insulation Adhesive. (Product selection assistance available from Bauder).

The

adhesive should be applied in strips following the direction of the board length. Giving continuous and equally spaced adhesive beads within each board width.

- 600mm width insulation boards - 2 no: (increase to 3 no. at roof perimeter)
- 800mm width insulation boards - 3 no: (increase to 4 no. at roof perimeter)
- 1000mm width insulation boards - 4 no: (increase to 6 no. at roof perimeter)

Adhesive bead widths are stated on appropriate product label and datasheet.

Multiple board layers: Where the total thickness of insulation required is greater than can be achieved by a single standard board, then additional boards can be adhered to make up the total thickness required. These additional boards should be bonded using suitable Bauder

Insulation Adhesive. (Product selection assistance available from Bauder). To be applied in strips following the direction of the board length giving continuous and equally spaced adhesive beads within each board width (as above). The second layer of boards should be laid off-set and staggered.

BauderRock Multi-layer systems only: Please note that an unfaced base board should be installed first and then faced board adhered above.

Bauder Perimeter Insulation facing strip: Apply a 500 mm wide strip of self-adhesive, 2 mm thick, BauderTEC Sprint DUO to the surface of the insulation boards at all perimeter edges, rainwater outlets, rooflights, vent pipes, penetrations and any other similar abutments, to create a full bonding zone once the underlayer is applied. The self-adhesive membrane is cold applied by removing the peel off release film and smoothing into place.

Adjacent lengths of

strip to be close butted. Where insulated upstands are present, this membrane can also be used to secure the angle fillet into position. Care must be taken to avoid creating water checks, especially around rainwater outlets, chutes and gutters.

Protection to exposed edges of insulation: Reduced thickness treated timber batten (or equivalent plywood construction), a minimum width of 150 mm and 10 mm less in thickness than the insulation to accommodate the build-up of the waterproofing layers all securely fixed to the deck. Outer edges chamfered at changes in level.

Completion: Boards must be in good condition, well-fitting and stable.

Important Note: Foil to foil installation (e.g. FA-TE to FA-TE) must not be carried out using Bauder insulation adhesive from the 6.5 Kg tin.

- **Waterproof covering:**

- **First layer:**

**Type:** Product code: EGV 3.5 Underlayer  
Durable Elastomeric bituminous membrane with 80g/m<sup>3</sup> woven glass fibre reinforcement. Thickness 3.5mm. Weight 4.7Kg/m<sup>2</sup>.
- **Top layer:**

**Type:** Product code: K4E Capping Sheet  
Torch bonded, heavy duty elastomeric bitumen capping sheet 250g/m<sup>2</sup> polyester reinforcement. Thickness 4.2mm. Weight 5.5Kg/m<sup>2</sup>.

- **Detail work:**

- **Flashings:** Bauder K4E capping sheet, charcoal grey finish.
- **Skirtings and upstands:** Angle Fillets: BauderPIR angle Fillets (50 mm x 50 mm) must be used at all right angled upstands, provisionally bonded in suitable Bauder Polyurethane Insulation Adhesive and subsequently retained once the underlay detailing is applied. Important note - under no circumstances must fillets of an alternative material be incorporated (i.e. timber, cork, fibre, etc.) as this would invalidate the guarantee.  
Layers of bitumen membrane: Carry in staggered formation up the upstand, with each layer fully bonded.  
Upstands:  
At ends of rolls: Underlay layer only, form with bitumen membrane carried up without using separate strip.  
Elsewhere: Form with matching strips of bitumen membrane, maintaining laps.  
Additional fixing of bitumen membranes: Mechanically fix the top leading edge of all upstand details in excess of 250 mm in height using appropriate fasteners. In the event of doubt, Bauder should be consulted regarding any specific requirement.  
Upstand details (minimum height): 150 mm. This must be taken from the finished roof surface. Please note that for landscaped roofs, this minimum height is measured from the finished landscape surface as opposed to the waterproofing surface. Special attention should be paid to all structures, such as rooflights, counter-flashings, window and door cills, pipes etc. Bauder cannot take responsibility for water ingress over waterproofing details constructed below the recommended minimum height.  
Flashings: Separate flashings must always be formed. Capping sheet taken up the upstand in one piece will not be permitted.  
Provision must be made to supply and install a secondary weathering flashing above all waterproof upstand detailing to pipe penetrations, balustrade posts, cable entry pipes, ventilation ducting, sun pipes etc. This can take the form of a welded collar (where appropriate) or a bespoke galvanized cowling or hood sealed with a suitable sealant and fasteners. Solvent welded plastic collars fitted to plastic soil vent pipes.
- **Ballast:** 45-20-64/345 Paving tiles
- **Execution: GENERAL WORKMANSHIP REQUIREMENTS**  
Installation of the Bauder waterproofing system may only be carried out by trained and certified operatives approved by Bauder Ltd and who carry current ID badges. These should be available for inspection at all times.  
Workmanship must comply with Codes of Practice BS 8217:2005 (or alternatively Bauder Ltd. specification where otherwise stated). Non-compliant workmanship will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued. All waterproofing materials and system components must be supplied by Bauder Ltd, unless otherwise stated. Any sub-standard materials or un-authorised alternatives will be rejected. Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System must be carried out by properly trained and qualified tradesmen. Any structural damage, peculiarities or details discovered that might affect the performance of the Bauder system, should be reported immediately to the client's representative and Bauder Limited in order that they may assist in overcoming the problem. The contractor is to ensure water tightness of the roof at all times. Proper day joints must be formed at the end of each working day to provide a temporary seal. No mopping or loose covers will be permitted. Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the Bauder Site Technician or the Bauder nominated Independent surveyor until all associated trades are complete and the roof areas are clear from all debris and protection layers. It is imperative that the Bauder Approved Contractor conforms to the workmanship criteria as listed above. Any deviation will result in the contract being considered unguaranteeable. All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and recommissioned



on completion of the roofing works in accordance with the client's detailed specification. Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new waterproofing. If any items of plant/equipment are to be situated on the finished roof, a sacrificial layer of

Bauder capping sheet is to be loose laid beneath. This is to extend a minimum 25mm past the point of contact on all sides. In the case of heavy items it may be necessary to introduce a load-spreading slab, please contact Bauder for further advice. All lead work to be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Sheet Association.

- **System completion: INSPECTION**

Interim and final roof inspections: in accordance with the manufacturer's requirements for guarantee.

Notification: It is the responsibility of the approved contractor to advise Bauder Ltd when the roof is ready for Final Inspection. The Final Inspection of the waterproofing must be carried out and approved by Bauder Ltd prior to any landscaping products/materials being installed, otherwise a guarantee cannot be issued.

Other requirements: Please also refer to preliminaries general conditions. If project needs to follow NHBC Requirements: The waterproofing must be visually inspected and electronically tested for waterproofing integrity, faults rectified, and retested prior to the installation of any landscaping products. The results of the test(s) should be made available to the NHBC.

**COMPLETION**

Roof areas: Clean.

Outlets: Clear.

Work necessary to provide a weather tight finish: Complete.

Storage of materials on finished surface: Not permitted.

Completed membrane: Do not damage. Protect from chemicals, traffic and adjacent or high level working.

**GUARANTEE**

A 15 year product and workmanship guarantee is to be provided upon completion following a Final Inspection by Bauder. Details regarding the full terms and conditions are available separately from Bauder Ltd upon request. This system must installed by a Bauder Approved Contractor, to be eligible for guarantee. The system comprises the waterproofing membranes, insulation, vapour control layer, and attachment of these products.

## System performance

### 20-50-30/210 Roof covering design

- **General:**
  - **Waterproof covering:** Secure and weathertight.
  - **Roof surfaces:** Free draining.

### 20-50-30/240 Thermal design

- **Requirement:** Determine type and thickness of insulation to satisfy thermal performance.
- **Thermal transmittance (U-value) of roof (maximum):** 0.15 W/m<sup>2</sup>·K.

### 20-50-30/260 Fire performance – external

- **External fire exposure:**
  - **Standard:** To BS EN 13501-5.
  - **Requirement:** BROOF (t4).



#### 20-50-30/270 Durability

- **System warranty:** 15 years.

### Products

#### 45-20-64/345 Paving tiles

- **Manufacturer:** To Landscape Designer's Specification
- **Tile material:** Porcelain Stone / Natural Stone
- **Colour:** Submit proposals.
- **Finish:** Submit proposals.
- **Plan shape:** Square
- **Size (minimum):** 600 x 600 mm
- **Thickness (minimum):** 10.5 mm

Ω End of system

## 20-50-30/185 RFS-202 Reinforced bitumen membrane warm roof covering system - type B

### System outline

#### 20-50-30/185 RFS-202 Reinforced bitumen membrane warm roof covering system type B

- **Description:** Reinforced bitumen membrane warm roof covering system torch applied - concrete pavers.
- **System performance:** 20-50-30/210 Roof covering design;  
20-50-30/240 Thermal design;  
20-50-30/260 Fire performance – external;  
and 20-50-30/270 Durability.  
Secure, free draining and weather tight.
- **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.  
Tel: 01473 257 671. Fax: 01473 230 761. Email: technical@bauder.co.uk
- **Preparation:**
  - **Horizontal work:** Substrates generally: Secure, clean, dry, smooth, and free from frost, contaminants, voids and protrusions.  
Falls: Where provided, the falls/cross-falls should be designed to 1:40 to achieve minimum finished falls of 1:80 to comply with drainage requirements of BS 6229:2003 and current codes of practice BS 8217:2005. No deflections or back-falls present if the deck is designed to achieve a 0 $\phi$ X level finished surface.  
Preliminary work: Complete including:
    - Grouting of deck slab joints, application of surface screed (including falls if specified).
    - Formation of abutment upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
    - Fixing of battens, fillets and anchoring plugs/strips as required.Moisture content and stability of substrate: Must not impair roof integrity. Please note that cast in-situ concrete decks with steel trapezoidal formers need 60 days to dry out and cure before they can be waterproofed. Otherwise, 30 days.  
Preparation: The new concrete/ screed deck to be allowed to cure thoroughly, remove rough edges, and surface defects. If the surface is very rough a skin screed of concrete to be applied to give a smooth surface.  
Bauder Multi-Purpose Primer or Bauder SA Bonding Primer
- **Air and vapour control layer:**
  - **Type:** Product code: EVA 35 Vapour control layer.  
Thickness 3.5mm. Weight 4.5Kg/m<sup>2</sup>.  
Torch bonded elastomeric membrane incorporating tear resistant aluminium aluminium lining to ensure complete impermeability.
  - **Attachment:** Attachment: Generally, fully bonded to deck substrate in accordance with manufacturer's requirements. However, for new concrete, the vapour barrier should be partially bonded (in the approved Bauder manner) to meet the requirements of the current codes of practice.  
Side and end laps: minimum 100 mm, with all laps torch sealed to provide a continuous bitumen bead extrusion. Installation methods as recommended by manufacturer.  
Penetrations: Fully seal using bonding methods recommended by manufacturer.  
Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like: Enclose, with vapour control layer:

- Dressed up 150 mm above surface of insulation, thus providing 100 mm (minimum) seal when overlapped by the roof covering.

- **Insulation:**

- **Type:** Product code: PIR Flatboard insulation.  
Thickness varies - typically 140mm. Weight 4.2Kg/m.2

- **Fixing:** Setting out:
  - Long edges: Fully supported
  - End edges: Fully supported.
  - Joints: close butted together.
  - End joints: Stagger.

Bedding: Bonded to the upper surface of the Vapour barrier using suitable Bauder Polyurethane Insulation Adhesive. (Product selection assistance available from Bauder).

The

adhesive should be applied in strips following the direction of the board length. Giving continuous and equally spaced adhesive beads within each board width.

- 600mm width insulation boards - 2 no: (increase to 3 no. at roof perimeter)
- 800mm width insulation boards - 3 no: (increase to 4 no. at roof perimeter)
- 1000mm width insulation boards - 4 no: (increase to 6 no. at roof perimeter)

Adhesive bead widths are stated on appropriate product label and datasheet.

Multiple board layers: Where the total thickness of insulation required is greater than can be achieved by a single standard board, then additional boards can be adhered to make up the total thickness required. These additional boards should be bonded using suitable Bauder

Insulation Adhesive. (Product selection assistance available from Bauder). To be applied in strips following the direction of the board length giving continuous and equally spaced adhesive beads within each board width (as above). The second layer of boards should be laid off-set and staggered.

BauderRock Multi-layer systems only: Please note that an unfaced base board should be installed first and then faced board adhered above.

Bauder Perimeter Insulation facing strip: Apply a 500 mm wide strip of self-adhesive, 2 mm thick, BauderTEC Sprint DUO to the surface of the insulation boards at all perimeter edges, rainwater outlets, rooflights, vent pipes, penetrations and any other similar abutments, to create a full bonding zone once the underlayer is applied. The self-adhesive membrane is cold applied by removing the peel off release film and smoothing into place.

Adjacent lengths of strip to be close butted. Where insulated upstands are present, this membrane can also be used to secure the angle fillet into position. Care must be taken to avoid creating water checks, especially around rainwater outlets, chutes and gutters.

Protection to exposed edges of insulation: Reduced thickness treated timber batten (or equivalent plywood construction), a minimum width of 150 mm and 10 mm less in thickness than the insulation to accommodate the build-up of the waterproofing layers all securely fixed to the deck. Outer edges chamfered at changes in level.

Completion: Boards must be in good condition, well-fitting and stable.

Important Note: Foil to foil installation (e.g. FA-TE to FA-TE) must not be carried out using Bauder insulation adhesive from the 6.5 Kg tin.

- **Overlay:**

- **Waterproof covering:**

- **First layer:**

**Type:** Product code: EGV 3.5 Underlayer  
Durable Elastomeric bituminous membrane with 80g/m3 woven glass fibre reinforcement. Thickness 3.5mm. Weight 4.7Kg/m2.

**Attachment:**

- **Top layer:**

**Type:** Product code: K4E Capping Sheet

Torch bonded, heavy duty elastomeric bitumen capping sheet 250g/m<sup>2</sup> polyester reinforcement. Thickness 4.2mm. Weight 5.5Kg/m<sup>2</sup>.

**Attachment:**

• **Detail work:**

- **Flashings:** Bauder K4E capping sheet, charcoal grey finish.
- **Skirtings and upstands:** Angle Fillets: BauderPIR angle Fillets (50 mm x 50 mm) must be used at all right angled upstands, provisionally bonded in suitable Bauder Polyurethane Insulation Adhesive and subsequently retained once the underlay detailing is applied. Important note - under no circumstances must fillets of an alternative material be incorporated (i.e. timber, cork, fibre, etc.) as this would invalidate the guarantee.  
Layers of bitumen membrane: Carry in staggered formation up the upstand, with each layer fully bonded.  
Upstands:  
At ends of rolls: Underlay layer only, form with bitumen membrane carried up without using separate strip.  
Elsewhere: Form with matching strips of bitumen membrane, maintaining laps.  
Additional fixing of bitumen membranes: Mechanically fix the top leading edge of all upstand details in excess of 250 mm in height using appropriate fasteners. In the event of doubt, Bauder should be consulted regarding any specific requirement.  
Upstand details (minimum height): 150 mm. This must be taken from the finished roof surface. Please note that for landscaped roofs, this minimum height is measured from the finished landscape surface as opposed to the waterproofing surface. Special attention should be paid to all structures, such as rooflights, counter-flashings, window and door cills, pipes etc. Bauder cannot take responsibility for water ingress over waterproofing details constructed below the recommended minimum height.  
Flashings: Separate flashings must always be formed. Capping sheet taken up the upstand in one piece will not be permitted.  
Provision must be made to supply and install a secondary weathering flashing above all waterproof upstand detailing to pipe penetrations, balustrade posts, cable entry pipes, ventilation ducting, sun pipes etc. This can take the form of a welded collar (where appropriate) or a bespoke galvanized cowling or hood sealed with a suitable sealant and fasteners. Solvent welded plastic collars fitted to plastic soil vent pipes.
- **Ballast:** 45-20-64/395 Precast concrete flags type B

• **Execution: GENERAL WORKMANSHIP REQUIREMENTS**

Installation of the Bauder waterproofing system may only be carried out by trained and certified operatives approved by Bauder Ltd and who carry current ID badges. These should be available for inspection at all times.

Workmanship must comply with Codes of Practice BS 8217:2005 (or alternatively Bauder Ltd. specification where otherwise stated). Non-compliant workmanship will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued. All waterproofing materials and system components must be supplied by Bauder Ltd, unless otherwise stated. Any sub-standard materials or un-authorised alternatives will be rejected. Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System must be carried out by properly trained and qualified tradesmen. Any structural damage, peculiarities or details discovered that might affect the performance of the Bauder system, should be reported immediately to the client's representative and Bauder Limited in order that they may assist in overcoming the problem. The contractor is to ensure water tightness of the roof at all times. Proper day joints must be formed at the end of each working day to provide a temporary seal. No mopping or loose covers will be permitted. Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the Bauder Site Technician or the Bauder nominated Independent surveyor until all associated trades are

complete and the roof areas are clear from all debris and protection layers. It is imperative that the Bauder Approved Contractor conforms to the workmanship criteria as listed above. Any deviation will result in the contract being considered unguaranteeable. All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and recommissioned on completion of the roofing works in accordance with the client's detailed specification. Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new waterproofing. If any items of plant/equipment are to be situated on the finished roof, a sacrificial layer of Bauder capping sheet is to be loose laid beneath. This is to extend a minimum 25mm past the point of contact on all sides. In the case of heavy items it may be necessary to introduce a load-spreading slab, please contact Bauder for further advice. All lead work to be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Sheet Association.

- **System completion: INSPECTION**

Interim and final roof inspections: in accordance with the manufacturer's requirements for guarantee.

Notification: It is the responsibility of the approved contractor to advise Bauder Ltd when the roof is ready for Final Inspection. The Final Inspection of the waterproofing must be carried out and approved by Bauder Ltd prior to any landscaping products/materials being installed, otherwise a guarantee cannot be issued.

Other requirements: Please also refer to preliminaries general conditions. If project needs to follow NHBC Requirements: The waterproofing must be visually inspected and electronically tested for waterproofing integrity, faults rectified, and retested prior to the installation of any landscaping products. The results of the test(s) should be made available to the NHBC.

**COMPLETION**

Roof areas: Clean.

Outlets: Clear.

Work necessary to provide a weather tight finish: Complete.

Storage of materials on finished surface: Not permitted.

Completed membrane: Do not damage. Protect from chemicals, traffic and adjacent or high level working.

**GUARANTEE**

A 15 year product and workmanship guarantee is to be provided upon completion following a Final Inspection by Bauder. Details regarding the full terms and conditions are available separately from Bauder Ltd upon request. This system must installed by a Bauder Approved Contractor, to be eligible for guarantee. The system comprises the waterproofing membranes, insulation, vapour control layer, and attachment of these products.

## System performance

### 20-50-30/210 Roof covering design

- **General:**
  - **Waterproof covering:** Secure and weathertight.
  - **Roof surfaces:** Free draining.

### 20-50-30/240 Thermal design

- **Requirement:** Determine type and thickness of insulation to satisfy thermal performance.
- **Thermal transmittance (U-value) of roof (maximum):** 0.15 W/m<sup>2</sup>·K.

**20-50-30/260 Fire performance – external**

- **External fire exposure:**
  - **Standard:** To BS EN 13501-5.
  - **Requirement:** BROOF (t4).

**20-50-30/270 Durability**

- **System warranty:** 15 years.

Ω End of system

## 20-50-30/185 RFS-203 Reinforced bitumen membrane warm roof covering system - type C

### System outline

#### 20-50-30/185 RFS-203 Reinforced bitumen membrane warm roof covering system type C

- **Description:** Reinforced bitumen membrane warm roof covering system torch applied - extensive green roof.
- **System performance:** 20-50-30/210 Roof covering design;  
20-50-30/240 Thermal design;  
20-50-30/260 Fire performance – external;  
and 20-50-30/270 Durability.  
Secure, free draining and weather tight.
- **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.  
Tel: 01473 257 671. Fax: 01473 230 761. Email: technical@bauder.co.uk
- **Preparation:**
  - **Horizontal work:** Substrates generally: Secure, clean, dry, smooth, and free from frost, contaminants, voids and protrusions.  
Falls: Where provided, the falls/cross-falls should be designed to 1:40 to achieve minimum finished falls of 1:80 to comply with drainage requirements of BS 6229:2003 and current codes of practice BS 8217:2005. No deflections or back-falls present if the deck is designed to achieve a 0 $\phi$ X level finished surface.  
Preliminary work: Complete including:
    - Grouting of deck slab joints, application of surface screed (including falls if specified).
    - Formation of abutment upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
    - Fixing of battens, fillets and anchoring plugs/strips as required.
Moisture content and stability of substrate: Must not impair roof integrity. Please note that cast in-situ concrete decks with steel trapezoidal formers need 60 days to dry out and cure before they can be waterproofed. Otherwise, 30 days.  
Preparation: The new concrete/ screed deck to be allowed to cure thoroughly, remove rough edges, and surface defects. If the surface is very rough a skin screed of concrete to be applied to give a smooth surface.  
Bauder Multi-Purpose Primer or Bauder SA Bonding Primer
- **Air and vapour control layer:**
  - **Type:** Product code: EVA 35 Vapour control layer.  
Thickness 3.5mm. Weight 4.5Kg/m<sup>2</sup>.  
Torch bonded elastomeric membrane incorporating tear resistant aluminium aluminium lining to ensure complete impermeability.
  - **Attachment:** Attachment: Generally, fully bonded to deck substrate in accordance with manufacturer's requirements. However, for new concrete, the vapour barrier should be partially bonded (in the approved Bauder manner) to meet the requirements of the current codes of practice.  
Side and end laps: minimum 100 mm, with all laps torch sealed to provide a continuous bitumen bead extrusion. Installation methods as recommended by manufacturer.  
Penetrations: Fully seal using bonding methods recommended by manufacturer.  
Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like: Enclose, with vapour control layer:

- Dressed up 150 mm above surface of insulation, thus providing 100 mm (minimum) seal when overlapped by the roof covering.

- **Insulation:**

- **Type:** Product code: PIR Flatboard insulation.  
Thickness varies - typically 140mm. Weight 4.2Kg/m.2
- **Fixing:** Setting out:
  - Long edges: Fully supported
  - End edges: Fully supported.
  - Joints: close butted together.
  - End joints: Stagger.

Bedding: Bonded to the upper surface of the Vapour barrier using suitable Bauder Polyurethane Insulation Adhesive. (Product selection assistance available from Bauder).

The

adhesive should be applied in strips following the direction of the board length. Giving continuous and equally spaced adhesive beads within each board width.

- 600mm width insulation boards - 2 no: (increase to 3 no. at roof perimeter)
- 800mm width insulation boards - 3 no: (increase to 4 no. at roof perimeter)
- 1000mm width insulation boards - 4 no: (increase to 6 no. at roof perimeter)

Adhesive bead widths are stated on appropriate product label and datasheet.

Multiple board layers: Where the total thickness of insulation required is greater than can be achieved by a single standard board, then additional boards can be adhered to make up the total thickness required. These additional boards should be bonded using suitable Bauder

Insulation Adhesive. (Product selection assistance available from Bauder). To be applied in strips following the direction of the board length giving continuous and equally spaced adhesive beads within each board width (as above). The second layer of boards should be laid off-set and staggered.

BauderRock Multi-layer systems only: Please note that an unfaced base board should be installed first and then faced board adhered above.

Bauder Perimeter Insulation facing strip: Apply a 500 mm wide strip of self-adhesive, 2 mm thick, BauderTEC Sprint DUO to the surface of the insulation boards at all perimeter edges, rainwater outlets, rooflights, vent pipes, penetrations and any other similar abutments, to create a full bonding zone once the underlayer is applied. The self-adhesive membrane is cold applied by removing the peel off release film and smoothing into place.

Adjacent lengths of strip to be close butted. Where insulated upstands are present, this membrane can also be used to secure the angle fillet into position. Care must be taken to avoid creating water checks, especially around rainwater outlets, chutes and gutters.

Protection to exposed edges of insulation: Reduced thickness treated timber batten (or equivalent plywood construction), a minimum width of 150 mm and 10 mm less in thickness than the insulation to accommodate the build-up of the waterproofing layers all securely fixed to the deck. Outer edges chamfered at changes in level.

Completion: Boards must be in good condition, well-fitting and stable.

Important Note: Foil to foil installation (e.g. FA-TE to FA-TE) must not be carried out using Bauder insulation adhesive from the 6.5 Kg tin.

- **Overlay:**

- **Waterproof covering:**

- **First layer:**

**Type:** Product code: EGV 3.5 Underlayer  
Durable Elastomeric bituminous membrane with 80g/m3 woven glass fibre reinforcement. Thickness 3.5mm. Weight 4.7Kg/m2.

**Attachment:**

- **Top layer:**

**Type:** Product code: K4E Capping Sheet



Torch bonded, heavy duty elastomeric bitumen capping sheet 250g/m2 polyester reinforcement. Thickness 4.2mm. Weight 5.5Kg/m2.

**Attachment:**

• **Detail work:**

- **Flashings:** Bauder K4E capping sheet, charcoal grey finish.
- **Skirtings and upstands:** Angle Fillets: BauderPIR angle Fillets (50 mm x 50 mm) must be used at all right angled upstands, provisionally bonded in suitable Bauder Polyurethane Insulation Adhesive and subsequently retained once the underlay detailing is applied. Important note - under no circumstances must fillets of an alternative material be incorporated (i.e. timber, cork, fibre, etc.) as this would invalidate the guarantee.  
Layers of bitumen membrane: Carry in staggered formation up the upstand, with each layer fully bonded.  
Upstands:  
At ends of rolls: Underlay layer only, form with bitumen membrane carried up without using separate strip.  
Elsewhere: Form with matching strips of bitumen membrane, maintaining laps.  
Additional fixing of bitumen membranes: Mechanically fix the top leading edge of all upstand details in excess of 250 mm in height using appropriate fasteners. In the event of doubt, Bauder should be consulted regarding any specific requirement.  
Upstand details (minimum height): 150 mm. This must be taken from the finished roof surface. Please note that for landscaped roofs, this minimum height is measured from the finished landscape surface as opposed to the waterproofing surface. Special attention should be paid to all structures, such as rooflights, counter-flashings, window and door cills, pipes etc. Bauder cannot take responsibility for water ingress over waterproofing details constructed below the recommended minimum height.  
Flashings: Separate flashings must always be formed. Capping sheet taken up the upstand in one piece will not be permitted.  
Provision must be made to supply and install a secondary weathering flashing above all waterproof upstand detailing to pipe penetrations, balustrade posts, cable entry pipes, ventilation ducting, sun pipes etc. This can take the form of a welded collar (where appropriate) or a bespoke galvanized cowling or hood sealed with a suitable sealant and fasteners. Solvent welded plastic collars fitted to plastic soil vent pipes.
- **Ballast:** Extensive green roof system. Refer to 40-40-45/125

• **Execution: GENERAL WORKMANSHIP REQUIREMENTS**

Installation of the Bauder waterproofing system may only be carried out by trained and certified operatives approved by Bauder Ltd and who carry current ID badges. These should be available for inspection at all times.

Workmanship must comply with Codes of Practice BS 8217:2005 (or alternatively Bauder Ltd. specification where otherwise stated). Non-compliant workmanship will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued. All waterproofing materials and system components must be supplied by Bauder Ltd, unless otherwise stated. Any sub-standard materials or un-authorised alternatives will be rejected. Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System must be carried out by properly trained and qualified tradesmen. Any structural damage, peculiarities or details discovered that might affect the performance of the Bauder system, should be reported immediately to the client's representative and Bauder Limited in order that they may assist in overcoming the problem. The contractor is to ensure water tightness of the roof at all times. Proper day joints must be formed at the end of each working day to provide a temporary seal. No mopping or loose covers will be permitted. Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the Bauder Site Technician or the Bauder nominated Independent surveyor until all associated trades are

complete and the roof areas are clear from all debris and protection layers. It is imperative that the Bauder Approved Contractor conforms to the workmanship criteria as listed above. Any deviation will result in the contract being considered unguaranteeable. All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and recommissioned on completion of the roofing works in accordance with the client's detailed specification. Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new waterproofing. If any items of plant/equipment are to be situated on the finished roof, a sacrificial layer of Bauder capping sheet is to be loose laid beneath. This is to extend a minimum 25mm past the point of contact on all sides. In the case of heavy items it may be necessary to introduce a load-spreading slab, please contact Bauder for further advice. All lead work to be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Sheet Association.

- **System completion: INSPECTION**

Interim and final roof inspections: in accordance with the manufacturer's requirements for guarantee.

Notification: It is the responsibility of the approved contractor to advise Bauder Ltd when the roof is ready for Final Inspection. The Final Inspection of the waterproofing must be carried out and approved by Bauder Ltd prior to any landscaping products/materials being installed, otherwise a guarantee cannot be issued.

Other requirements: Please also refer to preliminaries general conditions. If project needs to follow NHBC Requirements: The waterproofing must be visually inspected and electronically tested for waterproofing integrity, faults rectified, and retested prior to the installation of any landscaping products. The results of the test(s) should be made available to the NHBC.

**COMPLETION**

Roof areas: Clean.

Outlets: Clear.

Work necessary to provide a weather tight finish: Complete.

Storage of materials on finished surface: Not permitted.

Completed membrane: Do not damage. Protect from chemicals, traffic and adjacent or high level working.

**GUARANTEE**

A 15 year product and workmanship guarantee is to be provided upon completion following a Final Inspection by Bauder. Details regarding the full terms and conditions are available separately from Bauder Ltd upon request. This system must installed by a Bauder Approved Contractor, to be eligible for guarantee. The system comprises the waterproofing membranes, insulation, vapour control layer, and attachment of these products.

## System performance

### 20-50-30/210 Roof covering design

- **General:**
  - **Waterproof covering:** Secure and weathertight.
  - **Roof surfaces:** Free draining.

### 20-50-30/240 Thermal design

- **Requirement:** Determine type and thickness of insulation to satisfy thermal performance.
- **Thermal transmittance (U-value) of roof (maximum):** 0.15 W/m<sup>2</sup>·K.

**20-50-30/260 Fire performance – external**

- **External fire exposure:**
  - **Standard:** To BS EN 13501-5.
  - **Requirement:** BROOF (t4).

**20-50-30/270 Durability**

- **System warranty:** 15 years.

Ω End of system

# 20-55-15/130 Floating cementitious levelling screed system

## System outline

### 20-55-15/130 Floating cementitious levelling screed system

- **Description:** SCR-104 Floating cementitious levelling screed system
- **System performance:** 20-55-15/205 Design submittals;  
20-55-15/220 In situ crushing resistance;  
20-55-15/250 Surface regularity;  
and 20-55-15/260 Durability.
- **Preparation:** 20-55-15/602 Assess suitability of substrate and 20-55-15/614 Preparation of substrate for floating construction (board insulation).
- **Movement joints:**
  - **Components:** 45-55-75/315 Construction joint sealants.
- **Separation layer:** 45-65-50/325 Plastics sheets type B.
- **Reinforcement for crack control:** 45-85-70/370 Carbon steel fabric reinforcement.
- **Screed:** 45-55-10/345 Cementitious levelling screed mix type B.
- **Insulation:** 20-55-15/301 Void Former
- **Execution:** 20-55-15/642 Site mixing of pre-blended screed mixes;  
20-55-15/650 Checking surface regularity of floor screeds type A;  
20-55-15/654 Compaction of screeds;  
20-55-15/658 Screeding to ramps type A;  
20-55-15/676 Installing strip movement joints;  
20-55-15/696 Protection from extreme temperatures type A;  
20-55-15/698 Curing type B;  
and 20-55-15/646 Laying floating cementitious levelling screeds type B.
- **System completion:** 20-55-15/810 Inspection of completed work and 20-55-15/820 Completion.

## System performance

### 20-55-15/205 Design submittals

- **Detailed design:**
  - **Requirement:** Complete the design of the system.
  - **Standard:** In accordance with BS 8204-1 and BS EN 13813.
  - **Purpose:** To demonstrate compliance with performance requirements.
  - **Submittals:** Drawings, technical information, calculations and manufacturers' literature.
  - **Timing:** Before procurement.
  - **Format:** Drawings and specification in BIM-compliant format.

### 20-55-15/220 In situ crushing resistance

- **ISCR testing:**
  - **Standard:** In accordance with BS 8204-1.
  - **Floor usage category:** Tables 3 and 4.

- **Testing of bonded and unbonded screeds:** To Annex D.
  - **Testing of floating levelling screeds:** To Annex E.
- **ISCR requirements:**
  - **Screed category:** B (4 mm maximum indentation).
- **Test results:** Submit showing compliance.

#### 20-55-15/250 Surface regularity

- **Surface regularity:**
  - **Standard:** In accordance with BS 8204-2, Annex A.
  - **Classification:** SR2

#### 20-55-15/260 Durability

- **Duration (minimum):** 30 years.

### Products

#### 20-55-15/301 Void Former

- **Manufacturer:** Submit proposals.
- **Product:** Filcor Void Formers
- **Standard:** To BS EN 13163:2012
- **Compressive strength (minimum) @1% compression:** 70
- **Thermal Conductivity Value:** 0.035
- **Thickness:** Varies refer (23) series drawings.

#### 45-55-10/345 Cementitious levelling screed mix type B

- **Manufacturer:** Cordek
- **Cement:** Portland.
- **Cement additions:** Fly ash. Granulated blast furnace slag. Limestone fines. Metakaolin.
- **Coarse aggregate:** Required.
- **Fine aggregate:** Required.
- **Thickness:** 75mm minimum, refer (23) series drawings.

#### 45-55-75/315 Construction joint sealants

- **Manufacturer:** Submit proposals.
- **Standard:** To BS EN ISO 11600.
- **Third party certification:** By UKAS approved body
- **Material:** Water based acrylic.
- **Class:** F-12.5E.
- **Colour:** White, over paintable
- **Fire performance:** Required. Submit relevant third party certified BS 476-20 test results.

## Execution

### 20-55-15/602 Assess suitability of substrate

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

### 20-55-15/614 Preparation of substrate for floating construction (board insulation)

- **Insulation:** Lay with butt joints. Continue up at perimeter abutments for full depth of screed.
- **Separating layer:** Lay over insulation and turn up at perimeter abutments. Lap 100 mm at joints.

### 20-55-15/642 Site mixing of pre-blended screed mixes

- **Water content:** Minimum necessary to achieve full compaction, low enough to prevent excessive water being brought to surface during compaction.
- **Mixing:**
  - **Generally:** Mix materials thoroughly to uniform consistency.
  - **Mixes other than no-fines:** Mix in a suitable forced action mechanical mixer. Do not use a free fall drum type mixer.
- **Consistency:** Use while sufficiently plastic for full compaction.
- **Ready-mixed retarded screed mortar:** Use within working time and site temperatures recommended by manufacturer. Do not retemper.

### 20-55-15/646 Laying floating cementitious levelling screeds type B

- **Standard:** In accordance with BS 8204-1.
- **Thickness:**
  - **Nominal:** 90mm. Thickness varies. Allow for floor coverings and fall. Refer to drawings.
  - **Minimum:** 75mm at any one point.

### 20-55-15/650 Checking surface regularity of floor screeds type A

- **Standard:** To BS 8204-2, Table 2.
- **Test:** To BS 8204-2, Annex A.
- **Sudden irregularities:** Not permitted.
- **Deviation of surface:**
  - **Method:** Measure from underside of a 2 m straightedge (between points of contact), placed anywhere on surface.
  - **Permissible deviation (maximum):** 5 mm.

### 20-55-15/654 Compaction of screeds

- **General:** Compact thoroughly over entire area.

- **Screeds over 50 mm thick:** Lay in two layers of approximately equal thickness. Roughen surface of compacted lower layer then immediately lay upper layer.

#### 20-55-15/658 Screeding to ramps type A

- **Screed cover:** Thickness varies. Falls are created by the screed.
- **Falls:** Gradual and consistent.

#### 20-55-15/676 Installing strip movement joints

- **Installation:** Set securely into screed to exact finished level of floor. Extend joints through to substrate.
- **Secure fixing to substrate:** To manufacturer's recommendation.

#### 20-55-15/696 Protection from extreme temperatures type A

- **Cold weather:** Maintain screed surface temperature above 5°C for at least four days after laying.
- **Hot weather:** Prevent premature setting or drying out.

#### 20-55-15/698 Curing type B

- **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.
- **Curing period (minimum):**
- **Drying after curing:** Allow screeds to dry gradually. Do not subject screeds to artificial drying conditions.
- **End result:** Reduce cracking or other shrinkage related problems.

### System completion

#### 20-55-15/810 Inspection of completed work

- **Defective areas:** Repair or apply additional coverings.
- **Testing:** Assessment of cracks; Curling and lipping of unbonded screeds; and Levels and surface regularity.
- **Test certificate:** Required.

#### 20-55-15/820 Completion

- **Protection:** Required.
- **Completion certificate:** Required.

Ω End of system

# 20-55-15/190 Unbonded cementitious levelling screed system

## System outline

### 20-55-15/190 Unbonded cementitious levelling screed system

- **Description:** Unbonded cementitious levelling screed
- **System performance:** 20-55-15/205 Design submittals;  
20-55-15/220 In situ crushing resistance;  
20-55-15/250 Surface regularity;  
20-55-15/260 Durability;  
and 20-55-15/290 Compliance with performance requirements.
- **Preparation:** 20-55-15/602 Assess suitability of substrate and 20-55-15/612 Preparation of substrate for unbonded construction.
- **Movement joints:**
  - **Components:** 45-55-75/315 Construction joint sealants.
- **Separation layer:** 45-65-50/325 Plastics sheets type A.
- **Screed:** 45-55-10/345 Cementitious levelling screed mix type A.
- **Accessories:** All accessories necessary to complete the installation.
- **Execution:** 20-55-15/646 Laying cementitious levelling/ wearing screeds type A;  
20-55-15/664 Forming joints in levelling screeds;  
20-55-15/650 Checking surface regularity of floor screeds type A;  
20-55-15/656 Screeding to falls;  
20-55-15/658 Screeding to ramps type A;  
20-55-15/696 Protection from extreme temperatures type A;  
and 20-55-15/698 Curing type A.
- **System completion:** 20-55-15/810 Inspection of completed work and 20-55-15/820 Completion.

## System performance

### 20-55-15/205 Design submittals

- **Detailed design:**
  - **Requirement:** Complete the design of the system.
  - **Standard:** In accordance with BS 8204-1 and BS EN 13813.
  - **Purpose:** To demonstrate compliance with performance requirements.
  - **Submittals:** Drawings, technical information, calculations and manufacturers' literature.
  - **Timing:** Before procurement.
  - **Format:** Drawings and specification in BIM-compliant format.

### 20-55-15/220 In situ crushing resistance

- **ISCR testing:**
  - **Standard:** In accordance with BS 8204-1.
  - **Floor usage category:** Tables 3 and 4.
  - **Testing of bonded and unbonded screeds:** To Annex D.



- **Testing of floating levelling screeds:** To Annex E.
- **ISCR requirements:**
  - **Screed category:** B (4 mm maximum indentation).
- **Test results:** Submit showing compliance.

#### 20-55-15/250 Surface regularity

- **Surface regularity:**
  - **Standard:** In accordance with BS 8204-2, Annex A.
  - **Classification:** SR2

#### 20-55-15/260 Durability

- **Duration (minimum):** 30 years.

#### 20-55-15/290 Compliance with performance requirements

- **Requirement:** Proof of compliance with specified performance.
- **Testing authority:** Screed Manufacturer or an independent laboratory.
- **Submittals:**
  - **Format:** Test results and certification.
  - **Timing:** Before commencing installation.

### Products

#### 45-55-10/345 Cementitious levelling screed mix type A

- **Manufacturer:** Submit proposals.
- **Cement:** Portland.
- **Cement additions:** Manufacturer's standard.
- **Coarse aggregate:** Required.
- **Fine aggregate:** Required.
- **Admixture:** Manufacturer's standard.
- **Mix:** 1:1.5:3 Cement: coarse aggregate: fine aggregate.

#### 45-55-75/315 Construction joint sealants

- **Manufacturer:** Submit proposals.
- **Standard:** To BS EN ISO 11600.
- **Third party certification:** By UKAS approved body
- **Material:** Water based acrylic.
- **Class:** F-12.5E.
- **Colour:** White, over paintable
- **Fire performance:** Required. Submit relevant third party certified BS 476-20 test results.

#### 45-65-50/325 Plastics sheets type A

- **Manufacturer:** Submit proposals.
- **Material:** Low density polyethylene (PE-LD).
- **Purpose:** Protection layer.

- **Standard:** To BS EN 13967, type A.
- **Third party certification:** British Board of Agrément (BBA) Certificate.
- **Form:** Micro-perforated (Needle punched).
- **Physical properties:**
  - **Dimensions:**  
**Thickness (minimum):** 125 µm (500 gauge).
- **Recycled content:** To BS EN ISO 14021, 4%.

## Execution

### 20-55-15/602 Assess suitability of substrate

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

### 20-55-15/612 Preparation of substrate for unbonded construction

- **Separation:** Lay screed over a suitable sheet dpm or a separating layer.
- **Installation of separating layer:** Lay on clean substrate. Turn up for full depth of screed at abutments with walls, columns, etc. Lap 100 mm at joints.

### 20-55-15/646 Laying cementitious levelling/ wearing screeds type A

- **Standard:** In accordance with BS 8204-1.
- **Thickness:**
  - **Nominal:** 75mm. Allow for floor coverings and fall. Refer to drawings.
  - **Minimum:** 50mm

### 20-55-15/650 Checking surface regularity of floor screeds type A

- **Standard:** To BS 8204-2, Table 2.
- **Test:** To BS 8204-2, Annex A.
- **Sudden irregularities:** Not permitted.
- **Deviation of surface:**
  - **Method:** Measure from underside of a 2 m straightedge (between points of contact), placed anywhere on surface.
  - **Permissible deviation (maximum):** 5 mm.

### 20-55-15/656 Screeding to falls

- **Minimum screed cover:** Maintain at the lowest point.
- **Falls:**
  - **Generally:** Gradual and consistent.

- **Gradient (minimum):** 1:60 to channel position.

#### 20-55-15/658 Screeding to ramps type A

- **Screed cover:** Thickness varies. Falls are created by the screed.
- **Falls:** Gradual and consistent.

#### 20-55-15/664 Forming joints in levelling screeds

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

#### 20-55-15/696 Protection from extreme temperatures type A

- **Cold weather:** Maintain screed surface temperature above 5°C for at least four days after laying.
- **Hot weather:** Prevent premature setting or drying out.

#### 20-55-15/698 Curing type A

- **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.
- **Curing period (minimum):** Seven days.
- **Drying after curing:** Allow screeds to dry gradually. Do not subject screeds to artificial drying conditions.
- **End result:** Reduce cracking or other shrinkage related problems.

### System completion

#### 20-55-15/810 Inspection of completed work

- **Defective areas:** Repair or apply additional coverings.
- **Testing:** Assessment of cracks; Curling and lipping of unbonded screeds; and Levels and surface regularity.
- **Test certificate:** Required.

#### 20-55-15/820 Completion

- **Protection:** Required.
- **Completion certificate:** Required.

Ω End of system

## 20-55-35/140 FLO-100 Internal floor tiling system

### System outline

#### 20-55-35/140 FLO-100 Internal floor tiling system

- **Description:** Ceramic Tile
- **System performance:** 20-55-35/215 Suitability of bases for tiling and 20-55-35/250 Aesthetic performance of floor tiling systems.
- **System manufacturer:** To be confirmed.
- **Substrate:** Unbonded levelling screed 20-55-35
- **Tiles:**
  - **Main covering:** 45-80-95/310 Ceramic tiles.
- **Bedding:**
  - **Type:** high-performance, cement-based flexible adhesive.
  - **Bonding:** Fully bonded.
  - **Application:** Thick bed, solid.
- **Movement joints:**
  - **Type:** 45-75-50/301 Metal edging angles for movement joints
  - **Fixing:** Submit proposals.
- **Grout:** To tile manufacturer's recommendations.
- **Execution:** 20-55-35/725 Fixing using thick bed application – solid;  
20-55-35/765 Grouting;  
20-55-35/770 Coloured grout;  
and 20-55-35/620 Suitability of bases (minimum drying times).45-80-95/610 Fixing tiles
- **System completion:** 20-55-35/805 Slip resistance testing and 20-55-35/815 Spares for floor tiling systems.

### System performance

#### 20-55-35/215 Suitability of bases for tiling

- **Base tolerances:** To permit specified flatness and regularity of finished surfaces given the permissible minimum and maximum thickness of bedding.

#### 20-55-35/250 Aesthetic performance of floor tiling systems

- **Colour and shade:** Unintended variations within tiles for use in each area/ room are not permitted.
- **Variegated tiles:** Mix thoroughly.
- **Visually defective tiles:** Do not fix.
- **Final appearance:** Before bedding material sets, make adjustments necessary to give true, regular appearance to tiles and joints when viewed under final lighting conditions.
- **Additional requirements:**

## Products

### 45-75-50/301 Metal edging angles for movement joints

- **Manufacturer:** Submit proposals.
- **Material:** Movement control joints shall be stainless steel or aluminium side plates bonded to neoprene air channeled core.
- **Colour:** Core colour selected from manufacturer's standard range or special colours as advised by the Employer's Agent.
- **Installation:** Preformed strip/ section movement joints shall be provided and fixed in accordance with the manufacturer's written recommendations.
- **Execution:** Submit Proposals.

## Execution

### 20-55-35/620 Suitability of bases (minimum drying times)

- **Generally:** Start tiling work after the minimum drying times specified have expired.
- **Minimum drying times:**
  - **Concrete slabs:** Six weeks.
  - **Cement:sand screeds: 3 weeks.:** Three weeks.

### 20-55-35/765 Grouting

- **Sequence:** Grout when bedding or adhesive has set sufficiently to prevent disturbance of tiles.
- **Joints:** Free from dust and debris.
- **Generally:** Fill joints completely. No gaps.
- **Profile:** Flush.
- **Polishing:** When grout is hard, polish tiling with a dry cloth. Leave surface clean and free from blemishes.

### 20-55-35/770 Coloured grout

- **Staining of tiles:** Not permitted.
- **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.

### 45-80-95/610 Fixing tiles

- **Setting out:** Minimize number of cut tiles, maximize size and locate unobtrusively.
- **Tile cutting:** Neat and accurate.
- **Fixing:** Fully adhere to substrate.
- **Surplus bedding material in joints and on tile faces:** None permitted.
- **Joints in tiling:**
  - **General:** True to line, continuous and without steps. Horizontal, vertical and aligned round corners.
  - **Joints in adjoining floors, walls and skirtings:** Align.
  - **Joint depth:** Full thickness of tile.

- **Flatness and regularity of tiling:**
  - **Sudden irregularities:** Not permitted.
  - **Deviation of surface:**
    - Measurement:** From underside of a 2 m straightedge placed anywhere on surface.
    - Obstruction by tiles:** None.
    - Gap (maximum):** 3 mm.
  - **Deviation between tile surfaces either side of any joint (maximum):**
    - Joints less than 6 mm wide:** 1 mm.
    - Joints greater than 6 mm wide:** 2 mm.
- **Movement joints:** Do not tile over structural movement joints.
- **Special setting out:**
  - **Requirement:** Submit proposals.

## System completion

### 20-55-35/805 Slip resistance testing

- **Test standard:** To BS 7976 and  $\geq 36$ PTV
- **Report:**
  - **Contents:** Name of testing authority;  
Date of tests;  
Location of test;  
Temperatures of test surfaces;  
The slider material used on the pendulum tester;  
and Slip resistance values in wet and dry conditions.
  - **Requirement:** Submit.
  - **Timing:** Prior to procurement.

### 20-55-35/815 Spares for floor tiling systems

- **Spares to be supplied:** Contractor to liaise with the building manager.
- **Timing:** On completion of system.

Ω End of system

# 20-55-70/170 RAF-100 Raised access floor system - type A

## System outline

### 20-55-70/170 RAF-100 Raised access floor system type A

- **Description:** Raised access floor, fully accessible
- **System performance:** 20-55-70/205 Design submittals;  
20-55-70/210 Raised access floor design and installation type A;  
20-55-70/220 Structural grade to MOB PF2 PS/SPU;  
20-55-70/270 Electrical continuity and earth bonding;  
and 20-55-70/290 Compliance with performance requirements.
- **System manufacturer:** Submit proposals.
- **Subfloor preparation:** Make good existing screed surface to accept pedestals and fixings.
- **Support structure type:** 45-70-45/305 Access floor bridging sections;  
45-70-45/310 Access floor pedestals type A;  
and 45-70-45/315 Access floor stringers type A.
- **Pedestal fixings:** 45-50-60/410 Hexagon head stainless steel screws.
- **Raised access floor surface:** 45-45-00/320 Raised access floor panels type A, 45-45-00/301 Fantile Panel
- **Barriers in floor void:**
  - **Fire barriers:** 45-45-70/465 Sleeved mineral wool small cavity barriers type A.
- **Samples required:** 20-55-70/305 Product samples type A.
- **System accessories:** 45-75-90/345 Expanded polyethylene foam strip.
- **Execution:** 20-55-70/605 Preliminary installation;  
20-55-70/610 Installing raised access floor systems generally;  
20-55-70/620 Application of dustproof sealer type A;  
20-55-70/625 Installing raised access floor pedestals;  
20-55-70/645 Installing cavity barriers below raised access floors type A;  
20-55-70/655 Raised access floor perimeters type A;  
and 20-55-70/665 Electrical resistance tests for raised access floors with integral finishes.
- **System completion:** 20-55-70/810 Labelling raised access floor panels;  
20-55-70/820 Tools for raised access floors;  
20-55-70/830 Operating and maintenance manual for raised access floors;  
20-55-70/840 Spares for raised access floors;  
20-55-70/850 Cleaning raised access floors and below floor voids;  
;  
and 20-55-70/890 Verification of performance.

## System performance

### 20-55-70/205 Design submittals

- **Submittals:** Typical plan drawings at suitable scales;  
Typical detailed drawings at large scales including setting out information for services (cable management and power etc.) accessories;

and Technical information and certification demonstrating compliance with specification of proposed incorporated products and finishes, including floor cavity barriers.

- **Timing:** Submit during detailed design.
- **Format:** Drawings and specification in BIM compliant format.

#### 20-55-70/210 Raised access floor design and installation type A

- **Standard:** To MOB PF2 PS/SPU.
- **Access type:** Full.
- **Floor height:**
  - **Under-floor void height:** Refer drawings
- **Permissible deviations in levels:**
  - **Overall:**  $\pm 3$  mm.
  - **Over set length:**  $\pm 1.5$  mm over 5 m.
- **Ramps and steps:** Match performance of associated raised access floor.
- **Balustrade structural and safety requirements:** To BS 6180 and Building Regulations or Technical Standards where applicable.
- **Integrated services fittings:** Structural capacity equal to that of floor panels.

#### 20-55-70/220 Structural grade to MOB PF2 PS/SPU

- **Standard:** To MOB PF2 PS/SPU.
- **Grade:** Medium.

#### 20-55-70/270 Electrical continuity and earth bonding

- **Inclusion in finished work:** Not required.

#### 20-55-70/290 Compliance with performance requirements

- **Requirements:** Proof of compliance with specified performance.
- **Method:**
  - **Previous test results:** For durability.
- **Testing authority:** UKAS accredited
- **Submissions:**
  - **Format:** Test report with details of test and results.
  - **Timing:** Five working days after the test.

### Products

#### 20-55-70/305 Product samples type A

- **Manufacturer:** Knauf Integral KG
- **Submittals:** Product sample to manufacturer's standard.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project.

#### 45-45-00/301 Fantile Panel

- **Manufacturer:** As per MEP consultant's specification.



- **Setout:** Agreed with architects prior to installation.

#### 45-45-00/320 Raised access floor panels type A

- **Manufacturer:** KingSpan Access Floors Ltd.
- **Product Reference:** RGM600
- **Casing:**
  - **Material:** Carbon steel.
  - **Factory finishes:** Galvanized.
- **Core:** HD particleboard.
- **Edging:** Integral with casing.
- **Panel size:** 600mm x 600mm generally and 600 x 900mm to ensure that perimeter cuts are no less than 300mm.
- **Dimensional deviations:** To BS EN 12825 Class 1.
- **Weight (maximum):** 20 kg.
- **Panel locating method:** Positive.
- **Panel fixing:** Lay-in.

#### 45-45-70/310 Insulation products generally type A

- **Third party product certification:** Accreditation by the United Kingdom Accreditation Service (UKAS) or similar approved.
- **Evidence of compliance:** Submit copy of current certificate for proposed product.
- **Certified effective life (minimum):** 30 years.

#### 45-45-70/465 Sleeved mineral wool small cavity barriers type A

- **General requirements:** 45-45-70/310 Insulation products generally type A.
- **Manufacturer:** Siderise Group
- **Product reference:** SIDERISE RF Cavity Barriers and Firestops for Raised Access Floors.
- **Sleeves:** Polyethylene with adhesive flanges.
- **Size:** Manufacturer's standard.
- **Residual cavity width:** 100 mm.
- **Fire performance:** To BS 476.20. Integrity to match FR requirements of room as shown on (68) series.
- **Sound insulation rating:** Manufacturer's standard.

#### 45-70-45/305 Access floor bridging sections

- **Manufacturer:** Submit proposals.
- **Class:** To PSA MOB PF2 PS/SPU, Medium grade.
- **Materials:** Zinc-plated steel.
- **Fixing:** Manufacturer's standard.

#### 45-70-45/310 Access floor pedestals type A

- **Manufacturer:** Kingspan Access Floors Ltd
- **Product reference:** Medium Grade Access Floor System
- **Type:** RMG600.
- **Panel size:** 600 x 600 mm and 600 x 900 mm (medium grade).

- **Pedestals:**
  - **Type:** Alpha V.
  - **Material:** Steel.
  - **Adhesive:** Manufacturer's standard.
  - **Accessories:** None.
- **Stringers:** Not required.
- **Underfloor plenum:** Required.
- **Additional requirements:** Simploc screw down.

#### **45-70-45/315 Access floor stringers type A**

- **Manufacturer:** Kingspan Access Floors Ltd
- **Class:** To PSA MOB PF2 PS/SPU, Medium grade.
- **Materials:** Manufacturer's standard.
- **Fixings:** Manufacturer's standard.

#### **45-75-90/345 Expanded polyethylene foam strip**

- **Manufacturer:** Submit proposals.
- **Recovery:** Greater than 70%.
- **Fire rating:** 90 mins
- **Material:** Cross-linked closed cell polyethylene foam.
- **Density:** Manufacturer's standard.
- **Compression in joint (minimum):** 25%
- **Size:**
  - **Thickness:** Manufacturer's standard.
  - **Width:** Manufacturer's standard.
- **Execution:** Manufacturer's standard.

### **Execution**

#### **20-55-70/605 Preliminary installation**

- **Installation requirements:**
  - **Purpose:** For use as an installation reference sample.
  - **Location:** Complete an area of floor in an agreed location.
  - **Features to be included:** Area to include all typical features.
  - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

#### **20-55-70/610 Installing raised access floor systems generally**

- **Fixing floor panels:** Dropped-in (none).
- **Floor installation:** Clean and stable. Free from bounce and vibration. No lipping between floor panels.
- **Protective coverings:** Remove at completion.
- **Integrated services fittings:** Air handling equipment, electrical and data floor boxed if required.

#### 20-55-70/620 Application of dustproof sealer type A

- **Extent:** Concrete and masonry surfaces within raised access floor void.
- **Number of coats:** Two.
- **First coat:** Apply before pedestals are erected.
- **Second coat:** Different tint to first coat. Apply after completion of services and other associated work.

#### 20-55-70/625 Installing raised access floor pedestals

- **Fixings:** Mechanical.
- **Additional pedestals:**
  - **Position:** As necessary.
  - **Centres:** As required.

#### 20-55-70/655 Raised access floor perimeters type A

- **Type:** A
- **Perimeter Gasket:** Foam tape applied to panel edges, at perimeters, if required.

#### 20-55-70/665 Electrical resistance tests for raised access floors with integral finishes

- **Test standards:** To BS EN 1081.
- **Scope:** Test complete raised access floor.
- **Test locations:** All tenant areas.
- **Testing agent:** NICEIC Approved electrician.
- **Test results:** Submit.

### System completion

#### 20-55-70/810 Labelling raised access floor panels

- **Nonstandard panels:** Identify for relocation purposes.
- **Service identification labels:** Provide self-adhesive labels to identify under-floor services and their direction. Fix to the visible surface of the floor panel, and under carpet finish if any.

#### 20-55-70/820 Tools for raised access floors

- **Floor panel lifting devices:** At completion, supply one set of suitable devices for each type of raised access floor finish installed. Train designated personnel in their use.
- **Pedestal locking:** At completion, supply one set of tools for releasing pedestal locking. Train designated personnel in their use.

#### 20-55-70/830 Operating and maintenance manual for raised access floors

- **Contents:**
  - **Handling and lifting:** Correct method for lifting and replacing floor panels and stringers.
  - **Servicing:** Limitations on sequence, number and positions of floor panels and stringers that can be removed safely at one time.
  - **Loading:** Permissible loading, with guidance on use of spreader plates when shifting heavy equipment and subsequent maintenance.

- **Cabling and ducting:** Methods for installing cables and ducts to prevent damage to supporting structure.
- **Cleaning:** Processes for cleaning floor panels and integral finishes.
- **Floor panel coverings:** Method for replacing integral coverings.
- **System maintenance:** Minimum maintenance-free life of flooring system, and of replaceable parts if this differs from that of the whole system. Minimum period during which replaceable components will be available.
- **Routine and general maintenance:** Recommended methods and frequency.
- **Installation instructions:** Include COSHH assessment.

#### 20-55-70/840 Spares for raised access floors

- **Spares to be supplied at completion:** 2% of the total raised floor area

#### 20-55-70/850 Cleaning raised access floors and below floor voids

- **Subfloors:** At completion, thoroughly clean accessible areas of subfloors and leave free of dust and debris.
- **Raised access floor:** Clean floor thoroughly before installing items carried by floor.

#### 20-55-70/890 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

# 20-55-70/170 RAF-101 Raised access floor system - type B

## System outline

### 20-55-70/170 RAF-101 Raised access floor system type B

- **Description:** Knauf Integral GIFAfloor Sheet-panelled access floor
- **System performance:** 20-55-70/205 Design submittals;  
20-55-70/210 Raised floor design and installation type B;  
20-55-70/225 Structural load class to BS EN 12825;  
20-55-70/235 Thermal conductivity;  
and 20-55-70/250 Fire performance to BS EN 13501.
- **System manufacturer:** Knauf Integral KG
- **Subfloor preparation:** Knauf floor screed Primer Schnellgrund. Subfloor to be cleaned vacuumed and primed before installation of pedestals. Subfloor is required to be able to take a loading of at least the ultimate loading design of the raised floor. Subfloor should be free of any movement or settlement before installation begins.
- **Support structure type:** 45-70-45/310 Access floor pedestals type B and 45-70-45/315 Access floor stringers type B.
- **Pedestal fixings:** Pedestals to be glued to substrate using Knauf pedestal support glue (Pedestals to be thread sealed with Knauf thread sealer once correct height is set).
- **Raised access floor surface:** 45-45-00/320 Raised access floor panels type C.
- **Barriers in floor void:**
  - **Fire barriers:** 45-45-70/465 Sleeved mineral wool small cavity barriers type A.
- **Samples required:** 20-55-70/305 Product samples type B.
- **Execution:** 20-55-70/615 Subfloor preparation;  
20-55-70/620 Application of dustproof sealer type B;  
20-55-70/645 Installing cavity barriers below raised access floors type B;  
20-55-70/601 Environmental Conditions;  
20-55-70/670 Level Changes - ramps and steps;  
and 20-55-70/655 Raised access floor perimeters type B.
- **System completion:** 20-55-70/810 Labelling raised access floor panels;  
20-55-70/820 Tools for raised access floors;  
20-55-70/830 Operating and maintenance manual for raised access floors;  
20-55-70/840 Spares for raised access floors;  
20-55-70/850 Cleaning raised access floors and below floor voids;  
and 20-55-70/890 Verification of performance.

## System performance

### 20-55-70/205 Design submittals

- **Submittals:** Typical plan drawings at suitable scales;  
Typical detailed drawings at large scales including setting out information for services (cable management and power etc.) accessories;  
and Technical information and certification demonstrating compliance with specification of proposed incorporated products and finishes, including floor cavity barriers.

- **Timing:** Submit during detailed design.
- **Format:** Drawings and specification in BIM compliant format.

#### 20-55-70/210 Raised floor design and installation type B

- **Standard:** To BS EN 12825.
- **Access type:** Partial; individual access traps where required. To be confirmed with MEP consultant prior to procurement.
- **Floor height:**
  - **Finished raised access floor height above subfloor:** Varies refer (43) series drawings.
  - **Under-floor void height:** Varies refer (43) series drawings.
- **Permissible deviations in levels:**
  - **Overall:**  $\pm 3$  mm.
  - **Over set length:**  $\pm 1.5$  mm over 5 m.
- **Ramps and steps:** Match performance of associated raised access floor.
- **Balustrade structural and safety requirements:** To BS 6180 and Building Regulations or Technical Standards where applicable.
- **Integrated services fittings:** Structural capacity equal to that of floor panels.

#### 20-55-70/225 Structural load class to BS EN 12825

- **Load class:** To BS EN 12825, class 6.
- **Installed mass of system (maximum):** Manufacturer's standard.

#### 20-55-70/235 Thermal conductivity

- **Thermal conductivity (maximum):** 0.44 W/mK

#### 20-55-70/250 Fire performance to BS EN 13501

- **Reaction to fire:** To BS EN 13501-1, class A1<sub>fl</sub>.

### Products

#### 20-55-70/305 Product samples type B

- **Manufacturer:** Knauf Integral KG
- **Submittals:** Manufacturer's standard.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to installation.

#### 45-45-00/320 Raised access floor panels type C

- **Manufacturer:** Knauf Intergral KG
- **Point Load Deflections:** 6kN: 2.3mm
- **Edging:** T&G edge to all edges. Knauf panel edging foam (to be installed before perimeter GIFA panels)
- **Panel size:** 600mm x 600mm
- **Thickness:** 38mm
- **Weight (maximum):** Manufacturer's standard.

- **Panel locating method:** Positive.
- **Panel fixing:** Not required.

#### 45-45-70/310 Insulation products generally type A

- **Third party product certification:** Accreditation by the United Kingdom Accreditation Service (UKAS) or similar approved.
- **Evidence of compliance:** Submit copy of current certificate for proposed product.
- **Certified effective life (minimum):** 30 years.

#### 45-45-70/465 Sleeved mineral wool small cavity barriers type A

- **General requirements:** 45-45-70/310 Insulation products generally type A.
- **Manufacturer:** Siderise Group
- **Product reference:** SIDERISE RF Cavity Barriers and Firestops for Raised Access Floors.
- **Sleeves:** Polyethylene with adhesive flanges.
- **Size:** Manufacturer's standard.
- **Residual cavity width:** 100 mm.
- **Fire performance:** To BS 476.20. Integrity to match FR requirements of room as shown on (68) series.
- **Sound insulation rating:** Manufacturer's standard.

#### 45-70-45/310 Access floor pedestals type B

- **Manufacturer:** Knauf Intergral KG
- **Pedestal Centres:** 600mm grid – reduce to 300mm around perimeter.
- **Pedestal fixing:** Pedestals to be glued to substrate using Knauf pedestal support glue (Pedestals to be thread sealed with Knauf thread sealer once correct height is set).
- **Pedestal Acoustic Pads:** Knauf pedestal acoustic pads, 5mm PGR, to suit acoustic requirement.
- **Height:** Pedestals to suit void size from min 27mm up to 1200mm – M16, M20.

#### 45-70-45/315 Access floor stringers type B

- **Manufacturer:** Knauf Intergral KG
- **Product Reference:** Knauf Light duty stringers to be used over 500mm void height.
- **Perimeter Stringers:** Knauf Heavy duty stringers may be used in lieu of 300mm centres pedestals.
- **Materials:** Manufacturer's standard.
- **Fixings:** Manufacturer's standard.

## Execution

#### 20-55-70/601 Environmental Conditions

- **General:** Dry, well ventilated, not subject to extremes of temperature or humidity, and free from rapid variations of temperature or humidity.
- **Temperature (minimum):** 10 degrees celsius

#### 20-55-70/615 Subfloor preparation

- **Subfloors:**
  - **Type:** Existing concrete slab.
  - **Preparation:** Remove existing floor finishes to expose subfloor and clean off existing adhesive, debris, etc. Provide a generally level, sound and dust free base for adhesive and/ or mechanical pedestal fixing.  
Floor void surfaces to be sealed must be clean, dry and free from dust, grease and other contaminants.
- **Cleanliness:** Clean thoroughly before installation and keep clean during installation.
- **Setting out:** Before installation of services, indelibly mark pedestal positions.
- **Fixtures:** Before installation, complete the fixtures which floor panels are to be cut around or which supports are to bridge.

#### 20-55-70/620 Application of dustproof sealer type B

- **Extent:** Concrete and masonry surfaces within raised access floor void.
- **Number of coats:** Two.
- **First coat:** Apply before pedestals are erected.
- **Second coat:** Different tint to first coat. Apply after completion of services and other associated work.

#### 20-55-70/645 Installing cavity barriers below raised access floors type B

- **Installed performance:** Permanently stable, continuous, and an effective barrier to smoke and flame.
- **Distribution:**
  - **Centres (maximum):** 10 m.
  - **Subdivided areas (maximum):** Manufacturer's standard.
- **Fixing:** Fix securely to subfloor, at joints and as necessary.
- **Floor panels:** Firmly secure floor panels above cavity barriers.
- **Gaps and openings:** Seal with mineral wool or other suitable material.
- **Fire stopping:** Give notice when fire stopping is complete.

#### 20-55-70/655 Raised access floor perimeters type B

- **Expansion gaps:**
  - **Width:** 10 mm.
  - **Position:** At abutments.
- **Expansion Gap Filling:** Perimeter Knauf Flooring Edge Strip, mineral wool 1200x100x13mm
- **Filler Type:** Mineral Wool
- **Treatment:** Fill before fixing skirtings and cover strips.

#### 20-55-70/670 Level Changes - ramps and steps

- **Performance:** Match performance of associated raised access floor.
- **Proposals:** Submit details.



## System completion

### 20-55-70/810 Labelling raised access floor panels

- **Nonstandard panels:** Identify for relocation purposes.
- **Service identification labels:** Provide self-adhesive labels to identify under-floor services and their direction. Fix to the visible surface of the floor panel, and under carpet finish if any.

### 20-55-70/820 Tools for raised access floors

- **Floor panel lifting devices:** At completion, supply one set of suitable devices for each type of raised access floor finish installed. Train designated personnel in their use.
- **Pedestal locking:** At completion, supply one set of tools for releasing pedestal locking. Train designated personnel in their use.

### 20-55-70/830 Operating and maintenance manual for raised access floors

- **Contents:**
  - **Handling and lifting:** Correct method for lifting and replacing floor panels and stringers.
  - **Servicing:** Limitations on sequence, number and positions of floor panels and stringers that can be removed safely at one time.
  - **Loading:** Permissible loading, with guidance on use of spreader plates when shifting heavy equipment and subsequent maintenance.
  - **Cabling and ducting:** Methods for installing cables and ducts to prevent damage to supporting structure.
  - **Cleaning:** Processes for cleaning floor panels and integral finishes.
  - **Floor panel coverings:** Method for replacing integral coverings.
  - **System maintenance:** Minimum maintenance-free life of flooring system, and of replaceable parts if this differs from that of the whole system. Minimum period during which replaceable components will be available.
  - **Routine and general maintenance:** Recommended methods and frequency.
  - **Installation instructions:** Include COSHH assessment.

### 20-55-70/840 Spares for raised access floors

- **Spares to be supplied at completion:** 2% of the total raised floor area

### 20-55-70/850 Cleaning raised access floors and below floor voids

- **Subfloors:** At completion, thoroughly clean accessible areas of subfloors and leave free of dust and debris.
- **Raised access floor:** Clean floor thoroughly before installing items carried by floor.

### 20-55-70/890 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 20-55-85/185 FLO-500 Terrazzo floor covering system - type A

### System outline

#### 20-55-85/185 FLO-500 Terrazzo floor covering system type A

- **Description:** Cementitious terrazzo floor tiling system
- **System performance:** 20-55-85/220 Control samples;  
20-55-85/230 Durability of terrazzo floor covering systems type A;  
20-55-85/240 Aesthetic performance of terrazzo floor covering systems type A;  
and 20-55-85/290 Compliance with performance requirements type A.
- **System manufacturer:** Diespeker
- **Substrate preparation:** Substrate shall be prepared in accordance with the manufacturer's recommendations and the concrete slab to have cured for a minimum of 28 days. The surface to receive the terrazzo shall have a steel trowelled finish unless otherwise indicated or directed by the Client's Agent.
- **Levelling screed:** If required, provide a proprietary levelling screed. The Contractor shall ensure the levelling screed is compatible with the flooring system and related products. Refer to Clause 20-55-15. Apply in accordance with the manufacturer's recommendations.
- **Bedding:** 20-55-85/655 Site-mixed cement:sand mortar bedding;
- **Covering:** 45-80-95/340 Terrazzo tiles.
- **Skirtings:** 45-80-95/405 Terrazzo skirtings.
- **Movement joints:**
  - **Type:** 45-75-50/340 Metal edging angles for movement joints.
  - **Fixings:** As required to complete the installation. Contractor to Submit proposals.
- **Grout:** 20-55-85/657 Site-mixed cement:sand slurry type compatible with the mix. Finish surface to seal and fill voids. Allow the system to cure overnight. Further finishing may be required to achieve the desired surface finish to match the agreed control samples.
- **Site-applied finishes:** Apply a clear sealer with a matt finish. Sealer shall be compatible with the tiles. Contractor to Submit proposals. The final sealer shall be submitted as part of the range of control samples.
- **System accessories:** As required to complete the installation.
- **Samples required:** Refer to clause 20-55-85/220 Control samples type for tiles.
- **Execution:** 20-55-85/605 Preliminary installation;  
20-55-85/610 Suitability of bases (minimum drying times);  
20-55-85/630 Minimum working temperatures;  
20-55-85/640 Flatness and surface regularity of finished floor;  
20-55-85/660 Laying mortar bedding for terrazzo floor tiling;  
20-55-85/680 Fixing terrazzo tiling on mortar bedding;  
20-55-85/685 Installing dividing strips;  
20-55-85/705 Forming movement joints generally type A;  
20-55-85/710 Installing metal section or strip movement joints;  
20-55-85/720 Grouting;  
and 20-55-85/725 Finishing.
- **System completion:** 20-55-85/810 Slip resistance testing;  
20-55-85/820 Antistatic flooring testing;  
20-55-85/830 Maintenance manual for terrazzo floor covering systems;

20-55-85/840 Cleaning and maintenance of terrazzo floor covering systems;  
and 20-55-85/890 Verification of performance.

## System performance

### 20-55-85/220 Control samples

- **Requirements:** Submit representative samples for approval and establishment of quality.
- **Labelling:** All submitted control samples should be clearly labelled for inspection.
- **Example of floor tiling:**
  - **Size:** 3 m<sup>2</sup> dry lay.
  - **Features to be included:** Provide 1 no. sample of structural movement joint, including fixing proposal.
  - **Inclusion in finished work:** Sample areas to be part of the finished work.
  - **Test for cleaning/ products:** During the sample submission process the contractor shall submit documentation in relation to cleaning products and processes. Including a test for the following spillages: wine, blood and coffee.
- **Tile samples:**
  - **Samples to be submitted:** Provide 3 no. samples of precast units of the design mix with the applied grout and surface sealer in the profile indicated illustrating the range variation.
  - **Size (minimum):** 300mm x 300mm minimum or to match the proposed tile size. Refer to (43) Series drawings.
  - **Timing:** Submit samples during detailed design and retain on site until project completion. A set of samples is to be provided and retained in good condition for the duration of the guarantee period.

### 20-55-85/230 Durability of terrazzo floor covering systems type A

- **Requirement:** System to achieve specified minimum design life, allowing for specified level of acceptable maintenance.
- **Design life (minimum):** 30 years.
- **Acceptable maintenance:**
  - **Standard:** In accordance with BS 7543.
  - **Level of maintenance:** Level 2 - repairable and replaceable.
- **Records required:** Refer to clause 20-55-85/ 830 and clause 20-55-85/ 840.

### 20-55-85/240 Aesthetic performance of terrazzo floor covering systems type A

- **Colour and shade:** Unintended variations within terrazzo or tiles for use in each area or room are not permitted.
- **Visually defective tiles:** Do not use.
- **Final appearance:** Tiles and joints to have true, regular appearance when viewed under final lighting conditions.

### 20-55-85/290 Compliance with performance requirements type A

- **Requirements:** Proof of compliance with specified performance.
- **Method:**
  - **Previous test results:** For meeting the performance requirements.
- **Testing authority:** The tile manufacturer.
- **Submittals:**

- **Format:** Test results and certification.
- **Timing:** Prior to procurement.

## Products

### 45-75-50/340 Metal edging angles for movement joints

- **Manufacturer:** All movement joint covers shall be proprietary types from a single manufacturer
- **Material:** Brass
- **Finish:** To match the agreed control sample.
- **Size:** 3mm thick, depth to suit application.
- **Profiles and joints:** All T-junctions, L-sections, X-sections and upstands shall be prefabricated as detailed on the Contractor's working drawings. These junctions to be supplied mitred, cut and welded with welds ground flush and polished to match surround metal on exposed faces.

### 45-80-95/340 Terrazzo tiles

- **Manufacturer:** Diespeker
- **Standard:**
  - **Internal use:** To BS EN 13748-1.
- **Finish:** To be confirmed by architect prior to procurement.
- **Colour:** Two tones. To be confirmed by architect prior to procurement.
- **Sizes:** To be confirmed by architect prior to procurement.
- **Thickness:** 15mm maximum.
- **Weight (maximum):** Manufacturer's standard.
- **Slip potential:**
  - **Slip resistance value (SRV) / Pendulum test value (PVT) (minimum):**  
**Standard:** To BS 7932.  
**Requirement:** >36 dry/ wet.
  - **Surface roughness (Rz) (minimum):**  
**Standard:** To BS 1134.  
**Requirement:** 20 µm
- **Recycled content:** Manufacturer's standard.
- **Water absorption (maximum):** Manufacturer's standard.
- **Resistance to indentation (minimum):** Manufacturer's standard.
- **Antistatic properties:** Refer to clause 20-55-85/250 Antistatic performance type tiles
- **Execution:** 45-80-95/610 Fixing tiles.

### 45-80-95/405 Terrazzo skirtings

- **Manufacturer:** As general floor tiling.
- **Standard:**
  - **Finish:** To match floor tiles.
- **Internal use:** To BS EN 13748-1.
- **New clause item 1:** Refer to CGI's.
- **Colour:** To match floor tiles.
- **Sizes:** To match floor tiles or to match joint layout. Refer to (43) Series drawings..

- **Recycled content:** Manufacturer's standard.
- **Antistatic properties:** To match floor tiles.

## Execution

### 20-55-85/605 Preliminary installation

- **Required samples:**
  - **Types:** The first 5m<sup>2</sup> to 10m<sup>2</sup> of installed floor finish. Final area size and location to be agreed with the Employer's Agent.
  - **Purpose:** For use as an installation reference sample.
  - **Locations:** Lift lobbies.
  - **Features to be included:** Include interface conditions with a wall (including internal and external corner detail if practical), threshold, divider strips and a movement joint detail.
  - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

### 20-55-85/610 Suitability of bases (minimum drying times)

- **Requirement:** Start terrazzo work after the minimum drying times specified have expired.
- **Drying times (minimum):**
  - **Concrete:** Six weeks. Allow for initial shrinkage.

### 20-55-85/630 Minimum working temperatures

- **Requirement:** Start terrazzo work after the minimum temperature has been maintained for one week. Minimum temperature to be maintained until 48 hours after completion of installation.
- **Temperature (minimum):** 21°C.
- **Materials:** All materials to be internally stored above minimum temperature one week before installation.

### 20-55-85/640 Flatness and surface regularity of finished floor

- **Sudden irregularities:** Not permitted.
- **Deviation (maximum) of surface measured from underside of a 2 m straightedge, between points of contact, and placed anywhere on the surface:** 3 mm.

### 20-55-85/655 Site-mixed cement:sand mortar bedding

- **Mix (cement:sand):** Mortar for bed shall be 1 to 3½; to 4 cement to sand, with a water content such that a sample squeezed in the hand would retain its shape and not crumble, and such that a film of water would not form on the surface of the bed when compacted.
- **Components:** Cement shall be ordinary Portland cement to BS EN 197: Part 1. Sand shall be to BS 13139. Sand for floors shall be to BS EN 12620 grading limit M shall be used. Where coarser sand is used it shall be to grading limit M, but where fine sand is used, grading limit F is appropriate
- **Admixtures:** As required.
- **Water content:** Minimum necessary to achieve full compaction.
- **Consistency of mix:** Uniform. Free from lumps. Do not retemper or reconstitute mixes.

### 20-55-85/657 Site-mixed cement:sand slurry

- **Mix (cement:sand):** As recommended by the tile manufacturer.

- **Components:** As recommended by the tile manufacturer.

#### 20-55-85/660 Laying mortar bedding for terrazzo floor tiling

- **Bedding:** Compact thoroughly.
- **Thickness (minimum):** As recommended by the tile manufacturer.
- **Bonding:** As recommended by the tile manufacturer.
- **Cast-in lugs:** Include as laying proceeds.

#### 20-55-85/680 Fixing terrazzo tiling on mortar bedding

- **Thickness of slurry layer (nominal):** 2 mm.

#### 20-55-85/685 Installing dividing strips

- **Installation:** Set to required finished floor level.
- **Locations:** In accordance with the manufacturer's recommendations and at changes of the design mix/ colour.

#### 20-55-85/705 Forming movement joints generally type A

- **Installation:** Centre over joints in base. Extend through tiles and bedding to base.
- **Movement joint locations:** At 6 m (maximum) centres and at all perimeters, junctions, interfaces with beams and columns, including door thresholds and skirting and to coincide with structural movement joints in substrate
- **Joint width:** As structural movement joints in base.

#### 20-55-85/710 Installing metal section or strip movement joints

- **Fixing centres:** 300 mm.

#### 20-55-85/720 Grouting

- **Sequence:** Grout when bedding or adhesive has set sufficiently to prevent disturbance of tiles.
- **Joints:** Free from dust and debris.
- **Generally:** Fill joints completely. No gaps. Remove surplus and allow grout to cure before finishing.
- **Profile:** Flush.

#### 20-55-85/725 Finishing

- **Finish:** Confirm with architect prior to procurement.
- **Grinding:** Surface must be completely smooth and free from scratches. Correct unevenness and remove lipping between tiles.
- **Grout, dirt, foreign material, adhesive, oil and grease:** Remove. Leave tile surfaces free from blemishes and residues.
- **Holes:** Fill with matching grout.

#### 45-80-95/610 Fixing tiles

- **Setting out:** Minimize number of cut tiles, maximize size and locate unobtrusively.
- **Tile cutting:** Neat and accurate.
- **Fixing:** Fully adhere to substrate.
- **Surplus bedding material in joints and on tile faces:** None permitted.
- **Joints in tiling:**

- **General:** True to line, continuous and without steps. Horizontal, vertical and aligned round corners.
- **Joints in adjoining floors, walls and skirtings:** Align.
- **Joint depth:** Full thickness of tile.
- **Flatness and regularity of tiling:**
  - **Sudden irregularities:** Not permitted.
  - **Deviation of surface:**
    - Measurement:** From underside of a 2 m straightedge placed anywhere on surface.
    - Obstruction by tiles:** None.
    - Gap (maximum):** 3 mm.
  - **Deviation between tile surfaces either side of any joint (maximum):**
    - Joints less than 6 mm wide:** 1 mm.
    - Joints greater than 6 mm wide:** 2 mm.
- **Movement joints:** Do not tile over structural movement joints.
- **Special setting out:**
  - **Requirement:** Submit proposals.

## System completion

### 20-55-85/810 Slip resistance testing

- **Test standard:** Pendulum Flooring shall be evaluated in both dry and wet conditions using the TRL Pendulum Tester in accordance with BS EN 13036: Part 4 and the recommendations of the UK Slip Resistance Group to obtain the pendulum test value (PTV) specified.
- **Report:**
  - **Contents:** The slider material used on the pendulum tester and Slip resistance values in wet and dry conditions.
  - **Requirement:** Submit.
  - **Timing:** At completion.

### 20-55-85/820 Antistatic flooring testing

- **Preparation:** Clean and dry surfaces. Neutral pH value detergents only. Remove residues.
- **Test standard:** To BS 5385-4, Appendix A.
- **Report:**
  - **Contents:** Name of testing authority.  
Date of tests.  
Location of test.  
Electrical resistivity values.
  - **Requirement:** Submit.
  - **Timing:** At completion.

### 20-55-85/830 Maintenance manual for terrazzo floor covering systems

- **Contents:**
  - **Materials:** Record source locations of all materials and location of spares.
  - **Maintenance:** Material Certificates for each type of terrazzo material or product, from manufacturer;  
Maintenance schedule;

Recommended care instructions;  
and Recommended repair methods.

- **Installer Certificates:** Signed by manufacturers certifying that installers comply with requirements.
- **Test results:** All test results relevant to the design and maintenance of the system.
- **Timing of submission:** On completion of system.

#### 20-55-85/840 Cleaning and maintenance of terrazzo floor covering systems

- **Standards:** In accordance with the recommendations of BS 8204-4 and BS 5385-5.
- **Cleaning materials and methods:**
  - **Chemicals:** Avoid the use of chemicals which may attack or damage tiles, grouts, adhesives or bedding.
  - **Glazed tiles:** Use pH neutral, non-abrasive detergents only.

#### 20-55-85/890 Verification of performance

- **Requirement:** Check completed system and provide assurance of compliance with specified performance.
- **Submittals:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system



## 20-55-85/185 FLO-501 Terrazzo floor covering system - type B

### System outline

#### 20-55-85/185 FLO-501 Terrazzo floor covering system type B

- **Description:** In situ resin terrazzo flooring system
- **System performance:** 20-55-85/205 Design of terrazzo floor covering system;  
20-55-85/230 Durability of terrazzo floor covering systems type B;  
20-55-85/240 Aesthetic performance of terrazzo floor covering systems type B;  
and 20-55-85/290 Compliance with performance requirements type B.
- **System manufacturer:** Diespeker.
- **Substrate preparation:**
  - **Generally:** Substrate shall be prepared in accordance with the manufacturer's recommendations and the concrete slab to have cured for a minimum of 28 days. The surface to receive the terrazzo shall have a steel trowelled finish unless otherwise indicated or directed by the Client's Agent.
  - **Remedial works for treated slabs:** Concrete slab surface shall be prepared mechanically by shot blasting or by grinding if surface has been treated with a curing agent as this may prevent bonding.
  - **Primer:** If required, prime the substrate with a compatible product and allow to set in accordance with the manufacturer's written recommendations.
- **Levelling screed:** If required, provide a proprietary levelling screed. The Contractor shall ensure the levelling screed is compatible with the flooring system and related products. Refer to Clause 20-55-15. Apply a flexible epoxy polymer membrane in accordance with the manufacturer's recommendations.
- **Covering:** 20-55-85/510 In situ terrazzo mix
- **Dividing strips:** 45-20-35/330 Dividing strips.
- **Movement joints:**
  - **Type:** 45-75-50/340 Metal edging angles for movement joints.
  - **Fixings:** As required to complete the installation. Contractor to Submit proposals.
- **Grout:** 45-55-50/410 Epoxy resin grout type compatible with the mix. Finish surface to seal and fill voids. Allow the system to cure overnight. Further finishing may be required to achieve the desired surface finish to match the agreed control samples.
- **Chemical floor hardener:** Required.
- **Site-applied finishes:** Apply a clear sealer with a matt finish. Sealer shall be compatible with the topping mix. Contractor to Submit proposals. The final sealer shall be submitted as part of the range of control samples.
- **System accessories:** As required to complete the installation.
- **Samples required:** 20-55-85/305 Product samples.
- **Mock-up:** An area of the proposed terrazzo finish of not less than 5m<sup>2</sup> in the proposed colour and finish to match the control samples.
- **Execution:** 20-55-85/605 Preliminary installation;  
20-55-85/610 Suitability of bases (minimum drying times);  
20-55-85/630 Minimum working temperatures;  
20-55-85/640 Flatness and surface regularity of finished floor;

20-55-85/645 Laying separating layer below bedding;  
 20-55-85/650 Laying crack control reinforcement for bedding; - only if required  
 20-55-85/685 Installing dividing strips;  
 20-55-85/690 Laying in situ terrazzo floors;  
 20-55-85/705 Forming movement joints generally type B;  
 and 20-55-85/730 Polishing.

- **System completion:** 20-55-85/810 Slip resistance testing;  
 20-55-85/820 Antistatic flooring testing;  
 20-55-85/830 Maintenance manual for terrazzo floor covering systems;  
 20-55-85/840 Cleaning and maintenance of terrazzo floor covering systems;  
 and 20-55-85/890 Verification of performance.

## System performance

### 20-55-85/205 Design of terrazzo floor covering system

- **Detailed design:**
  - **Requirement:** Complete the design of the system.
  - **Standard:** In accordance with BS 5385-5 and the relevant parts of BS 8000-11 and In accordance with BS 8204-4.
- **Submittals:** Detailed drawings to fully describe fabrication and installation  
 Project specific fabrication, handling and installation method statements  
 Proposals for amendments to primary supporting structure and for secondary supporting structure additional to that shown on preliminary design drawings  
 Technical performance data, installation instructions and other relevant product literature
- **Timing:** Before procurement of terrazzo design mix.
- **Format:** Drawing and Specifications in electronic and hard copies.

### 20-55-85/230 Durability of terrazzo floor covering systems type B

- **Requirement:** System to achieve specified minimum design life, allowing for specified level of acceptable maintenance.
- **Design life (minimum):** 30 years.
- **Acceptable maintenance:**
  - **Standard:** In accordance with BS 7543.
  - **Level of maintenance:** Maintenance level 2 - repairable.
  - **Records required:** Refer to clause 20-55-85/ 830 and clause 20-55-85/ 840
- **Abrasion resistance:** Test for abrasion resistance, using specimen surfaces finished as intended for the project, independently determined in accordance with ASTM C 241 (or similar). Abrasion hardness measured by this method for representative specimens shall be in the range 15 to 20 and shall not be less than 10.
- **Loading:** The installed system to accommodate loads resulting from movements of the building structure, loads acting on the surface arising from maintenance and cleaning operations, impact loads, or transferred impact loads that reasonably occur during their normal service life.

### 20-55-85/240 Aesthetic performance of terrazzo floor covering systems type B

- **Colour and shade:** Unintended variations within in situ terrazzo are not permitted.

### 20-55-85/290 Compliance with performance requirements type B

- **Requirements:** Proof of compliance with specified performance.
- **Method:**

- **Testing:** Installer or his agent to carry out slip resistance test in accordance with clause 20-55-85/810 Slip resistance testing. Test samples must include any surface sealer or treatment to be applied to the finished flooring. Tested samples must include any surface sealer or treatment to be applied to the finished flooring.
- **Testing authority:** Installer or agent who is a United Kingdom Accreditation Service approved independent.
- **Submittals:**
  - **Format:** Test results and certification
  - **Timing:** i) Acceptance of the control sample.  
ii) Production.  
iii) Post-installation (in situ).

## Products

### 20-55-85/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** Provide 3 no. 500mm x 500mm sample of the design mix with the applied grout and surface sealer illustrating the range variation.  
Provide 1 no. sample of structural movement joint, minimum 500mm, including fixing proposal.  
Provide 1 no. sample of the dividing strips, minimum 500mm, including fixing proposal.
- **Purpose:** For use as a reference control sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to procurement for the Project.

### 45-20-35/330 Dividing strips

- **Manufacturer:** Submit proposals.
- **Material:** Brass
- **Finish:** Brushed
- **Colour:** To match the agreed sample.
- **Thickness:** 3mm thick.
- **Depth:** Depth shall be such as to give secure anchorage into the bedding or mechanical fixing and shall be fixed to produce an exact finished level of floor.

### 45-55-50/410 Epoxy resin grout

- **Manufacturer:** Submit proposals.
- **Third party product certification:** BBA Certificate.
- **Colour:** To match the agreed control samples

### 45-75-50/340 Metal edging angles for movement joints

- **Manufacturer:** All movement joint covers shall be proprietary types from a single manufacturer
- **Material:** Brass
- **Finish:** To match the agreed control sample.
- **Size:** 3mm thick, depth to suit application.
- **Profiles and joints:** All T-junctions, L-sections, X-sections and upstands shall be prefabricated as detailed on the Contractor's working drawings. These junctions to be supplied mitred, cut and welded with welds ground flush and polished to match surround metal on exposed faces.

## Custom made products

### 20-55-85/510 In situ terrazzo mix

- **Generally:** Topping mix shall be a mix of the matrix mix and a hardener, mixed in accordance with the manufacturer's recommendation. Ratio shall be in accordance with the manufacturer's recommendations. Add specified aggregates in accordance with the manufacturer's recommendations. Contractor to confirm thickness required to meet performance requirements based on final mix selected.
- **Chippings:** Standard colour marble or glass chips.
- **Matrix:** Epoxy resin.
- **Colour:** Two tone. Confirm with architect prior to procurement.

## Execution

### 20-55-85/605 Preliminary installation

- **Required samples:**
  - **Types:** The first 5m<sup>2</sup> to 10m<sup>2</sup> of installed floor finish. Final area size and location to be agreed with the Employer's Agent.
  - **Purpose:** For use as an installation reference sample.
  - **Locations:** Lift lobbies.
  - **Features to be included:** Include interface conditions with a wall (including internal and external corner detail if practical), threshold, divider strips and a movement joint detail.
  - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

### 20-55-85/610 Suitability of bases (minimum drying times)

- **Requirement:** Start terrazzo work after the minimum drying times specified have expired.
- **Drying times (minimum):**
  - **Concrete:** Six weeks. Allow for initial shrinkage.

### 20-55-85/630 Minimum working temperatures

- **Requirement:** Start terrazzo work after the minimum temperature has been maintained for one week. Minimum temperature to be maintained until 48 hours after completion of installation.
- **Temperature (minimum):** 21°C.
- **Materials:** All materials to be internally stored above minimum temperature one week before installation.

### 20-55-85/640 Flatness and surface regularity of finished floor

- **Sudden irregularities:** Not permitted.
- **Deviation (maximum) of surface measured from underside of a 2 m straightedge, between points of contact, and placed anywhere on the surface:** 3 mm.

### 20-55-85/645 Laying separating layer below bedding

- **Laps at joints (minimum):** 100mm minimum.

#### 20-55-85/650 Laying crack control reinforcement for bedding

- **Position:** Centre in depth of bed.
- **Ties:** Steel wire.
- **Laps (minimum):** 100 mm.

#### 20-55-85/685 Installing dividing strips

- **Installation:** Set to required finished floor level.
- **Locations:** In accordance with the manufacturer's recommendations and at changes of the design mix/ colour.

#### 20-55-85/690 Laying in situ terrazzo floors

- **Thickness (minimum):** Nominally 15mm. Contractor to confirm to meet the design intent and performance requirements.
- **Mixing terrazzo materials:**
  - **Mixing:** Before adding water, mix in a dry state to a uniform colour and with even distribution of different size aggregates.
  - **Water content:** Minimum necessary to achieve full compaction.
- **Bedding:** Compact thoroughly.
- **Terrazzo:**
  - **Laying:** Lay on layer of wet slurry and compact level with the dividing strips.
  - **Bonding:** Achieve effective bond to bedding.
- **Surfaces:**
  - **Concrete:** Free from excess laitance.
  - **Aggregate:** Regularly distribute with minimum amount of cement matrix visible.

#### 20-55-85/705 Forming movement joints generally type B

- **Installation:** Centre over joints in base. Extend through tiles and bedding to base.
- **Movement joint locations:** At 6 m (maximum) centres and at all perimeters, including door thresholds and skirting and to coincide with structural movement joints in substrate.
- **Joint width:** As structural movement joints in base.

#### 20-55-85/730 Polishing

- **Generally:** The topping shall be cured as specified before finishing. Holes and depressions in surfaces shall be filled with matching grout, well pressed into the surface and allowed to harden.
- **Finish:** Polished. Surfaces shall be mechanically polished with fine grit stones and water to a fine grit finish.
- **Patching and Fill Material:** Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.
- **Residue and dust:** Remove. Allow washed and rinsed surfaces to dry naturally.
- **Protection:** All completed areas to be adequately protected and kept clean. All adjacent finishes to be adequately protected until Practical Completion of the works.

## System completion

### 20-55-85/810 Slip resistance testing

- **Test standard:** Pendulum Flooring shall be evaluated in both dry and wet conditions using the TRL Pendulum Tester in accordance with BS EN 13036: Part 4 and the recommendations of the UK Slip Resistance Group to obtain the pendulum test value (PTV) specified.
- **Report:**
  - **Contents:** The slider material used on the pendulum tester and Slip resistance values in wet and dry conditions.
  - **Requirement:** Submit.
  - **Timing:** At completion.

### 20-55-85/820 Antistatic flooring testing

- **Preparation:** Clean and dry surfaces. Neutral pH value detergents only. Remove residues.
- **Test standard:** To BS 5385-4, Appendix A.
- **Report:**
  - **Contents:** Name of testing authority.  
Date of tests.  
Location of test.  
Electrical resistivity values.
  - **Requirement:** Submit.
  - **Timing:** At completion.

### 20-55-85/830 Maintenance manual for terrazzo floor covering systems

- **Contents:**
  - **Materials:** Record source locations of all materials and location of spares.
  - **Maintenance:** Material Certificates for each type of terrazzo material or product, from manufacturer;  
Maintenance schedule;  
Recommended care instructions;  
and Recommended repair methods.
  - **Installer Certificates:** Signed by manufacturers certifying that installers comply with requirements.
  - **Test results:** All test results relevant to the design and maintenance of the system.
- **Timing of submission:** On completion of system.

### 20-55-85/840 Cleaning and maintenance of terrazzo floor covering systems

- **Standards:** In accordance with the recommendations of BS 8204-4 and BS 5385-5.
- **Cleaning materials and methods:**
  - **Chemicals:** Avoid the use of chemicals which may attack or damage tiles, grouts, adhesives or bedding.
  - **Glazed tiles:** Use pH neutral, non-abrasive detergents only.

### 20-55-85/890 Verification of performance

- **Requirement:** Check completed system and provide assurance of compliance with specified performance.

- **Submittals:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

16014

## ***25 Wall and barrier systems***

Issued for Tender

09/04/2020



## 25-05-60/160 PCS-100 Panel cubicle system - type A

### System outline

#### 25-05-60/160 PCS-100 Panel cubicle system type A

- **Description:** Frameless cubicle system with flush doors. High quality wood veneer finish.
- **System performance:** 25-05-60/205 Design submittals;  
25-05-60/210 Structural performance of panel cubicle system;  
and 25-05-60/240 Durability.
- **System manufacturer:** Venesta Washroom Systems Ltd or similar approved.
- **System reference:** Infinite Veneer
- **Generally:** Floor clearance: 50 mm.  
Ceiling clearance: 20 mm.  
Pedestal adjustment:  $\pm 8$  mm.
- **Size:**
  - **Height:** Refer to (74) series drawings.
  - **Depth:** Refer to (74) series drawings.
- **Construction:** Headrail: Slimline aluminium profile with brushed bronze finish, 3 part fixing system which allows cubicles to finish 20 mm below ceiling height.  
Pedestals: Stainless steel with brushed bronze finish.  
Wall fixings: Concealed aluminium channel.
- **Colour/ Finish:** Board/ panel: 720 kg/m<sup>3</sup> MDF, finished with lacquered, genuine Elm wood veneer. Veneer to match Elm veneer used in timber grid ceiling CLG-201.  
Thickness: Partitions, 30 mm; doors and pilasters, 44 mm.  
Edge treatment: Matching hardwood.
- **Accessories:** 45-35-72/322 Clothes hooks type A
- **Hardware:** 45-25-18/340 Door privacy indicator bolts.
- **Samples required:** 25-05-60/305 Product samples.
- **Execution:** 25-05-60/620 Installation of panel cubicle systems and 25-05-60/650 Installing hardware and accessories to cubicle panels.
- **System completion:** 25-05-60/895 Verification of performance.

### System performance

#### 25-05-60/205 Design submittals

- **Requirement:** To complete the design to BS 6465-1.
- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Typical plan, elevation and sectional drawings at suitable scales.
- **Timing:** At construction stage, before manufacture.
- **Format:** Drawings and specification in BIM-compliant format.

#### 25-05-60/210 Structural performance of panel cubicle system

- **Strength grade:** To BS 5234-2, medium duty.

- **Additional tests:** For optional performance requirements to BS 5234-1.
- **Wall lining height (maximum):** Refer to (74) drawings.

#### 25-05-60/240 Durability

- **Durability class:** To BS EN 204, class D3.
- **Laminate grade:** To BS EN 438-1, grade HG.

### Products

#### 25-05-60/305 Product samples

- **Submittals:** Door and panel laminate; Hardware and accessories; and Pedestal.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project.

#### 45-25-18/340 Door privacy indicator bolts

- **Manufacturer:** Venesta
- **Bolt type:** Submit proposals.
- **Category of use:**
  - **Duty:** Medium duty.
- **Material and finish:** Anodised aluminium, brushed bronze finish.
- **Emergency release facility:** Required.
- **Execution:** 45-25-18/610 Fasteners for hardware.

#### 45-35-72/322 Clothes hooks type A

- **Form:** Door mounted individual coat hooks.
- **Material:** Anodised aluminium, brushed bronze finish.
- **Integral accessories:** Manufacturer's standard to complete the installation.

### Execution

#### 25-05-60/620 Installation of panel cubicle systems

- **Timing:** Install cubicles after the building is weathertight, wet trades have finished their work, wall and floor finishes are complete, and the building is well dried out.
- **Accuracy:** Set out frames, panels and doors to ensure that they are plumb, level and accurately aligned.
- **Modifications:** Do not cut, plane or sand prefinished components except where shown on drawings.
- **Frame fixing:** Floor and ceiling anchored.
- **Wall fixings:** Submit proposals.
- **Floor fixings:** Submit proposals.

- **Movement:** Make allowance for future thermal and moisture movement in accordance with panel manufacturers' requirements.

#### 25-05-60/650 Installing hardware and accessories to cubicle panels

- **Fixings generally:** Secure hardware and accessories using methods and fasteners adequate to prevent pulling away, bowing or other distortions to frames, panels and doors.
- **Through panel fixings:** Fix accessories back-to-back in adjacent cubicles to conceal fixings.

#### 45-25-18/610 Fasteners for hardware

- **Colour and finish:** Match hardware.

### System completion

#### 25-05-60/895 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-05-60/160 PCS-101 Panel cubicle system - type B

### System outline

#### 25-05-60/160 PCS-101 Panel cubicle system type B

- **Description:** Frameless cubicle system with flush doors. High quality coloured finish.
- **System performance:** 25-05-60/205 Design submittals;  
25-05-60/210 Structural performance of panel cubicle system;  
and 25-05-60/240 Durability.
- **System manufacturer:** Venesta Washroom Systems Ltd
- **System reference:** Infinite Colourcoat
- **Size:**
  - **Height:** Refer to (74 drawings).
  - **Depth:** Refer to (74 drawings).
- **Construction:** Headrail: Slimline aluminium profile with stainless steel finish, 3 part fixing system which allows cubicles to finish 20 mm below ceiling height.  
Pedestals: Stainless steel with brushed finish.  
Wall fixings: Concealed aluminium channel.
- **Colour/Finish:** Board/ panel: 720 kg/m<sup>3</sup> MDF, sprayed with one coat of primer and finished with pigmented polyurethane lacquer.  
Thickness: Partitions, 30 mm; doors and pilasters, 44 mm.  
Edge treatment: As main board.  
Colour: RAL colour TBC.
- **Accessories:** 45-35-72/322 Clothes hooks type B
- **Execution:** 25-05-60/620 Installation of panel cubicle systems and 25-05-60/650 Installing hardware and accessories to cubicle panels.
- **System completion:** 25-05-60/895 Verification of performance.

### System performance

#### 25-05-60/205 Design submittals

- **Requirement:** To complete the design to BS 6465-1.
- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Typical plan, elevation and sectional drawings at suitable scales.
- **Timing:** At construction stage, before manufacture.
- **Format:** Drawings and specification in BIM-compliant format.

#### 25-05-60/210 Structural performance of panel cubicle system

- **Strength grade:** To BS 5234-2, medium duty.
- **Additional tests:** For optional performance requirements to BS 5234-1.
- **Wall lining height (maximum):** Refer to (74) drawings.

#### 25-05-60/240 Durability

- **Durability class:** To BS EN 204, class D3.
- **Laminate grade:** To BS EN 438-1, grade HG.

### Products

#### 45-35-72/322 Clothes hooks type B

- **Manufacturer:** Venesta
- **Form:** Door mounted individual coat hooks.
- **Material:** Stainless steel.
- **Integral accessories:** Manufacturer's standard to complete the installation.

### Execution

#### 25-05-60/620 Installation of panel cubicle systems

- **Timing:** Install cubicles after the building is weathertight, wet trades have finished their work, wall and floor finishes are complete, and the building is well dried out.
- **Accuracy:** Set out frames, panels and doors to ensure that they are plumb, level and accurately aligned.
- **Modifications:** Do not cut, plane or sand prefinished components except where shown on drawings.
- **Frame fixing:** Floor and ceiling anchored.
- **Wall fixings:** Submit proposals.
- **Floor fixings:** Submit proposals.
- **Movement:** Make allowance for future thermal and moisture movement in accordance with panel manufacturers' requirements.

#### 25-05-60/650 Installing hardware and accessories to cubicle panels

- **Fixings generally:** Secure hardware and accessories using methods and fasteners adequate to prevent pulling away, bowing or other distortions to frames, panels and doors.
- **Through panel fixings:** Fix accessories back-to-back in adjacent cubicles to conceal fixings.

### System completion

#### 25-05-60/895 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-05-65/110 PCS-200 Panel partition system - type A

### System outline

#### 25-05-65/110 PCS-200 Panel partition system type A

- **Description:** Glazed fire-rated partition system with one fixed panel and one door panel.
- **System performance:** 25-05-65/205 Design submittals for panel partition systems;  
25-05-65/210 Structural performance of panel partition systems;  
25-05-65/230 Fire performance to BS EN 13501 of panel partition systems;  
25-05-65/260 Inclusive design of panel partition systems;  
and 25-05-65/290 Compliance with performance requirements.
- **System manufacturer:** Submit proposals.
- **Surround:** Anodised aluminium frames with brushed bronze finish. Colour TBC. Refer to drawings (00)\_143 and (00)\_243.
- **Infill:** Fire-rated reeded glass. Toughened and laminated. Low iron. Glass to comply with BS 6262 and BS EN ISO 12543. Manifestations to comply with statutory requirements. For security refer to Fluent 2 information.
- **Door:** Framing and infill glazing to match full system.
- **Fixings:** Fixing brackets bolted to frame and screw fixed to structure. Fixings to be concealed. Submit proposals.
- **Fire rating:** Panel system to achieve 120 minutes fire rating overall. Door panel to achieve 60 minutes fire rating. Refer to Fire report by BB7.
- **System accessories:** Accessories as required to complete the installation and achieve compliance.
- **Samples required:** 25-05-65/305 Product samples.
- **Execution:** 25-05-65/605 Preliminary installation of panel partition systems;  
25-05-65/620 Installing panel partition systems generally;  
and 25-05-65/710 Fire stopping to panel partition systems.
- **System completion:** 25-05-65/810 Inspection of panel partition systems and 25-05-65/895 Verification of performance.

### System performance

#### 25-05-65/205 Design submittals for panel partition systems

- **Detailed design:**
  - **Requirement:** To complete the design.
  - **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
  - **Submittals:** Typical plan, elevation and section drawings at suitable scales.
  - **Timing:** At construction stage, before manufacture.
  - **Format:** Drawings and specification in BIM-compliant format.

#### 25-05-65/210 Structural performance of panel partition systems

- **Strength grade:** To BS 5234-2, grade Medium (MD).

- **Additional test requirements:** Door slamming;  
Partition stiffness;  
and Surface damage from impact.
- **Impact loads:** Comply with loading criteria for building occupancy in accordance with structural and safety requirements of BS 6180 Table 2 and BS 6399 (withdrawn but still cited in building regulations).

#### 25-05-65/230 Fire performance to BS EN 13501 of panel partition systems

- **Fire resistance:** To BS EN 13501-2, class EI 120.
- **Reaction to fire classification:** To BS EN 13501-1, class B-s3, d2 or better.

#### 25-05-65/260 Inclusive design of panel partition systems

- **Design considerations:**
  - **Use class:** B1.
- **Risk assessment:**
  - **Scope:** Required to establish appropriate measures and implications. To be cross referenced with fire prevention, security, emergency egress and safety in use measures. Submit for agreement.
  - **Consultees:** Submit proposals.
- **Inclusive design:** Complete design in accordance with recommendations in Building Regulations Eng Approved Document M2 and Submit proposals and Complete design in accordance with recommendations in BS 8300-2 and Submit proposals.
- **Best practice design:**
  - **Manifestation of glazing:** No manifestation required as reeded glass is used.
  - **Visual contrast:** Operating controls, LRV 15 points contrast.
  - **Door furniture:**
    - Operability:** Knobs not permitted. Operable with clenched fist.
    - Projection:** 70 mm maximum.
    - Maximum torque:** Oval cross-section handle: 8 N·m to depress and 5.5 N·m to lift.
- **Conformity:** Submit proposals.

#### 25-05-65/290 Compliance with performance requirements

- **Purpose:** Proof of compliance with specified performance.
- **General requirements:** Include details of performance related to the particular elements of construction.
- **Method:**
  - **Previous test results:** For structural performance and fire performance.
- **Testing authority:** UKAS-accredited (or European equivalent).
- **Submissions:**
  - **Format:** Declaration of Performance.  
Test results and certification.
  - **Timing:** At construction stage, before manufacture.

## Products

### 25-05-65/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** 600 x 600mm sample to include glazed panel+frame, door panel + frame, and door ironmongery.  
Samples of all visible accessories and manifestation.
- **Purpose:** For aesthetic evaluation.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** At construction stage, before ordering for project.

## Execution

### 25-05-65/620 Installing panel partition systems generally

- **Setting out:** Plumb, true to line and level, and free from bowing, undulations and other planar distortions.
- **Joints:** Align accurately with no lipping.
- **Stability:** Fix securely with additional supports where necessary at perimeters.
- **Moisture and thermal movement of framing and panels:** Make adequate allowance.
- **Coordination:** Check designated routes for service runs and outlets, lighting positions and other services in floors, walls and ceilings etc. Do not obstruct floor or wall outlets and access panels. Do not obstruct lighting positions, sprinkler heads, smoke detectors etc.
- **Tolerances:** Allow for installation tolerances.

### 25-05-65/710 Fire stopping to panel partition systems

- **General:** Seal gaps at junctions of partitions with perimeter abutments, cavity barriers, service penetrations etc. Prevent penetration of smoke and flame.
- **Fire and sound barriers within floor and ceiling voids:** Align accurately with partitions.

## System completion

### 25-05-65/810 Inspection of panel partition systems

- **General:** Inspect and adjust for correct fit and operation.
- **Hardware:** Check, adjust and lubricate as necessary for correct operation.

### 25-05-65/895 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system



## 25-05-65/110 PCS-201 Panel partition system - type B

### System outline

#### 25-05-65/110 PCS-201 Panel partition system type B

- **Description:** Glazed partition system with door panel, in Ground floor office reception, separating hotel and office. Bronze frames to match the main entrance door frames.
- **System performance:** 25-05-65/205 Design submittals for panel partition systems;  
25-05-65/210 Structural performance of panel partition systems;  
25-05-65/230 Fire performance to BS EN 13501 of panel partition systems;  
25-05-65/260 Inclusive design of panel partition systems;  
and 25-05-65/290 Compliance with performance requirements.
- **System manufacturer:** Submit proposals.
- **Surround:** Bronze frames. Refer to drawings (00)\_140, (00)\_240 & (00)\_241. Bronze material to match the main entrance bronze frames.
- **Infill:** Toughened laminated glass. Low iron.
- **Door:** Framing and infill glazing to match full system. Door to have hold-open hardware.
- **Fixings:** Fixing brackets bolted to frame and screw fixed to structure. Fixings to be concealed. Submit proposals.
- **System accessories:** Accessories as required to complete the installation and achieve compliance.
- **Samples required:** 25-05-65/305 Product samples.
- **Execution:** 25-05-65/620 Installing panel partition systems generally and 25-05-65/605 Preliminary installation of panel partition systems.
- **System completion:** 25-05-65/810 Inspection of panel partition systems and 25-05-65/895 Verification of performance.

### System performance

#### 25-05-65/205 Design submittals for panel partition systems

- **Detailed design:**
  - **Requirement:** To complete the design.
  - **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
  - **Submittals:** Typical plan, elevation and section drawings at suitable scales.
  - **Timing:** At construction stage, before manufacture.
  - **Format:** Drawings and specification in BIM-compliant format.

#### 25-05-65/210 Structural performance of panel partition systems

- **Strength grade:** To BS 5234-2, grade Medium (MD).
- **Additional test requirements:** Door slamming;  
Partition stiffness;  
and Surface damage from impact.
- **Impact loads:** Comply with loading criteria for building occupancy in accordance with structural

and safety requirements of BS 6180 Table 2 and BS 6399 (withdrawn but still cited in building regulations).

#### 25-05-65/230 Fire performance to BS EN 13501 of panel partition systems

- **Fire resistance:** To BS EN 13501-2, class EI 120.
- **Reaction to fire classification:** To BS EN 13501-1, class B-s3, d2 or better.

#### 25-05-65/260 Inclusive design of panel partition systems

- **Design considerations:**
  - **Use class:** B1.
- **Risk assessment:**
  - **Scope:** Required to establish appropriate measures and implications. To be cross referenced with fire prevention, security, emergency egress and safety in use measures. Submit for agreement.
  - **Consultees:** Submit proposals.
- **Inclusive design:** Complete design in accordance with recommendations in Building Regulations Eng Approved Document M2 and Submit proposals and Complete design in accordance with recommendations in BS 8300-2 and Submit proposals.
- **Best practice design:**
  - **Manifestation of glazing:** No manifestation required as reeded glass is used.
  - **Visual contrast:** Operating controls, LRV 15 points contrast.
  - **Door furniture:**
    - Operability:** Knobs not permitted. Operable with clenched fist.
    - Projection:** 70 mm maximum.
    - Maximum torque:** Oval cross-section handle: 8 N·m to depress and 5.5 N·m to lift.
- **Conformity:** Submit proposals.

#### 25-05-65/290 Compliance with performance requirements

- **Purpose:** Proof of compliance with specified performance.
- **General requirements:** Include details of performance related to the particular elements of construction.
- **Method:**
  - **Previous test results:** For structural performance and fire performance.
- **Testing authority:** UKAS-accredited (or European equivalent).
- **Submissions:**
  - **Format:** Declaration of Performance. Test results and certification.
  - **Timing:** At construction stage, before manufacture.

## Products

#### 25-05-65/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** 600 x 600mm sample to include glazed panel+frame, door panel + frame, and door ironmongery.  
Samples of all visible accessories and manifestation.

- **Purpose:** For aesthetic evaluation.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** At construction stage, before ordering for project.

## Execution

### 25-05-65/620 Installing panel partition systems generally

- **Setting out:** Plumb, true to line and level, and free from bowing, undulations and other planar distortions.
- **Joints:** Align accurately with no lipping.
- **Stability:** Fix securely with additional supports where necessary at perimeters.
- **Moisture and thermal movement of framing and panels:** Make adequate allowance.
- **Coordination:** Check designated routes for service runs and outlets, lighting positions and other services in floors, walls and ceilings etc. Do not obstruct floor or wall outlets and access panels. Do not obstruct lighting positions, sprinkler heads, smoke detectors etc.
- **Tolerances:** Allow for installation tolerances.

## System completion

### 25-05-65/810 Inspection of panel partition systems

- **General:** Inspect and adjust for correct fit and operation.
- **Hardware:** Check, adjust and lubricate as necessary for correct operation.

### 25-05-65/895 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

# 25-10-55/165 BLK-200 Masonry internal partition system - type A

## System outline

### 25-10-55/165 BLK-200 Masonry internal partition system type A

- **Description:** BLK-200: 90min Fire Rating & Dntw + CTr 60 dB Acoustic rating. High Density 7.5n Concrete Block or similar approved.
- **System performance:** 25-10-55/200 Accuracy of brick and block walling;  
25-10-55/206 Design working life of masonry systems;  
25-10-55/235 Design of masonry walling;  
25-10-55/252 Design for fire performance of masonry structures;  
and 25-10-55/290 Compliance with performance requirements for masonry systems.
- **Masonry units:** 45-80-50/300 Aggregate concrete blocks.
- **Mortar:** 45-55-50/303 Cement gauged prescribed mix mortar.
- **Execution:** 25-10-55/601 Cleanliness;  
25-10-55/605 Execution Standards for masonry structures;  
25-10-55/674 Masonry movement joints;  
25-10-55/707 Building in frames;  
25-10-55/708 Openings for frames;  
and .
- **System completion:** 25-10-55/895 Verification of performance.
- **Ancillary structural components:** 45-25-95/375 Restraints at head of non-loadbearing walls.  
Movement joints (fire resisting).

## System performance

### 25-10-55/200 Accuracy of brick and block walling

- **Courses:** Level and true to line.
- **Faces, angle and features:** Plumb
- **Permissible deviations:**
  - **Position in plan of any point in relation to the specified building reference line and/or point at the same level:**  $\pm 10$  mm.
  - **Straightness in any 5 m length:**  $\pm 5$  mm.
  - **Verticality up to 3 m height:**  $\pm 10$  mm.
  - **Verticality up to 7 m height:**  $\pm 14$  mm.
  - **Overall thickness of walls:**  $\pm 10$  mm.
  - **Level of bed joints up to 5 m (brick masonry):**  $\pm 11$  mm.
  - **Level of bed joints up to 5 m (block masonry):**  $\pm 13$  mm.
  - **Window and door openings:**
    - Width of openings up to 3m:**  $\pm 5$  mm.
    - Height of openings up to 3m:**  $\pm 5$  mm.

#### 25-10-55/206 Design working life of masonry systems

- **Design working life category:** Category 4 in accordance with BS EN 1990.

#### 25-10-55/235 Design of masonry walling

- **Standard:** To BS EN 1996-1-1.

#### 25-10-55/252 Design for fire performance of masonry structures

- **Standard:** In accordance with BS EN 1365-1.
- **Building purpose group:** Basement Levels With Sprinklers
- **Loadbearing capacity, integrity and insulation:** By the equivalent time of fire exposure to PD 6688-1-2, Annex B.
- **Criteria:** Submit proposals.

#### 25-10-55/290 Compliance with performance requirements for masonry systems

- **Requirement:** Proof of compliance with specified performance.
- **Method:**
  - **Previous test results:** For structural performance.  
For fire performance.  
For acoustic performance.
  - **Computer simulation testing:** For thermal performance.

### Products

#### 45-25-95/375 Restraints at head of non-loadbearing walls

- **Manufacturer:** Submit proposals.
- **Form:** Stainless steel channel to BS EN 10346.
- **Execution:** 45-25-95/625 Installing restraints at head of non-loadbearing walls.  
Head restraint requirements/ spacing to be determined by Structural Engineer and Contractor to be informed.

#### 45-55-50/303 Cement gauged prescribed mix mortar

- **Manufacturer:** CEMEX UK or equivalent.
- **Product reference:** Submit proposals.
- **Standard:** To BS EN 998-2.
- **Mortar type:** Class M4 or equivalent
- **Mix:** Submit proposals.
- **Admixture:** Styrene butadiene rubber (SBR).
- **Reaction to fire classification:** Class A1.
- **Additional requirements:** Manufacturer's standard.
- **Execution:** 45-55-50/605 Testing compressive strength of mortar.

#### 45-80-50/300 Aggregate concrete blocks

- **Masonry Units:** Category 1
- **Manufacturer:** Lignacite Ltd or equivalent.

- **Minimum Mean Compressive Strength Of:** 7.3 N/mm<sup>2</sup>
- **Product reference:** Lignacite Commodity Blocks, Fair Faced
- **Form:** Solid.
- **Face Size:** 440 x 215 mm
- **Thickness:** 100mm
- **Joint Profile:** Flush.
- **Average Density:** 100mm 1570 kg/m<sup>3</sup>
- **Thermal Resistance:** 100mm: 0.111 m<sup>2</sup> K/W
- **Fire:** 120 mins
- **Execution:** 45-80-50/625 Brickwork and blockwork appearance;  
45-80-50/630 Brickwork and blockwork bond;  
45-80-50/635 Brickwork and blockwork pointing;  
45-80-50/655 Facing brickwork and blockwork joints;  
and 45-80-50/690 Laying brick and block masonry units generally.

#### **45-80-50/404 Precast concrete lintels**

- **Manufacturer:** Submit proposals.
- **Standard:** To BS EN 845-2.
- **Execution:** 45-80-50/620 Installing lintels.

### **Execution**

#### **25-10-55/601 Cleanliness**

- **Cavity base and faces, ties, insulation and exposed dpcs:** Free from mortar and debris.

#### **25-10-55/605 Execution Standards for masonry structures**

- **Standard:** To BS EN 1996-2.

#### **25-10-55/674 Masonry movement joints**

- **Joint frequency:** Refer to structural information.
- **Joint width:** Submit proposals. No Less than 16mm.

#### **25-10-55/708 Openings for frames**

- **Formation:** Use accurate, rigid templates to required size.

#### **45-25-95/625 Installing restraints at head of non-loadbearing walls**

- **Fixing:** Secure to soffit.
- **Joint filler placement:** Full, no gaps.

#### **45-55-50/605 Testing compressive strength of mortar**

- **Testing authority:** An approved laboratory.
- **Test method:** To BS EN 1015-11.
- **Preliminary tests procedure:**
  - **Specimens:**  
**Number:** 6.

**Specimen type:** 40 x 40 x 160 mm prisms.

**Preparation:** At least six weeks before walling commences.

- **Specimen testing:** Half of specimens at 7 days, remainder at 28 days.
- **Retarded mixes:** Extend curing periods to include retardation period.
- **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 designation of mortar.

- **Site tests procedure:**

- **Specimens:**

**Number:** Six per 150m<sup>2</sup> of walling or per storey, whichever the more frequent.

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

**Timing:** Half of specimens at 7 days remainder at 28 days.

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

- **Results:** Submit.

#### 45-80-50/620 Installing lintels

- **Bedding:** On mortar as used for adjacent work.
- **Support arrangement:** Inner leaf, all intermediate leaves and outer leaf.
- **Bearing length (minimum):** Submit proposals.
- **Joint above inserted lintel or masonry:** Fully consolidate with semidry mortar to support existing structure.

#### 45-80-50/625 Brickwork and blockwork appearance

- **Brick/ block selection:** Do not use units with damaged faces or arrises.
- **Cut masonry units:** Where cut faces or edges are exposed, cut with table masonry saw.
- **Quality control:** Lay masonry units to match relevant reference panels.
- **Setting out:** To produce satisfactory junctions and joints with built-in features and components.
- **Coursing:** Evenly spaced using gauge rods.
- **Lifts:** Complete in one operation.

#### 45-80-50/630 Brickwork and blockwork bond

- **Bond type:** Varies, see drawings

#### 45-80-50/635 Brickwork and blockwork pointing

- **Joint preparation:** Remove debris. Dampen surface.
- **Profile:** To be agreed after sampling process.

#### 45-80-50/655 Facing brickwork and blockwork joints

- **Profile:** To be agreed after sampling process

#### 45-80-50/690 Laying brick and block masonry units generally

- **Mortar joints:** Lay units on a full bed. Fill vertical joints and voids.
- **Thin mortar joints:**
  - **Generally:** Lay blocks on a full bed. Fill vertical joints.
  - **Clay block vertical joints:** Interlock without mortar.
- **Joint appearance:** Neat and consistent.
- **Bond where not specified:** Half lap stretcher.

- **Vertical joints in brick and concrete block facework:** Plumb at every fifth cross joint.
- **Cleanliness:**
  - **Facework:** Keep clean.
  - **Mortar on facework:** Mortar on facework should be allowed to dry before being removed with a stiff bristled brush.
  - **Removal of marks and stains:** Rubbing and other abrasive or chemical cleaning methods not permitted.

## System completion

### 25-10-55/895 Verification of performance

- **Requirement:** Contractor shall check completed masonry unit systems and provide assurance of compliance with specified performance.
- **Submittals:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation unless otherwise directed by the Architect.

Ω End of system



# 25-10-55/165 BLK-201 Masonry internal partition system - type B

## System outline

### 25-10-55/165 BLK-201 Masonry internal partition system type B

- **Description:** BLK-201: 120min Fire Rating & Dntw + CTr 60 dB Acoustic rating. High Density 7.5n Architectural Block or similar approved.
- **System performance:** 25-10-55/200 Accuracy of brick and block walling;  
25-10-55/206 Design working life of masonry systems;  
25-10-55/235 Design of masonry walling;  
25-10-55/252 Design for fire performance of masonry structures;  
and 25-10-55/290 Compliance with performance requirements for masonry systems.
- **Masonry units:** 45-80-50/300 Aggregate concrete blocks.
- **Mortar:** 45-55-50/303 Cement gauged prescribed mix mortar.
- **Execution:** 25-10-55/601 Cleanliness;  
25-10-55/605 Execution Standards for masonry structures;  
25-10-55/674 Masonry movement joints;  
25-10-55/707 Building in frames;  
and 25-10-55/708 Openings for frames.
- **System completion:** 25-10-55/895 Verification of performance.
- **Ancillary structural components:** 45-25-95/375 Restraints at head of non-loadbearing walls.  
Movement joints (fire resisting).

## System performance

### 25-10-55/200 Accuracy of brick and block walling

- **Courses:** Level and true to line.
- **Faces, angle and features:** Plumb
- **Permissible deviations:**
  - **Position in plan of any point in relation to the specified building reference line and/or point at the same level:**  $\pm 10$  mm.
  - **Straightness in any 5 m length:**  $\pm 5$  mm.
  - **Verticality up to 3 m height:**  $\pm 10$  mm.
  - **Verticality up to 7 m height:**  $\pm 14$  mm.
  - **Overall thickness of walls:**  $\pm 10$  mm.
  - **Level of bed joints up to 5 m (brick masonry):**  $\pm 11$  mm.
  - **Level of bed joints up to 5 m (block masonry):**  $\pm 13$  mm.
  - **Window and door openings:**
    - Width of openings up to 3m:  $\pm 5$  mm.
    - Height of openings up to 3m:  $\pm 5$  mm.

### 25-10-55/206 Design working life of masonry systems

- **Design working life category:** Category 4 in accordance with BS EN 1990.

#### 25-10-55/235 Design of masonry walling

- **Standard:** To BS EN 1996-1-1.

#### 25-10-55/252 Design for fire performance of masonry structures

- **Standard:** In accordance with BS EN 1365-1.
- **Building purpose group:** Basement Levels With Sprinklers
- **Loadbearing capacity, integrity and insulation:** By the equivalent time of fire exposure to PD 6688-1-2, Annex B.
- **Criteria:** Submit proposals.

#### 25-10-55/290 Compliance with performance requirements for masonry systems

- **Requirement:** Proof of compliance with specified performance.
- **Method:**
  - **Previous test results:** For structural performance.  
For fire performance.  
For acoustic performance.
  - **Computer simulation testing:** For thermal performance.

### Products

#### 45-25-95/375 Restraints at head of non-loadbearing walls

- **Manufacturer:** Submit proposals.
- **Form:** Stainless steel channel to BS EN 10346.
- **Execution:** 45-25-95/625 Installing restraints at head of non-loadbearing walls.  
Head restraint requirements/ spacing to be determined by Structural Engineer and Contractor to be informed.

#### 45-55-50/303 Cement gauged prescribed mix mortar

- **Manufacturer:** CEMEX UK or equivalent.
- **Product reference:** Submit proposals.
- **Standard:** To BS EN 998-2.
- **Mortar type:** Class M4 or equivalent
- **Mix:** Submit proposals.
- **Admixture:** Styrene butadiene rubber (SBR).
- **Reaction to fire classification:** Class A1.
- **Additional requirements:** Manufacturer's standard.
- **Execution:** 45-55-50/605 Testing compressive strength of mortar.

#### 45-80-50/300 Aggregate concrete blocks

- **Masonry Units:** Category 1
- **Manufacturer:** Lignacite Ltd or equivalent.
- **Minimum Mean Compressive Strength Of:** 7.3 N/mm<sup>2</sup>
- **Product reference:** Lignacite Commodity Blocks, Fair Faced
- **Form:** Solid.

- **Face Size:** 440 x 215 mm
- **Thickness:** 100mm
- **Joint Profile:** Flush.
- **Average Density:** 100mm 1570 kg/m<sup>3</sup>
- **Thermal Resistance:** 100mm: 0.111 m<sup>2</sup> K/W
- **Fire:** 120 mins
- **Execution:** 45-80-50/625 Brickwork and blockwork appearance;  
45-80-50/630 Brickwork and blockwork bond;  
45-80-50/635 Brickwork and blockwork pointing;  
45-80-50/655 Facing brickwork and blockwork joints;  
and 45-80-50/690 Laying brick and block masonry units generally.

#### **45-80-50/404 Precast concrete lintels**

- **Manufacturer:** Submit proposals.
- **Standard:** To BS EN 845-2.
- **Execution:** 45-80-50/620 Installing lintels.

### **Execution**

#### **25-10-55/601 Cleanliness**

- **Cavity base and faces, ties, insulation and exposed dpcs:** Free from mortar and debris.

#### **25-10-55/605 Execution Standards for masonry structures**

- **Standard:** To BS EN 1996-2.

#### **25-10-55/674 Masonry movement joints**

- **Joint frequency:** Refer to structural information.
- **Joint width:** Submit proposals. No Less than 16mm.

#### **25-10-55/708 Openings for frames**

- **Formation:** Use accurate, rigid templates to required size.

#### **45-25-95/625 Installing restraints at head of non-loadbearing walls**

- **Fixing:** Secure to soffit.
- **Joint filler placement:** Full, no gaps.

#### **45-55-50/605 Testing compressive strength of mortar**

- **Testing authority:** An approved laboratory.
- **Test method:** To BS EN 1015-11.
- **Preliminary tests procedure:**
  - **Specimens:**  
**Number:** 6.  
**Specimen type:** 40 x 40 x 160 mm prisms.  
**Preparation:** At least six weeks before walling commences.
  - **Specimen testing:** Half of specimens at 7 days, remainder at 28 days.

- **Retarded mixes:** Extend curing periods to include retardation period.
- **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 designation of mortar.
- **Site tests procedure:**
  - **Specimens:**

**Number:** Six per 150m<sup>2</sup> of walling or per storey, whichever the more frequent.

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

**Timing:** Half of specimens at 7 days remainder at 28 days.

**Retarded mixes:** Extend curing periods to include retardation period.
- **Results:** Submit.

#### 45-80-50/620 Installing lintels

- **Bedding:** On mortar as used for adjacent work.
- **Support arrangement:** Inner leaf, all intermediate leaves and outer leaf.
- **Bearing length (minimum):** Submit proposals.
- **Joint above inserted lintel or masonry:** Fully consolidate with semidry mortar to support existing structure.

#### 45-80-50/625 Brickwork and blockwork appearance

- **Brick/ block selection:** Do not use units with damaged faces or arrises.
- **Cut masonry units:** Where cut faces or edges are exposed, cut with table masonry saw.
- **Quality control:** Lay masonry units to match relevant reference panels.
- **Setting out:** To produce satisfactory junctions and joints with built-in features and components.
- **Coursing:** Evenly spaced using gauge rods.
- **Lifts:** Complete in one operation.

#### 45-80-50/630 Brickwork and blockwork bond

- **Bond type:** Varies, see drawings

#### 45-80-50/635 Brickwork and blockwork pointing

- **Joint preparation:** Remove debris. Dampen surface.
- **Profile:** To be agreed after sampling process.

#### 45-80-50/655 Facing brickwork and blockwork joints

- **Profile:** To be agreed after sampling process

#### 45-80-50/690 Laying brick and block masonry units generally

- **Mortar joints:** Lay units on a full bed. Fill vertical joints and voids.
- **Thin mortar joints:**
  - **Generally:** Lay blocks on a full bed. Fill vertical joints.
  - **Clay block vertical joints:** Interlock without mortar.
- **Joint appearance:** Neat and consistent.
- **Bond where not specified:** Half lap stretcher.
- **Vertical joints in brick and concrete block facework:** Plumb at every fifth cross joint.
- **Cleanliness:**
  - **Facework:** Keep clean.

- **Mortar on facework:** Mortar on facework should be allowed to dry before being removed with a stiff bristled brush.
- **Removal of marks and stains:** Rubbing and other abrasive or chemical cleaning methods not permitted.

## System completion

### 25-10-55/895 Verification of performance

- **Requirement:** Contractor shall check completed masonry unit systems and provide assurance of compliance with specified performance.
- **Submittals:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation unless otherwise directed by the Architect.

Ω End of system

# 25-15-25/135 FPS-100 Gypsum board partition system - type A

## System outline

### 25-15-25/135 FPS-100 Gypsum board partition system type A

- **Type:** A
- **Description:** Metal stud partition system, nominal 145mm in a staggered stud construction, with 2 x layers of sound resistant board one side and 1 x layer of moisture resistant board the other. Refer to (22) Series drawings for configuration, indicative design and heights.
- **System performance:** 25-15-25/207 Framed partition system design requirements; 25-15-25/230 Fire performance to BS EN 13501 type B; and 25-15-25/240 Acoustic performance type B.
- **System manufacturer:** British Gypsum or equivalent.
- **System reference:** GypWall STAGGERED or equivalent.
- **Studs:**
  - **Type:** Corrosion resistant 'I' studs of suitable size and gauge with 'C' studs of suitable size and gauge at abutments, to BS EN 14195.
  - **Centres:** 600mm nominally. Where the linings have to receive wall tiles reduce centers to 300mm. Where linings are specialist systems, refer to 25-85 clauses provide additional studs and provide bracing to meet the design intent.
- **Head condition:**
  - **Type:** Corrosion resistant floor and ceiling channels of suitable size and gauge, fixed to slab and soffit.
  - **Deflection allowance:** Refer to the Structural Engineer's documentation.
- **Insulation:** Isover APR 1200 or equivalent in a suitable thickness to meet the performance requirements, British Board of Agrément (BBA) certified.
- **Linings:**
  - **Type:** 2 x sound resistant board in a suitable thickness to meet the performance requirements to one side and 1 x MR board in a suitable thickness to meet the performance requirements on the other, to BS EN 520. Where receiving tiles replace outer board with tile backer board or similar, board to Category C Class 2 of BS EN 12467.
  - **Edge:** Submit proposals.
- **Finishing:**
  - **Type:** Taped seamless finish unless otherwise indicated, to BS EN 13963, Type 1.
  - **Primer/ Sealer:** One coat of Gyproc Drywall Prime or acceptable equivalent. For use where vapour control is a consideration: Two coats of Gyproc Drywall Sealer.
- **Accessories:** Rigid beads/ stops.  
Control Joint.  
Drywall Archbead.  
Drywall Metal Angle Bead.  
Drywall Metal Edge Bead.  
Drywall Plastic Edge Bead.  
Jack-Point Screws (for metal to metal): Corrosion-resistant self-drilling zinc plated steel screws with countersunk cross head.

Drywall screws: Corrosion resistant self tapping steel screws with countersunk cross head.

Corner bead;

Shadow gap trims;

Pattressing and noggings;

Provide accessories where required.

- **Other requirements:** As recommended by the system manufacturer.
- **Joint treatment:** 45-35-62/435 Gypsum-based bedding compounds
- **Primer:** 45-35-64/325 Primers for plasterboard
- **Finish:** Painted as Clause 35-85-60.  
Lined as Clause 25-85-45.  
Tiled as Clause 25-85-97
- **Execution:** 25-15-25/610 Installing framed partitions generally;  
25-15-25/630 Installing framing for partitions;  
25-15-25/650 Installing deflection heads;  
25-15-25/660 Installing plasterboard to metal framing;  
25-15-25/690 Sealing gaps and air paths around partitions;  
and 25-15-25/640 Framing to staggered stud partitions.
- **System completion:** 25-15-25/895 Verification of performance.

## System performance

### 25-15-25/207 Framed partition system design requirements

- **Standard:** To BS 8000-0, BS 8212, studs to BS EN 14195.
- **Materials, components and details:** Use only the same as those tested and identified in assessment reports.

### 25-15-25/230 Fire performance to BS EN 13501 type B

- **Fire resistance:** To BS EN 13501-2, class EI 90.
- **Reaction to fire classification:** To BS EN 13501-1, Class B-s3, d2 or better.
- **Fire Performance Partitions Identification:** Install fire performance labels to all new fire rated partitions and existing fire performance partitions where identifiable and verified by the appropriate person.

### 25-15-25/240 Acoustic performance type B

- **Sound attenuation:**
  - **Standards:** Laboratory tested in accordance with BS EN ISO 10848-3 and rated in accordance with BS EN ISO 717-1.
  - **Weighted normalized flanking level difference Dnf, w (minimum):** 53 dB

## Execution

### 25-15-25/610 Installing framed partitions generally

- **Standard:** To BS 8000-0 and BS 8212.
- **Deviations and tolerances:**
  - **Vertical deviation (maximum):**  $\pm 5$  mm measured above or below the setting out position, in accordance with BS 8212 clause 3.3.2.

- **Horizontal deviation (maximum):**  $\pm 3$  mm measured at the setting out level (ceiling or floor), in accordance with BS 8212 clause 3.3.2.
- **Finished surfaces:** Maximum deviation band of 10 mm in accordance with BS 8212 clause 3.3.3.

#### 25-15-25/630 Installing framing for partitions

- **Partition height:** As shown on (22) series design drawings.
- **Head condition:** Concrete slab and Metal decking with primary structural frame.
- **Layout:** Single row studs.
- **Stud centres (nominal):** 600 mm.
- **Setting out:**
  - **General:** Accurately align and plumb.
  - **Frame and stud positions:** Equal centres, to suit linings. Maintain sequence across openings.
  - **Additional supports:** As required.
- **Fixing perimeter framing to supporting structures:** Fix at maximum 600 mm centres.
- **Head deflection allowance (maximum):** Refer to the Structural Engineer's documentation.
- **Openings:**
  - **General:** Form accurately.
  - **Openings for doorsets:** Provide sleeved or boxed metal studs and/ or suitable timber framing to achieve strength grade requirements for framing assembly and adequately support weight of door.
  - **Services penetrations:** Allow for associated fire stopping.

#### 25-15-25/640 Framing to staggered stud partitions

- **Horizontal members:** Fix noggins, bearers and boards between alternate studs and not touching adjacent offset studs.

#### 25-15-25/650 Installing deflection heads

- **Deflection head detail:** Concealed deflection head.
- **Fixing:** Do not fix boards to head framing channels. Do not fix head framing directly to soffit linings or metal decking.

#### 25-15-25/660 Installing plasterboard to metal framing

- **Wall linings:** Fix securely.
- **Fixing centres (maximum):**
  - **Single layer boarding:** 300 mm centres generally and 200 mm centres at external angles.
  - **Multi-layer boarding:** Inner layers at 300 mm centres round perimeters; face layer at 300 mm centres.
- **Fixing positions:** Position screws 10 mm minimum from edges of boards.
- **Screw heads:** Set in a depression. Do not break paper or gypsum core.

#### 25-15-25/690 Sealing gaps and air paths around partitions

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



**45-45-50/605 Installing gypsum based board**

- **General:** Use fixing, jointing, sealing and finishing installation methods recommended by board manufacturer.
- **Cutting plasterboard:** Neat and accurate. Do not damage core or tear paper facing.
- **Cut edges:** Minimize. Position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.
- **Fixing boards:** Securely, to suitably prepared and accurately levelled backgrounds.
- **Finishing:** Neat. Provide flush, smooth, flat surfaces free from bowing and abrupt changes of level.

**45-45-50/640 Level of dry lining across joints**

- **Sudden irregularities:** Not permitted.
- **Joint deviations:**
  - **General:** Measure from faces of adjacent boards using methods and straight edges (450 mm long with feet/ pads) to BS 8212.
  - **Tapered edge joints:** 3 mm maximum permissible deviation across joints when measured with feet resting on boards.
  - **External angles:** 4 mm maximum permissible deviation for both faces.
  - **Internal angles:** 5 mm maximum permissible deviation for both faces.

**45-45-50/650 Seamless jointing to gypsum boards**

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

**System completion****25-15-25/895 Verification of performance**

- **Requirements:** Contractor to check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-15-25/135 FPS-101 Gypsum board partition system - type B

### System outline

#### 25-15-25/135 FPS-101 Gypsum board partition system type B

- **Description:** Metal stud partition system, nominal 414mm, with 1 x layer of sound resistant board and 1 x layer of moisture resistant board to both sides. Refer to (22) Series drawings for configuration, indicative design and heights.
- **System performance:** 25-15-25/207 Framed partition system design requirements; 25-15-25/230 Fire performance to BS EN 13501 type B; and 25-15-25/240 Acoustic performance type B.
- **System manufacturer:** British Gypsum or equivalent.
- **System reference:** BG GypWall QUIETor equivalent.
- **Studs:**
  - **Type:** Corrosion resistant 'I' studs of suitable size and gauge with 'C' studs of suitable size and gauge at abutments.
  - **Centres:** 600mm nominally. Where the linings have to receive additional linings or finishes reduce centers to 300mm. Where linings are specialist systems, refer to 25-85 clauses provide additional studs and provide bracing to meet the design intent.
- **Head condition:**
  - **Type:** Corrosion resistant floor and ceiling channels of suitable size and gauge, fixed to slab and soffit.
  - **Deflection allowance:** Refer to the Structural Engineer's documentation.
- **Insulation:** Isover APR 1200 or equivalent in a suitable thickness to meet the performance requirements.
- **Linings:**
  - **Type:** 1 x sound resistant board in a suitable thickness to meet the performance requirements to one side and 1 x moisture resistant board in a suitable thickness to meet the performance requirements on the other, to BS EN 520. Where receiving tiles replace outer board with tile backer board or similar, board to Category C Class 2 of BS EN 12467.
  - **Edge:** Submit proposals.
- **Finishing:**
  - **Type:** Taped seamless finish unless otherwise indicated, to BS EN 13963, Type 1.
  - **Primer/ Sealer:** One coat of Gyproc Drywall Prime or acceptable equivalent. For use where vapour control is a consideration: Two coats of Gyproc Drywall Sealer.
- **Accessories:** Rigid beads/ stops.  
Control Joint.  
Drywall Archbead.  
Drywall Metal Angle Bead.  
Drywall Metal Edge Bead.  
Drywall Plastic Edge Bead.  
Jack-Point Screws (for metal to metal): Corrosion-resistant self-drilling zinc plated steel screws with countersunk cross head.  
Drywall screws: Corrosion resistant self tapping steel screws with countersunk cross head.

Corner bead;  
Shadow gap trims;  
Pattressing and noggings;  
Provide accessories where required.

- **Other requirements:** As recommended by the system manufacturer.
- **Joint treatment:** 45-35-62/435 Gypsum-based bedding compounds
- **Primers:** Primers for plasterboard.
- **Finish:** Painted as Clause 35-85-60.  
Lined as Clause 25-85-45.  
Tiled as Clause 25-85-97
- **Execution:** 25-15-25/610 Installing framed partitions generally;  
25-15-25/630 Installing framing for partitions;  
25-15-25/650 Installing deflection heads;  
25-15-25/690 Sealing gaps and air paths around partitions;  
and 25-15-25/660 Installing plasterboard to metal framing.
- **System completion:** 25-15-25/895 Verification of performance.

## System performance

### 25-15-25/207 Framed partition system design requirements

- **Standard:** To BS 8000-0, BS 8212, studs to BS EN 14195.
- **Materials, components and details:** Use only the same as those tested and identified in assessment reports.

### 25-15-25/230 Fire performance to BS EN 13501 type B

- **Fire resistance:** To BS EN 13501-2, class EI 90.
- **Reaction to fire classification:** To BS EN 13501-1, Class B-s3, d2 or better.
- **Fire Performance Partitions Identification:** Install fire performance labels to all new fire rated partitions and existing fire performance partitions where identifiable and verified by the appropriate person.

### 25-15-25/240 Acoustic performance type B

- **Sound attenuation:**
  - **Standards:** Laboratory tested in accordance with BS EN ISO 10848-3 and rated in accordance with BS EN ISO 717-1.
  - **Weighted normalized flanking level difference Dnf, w (minimum):** 53 dB

## Execution

### 25-15-25/610 Installing framed partitions generally

- **Standard:** To BS 8000-0 and BS 8212.
- **Deviations and tolerances:**
  - **Vertical deviation (maximum):**  $\pm 5$  mm measured above or below the setting out position, in accordance with BS 8212 clause 3.3.2.
  - **Horizontal deviation (maximum):**  $\pm 3$  mm measured at the setting out level (ceiling or floor), in accordance with BS 8212 clause 3.3.2.

- **Finished surfaces:** Maximum deviation band of 10 mm in accordance with BS 8212 clause 3.3.3.

#### 25-15-25/630 Installing framing for partitions

- **Partition height:** As shown on (22) series design drawings.
- **Head condition:** Concrete slab and Metal decking with primary structural frame.
- **Layout:** Single row studs.
- **Stud centres (nominal):** 600 mm.
- **Setting out:**
  - **General:** Accurately align and plumb.
  - **Frame and stud positions:** Equal centres, to suit linings. Maintain sequence across openings.
  - **Additional supports:** As required.
- **Fixing perimeter framing to supporting structures:** Fix at maximum 600 mm centres.
- **Head deflection allowance (maximum):** Refer to the Structural Engineer's documentation.
- **Openings:**
  - **General:** Form accurately.
  - **Openings for doorsets:** Provide sleeved or boxed metal studs and/ or suitable timber framing to achieve strength grade requirements for framing assembly and adequately support weight of door.
  - **Services penetrations:** Allow for associated fire stopping.

#### 25-15-25/650 Installing deflection heads

- **Deflection head detail:** Concealed deflection head.
- **Fixing:** Do not fix boards to head framing channels. Do not fix head framing directly to soffit linings or metal decking.

#### 25-15-25/660 Installing plasterboard to metal framing

- **Wall linings:** Fix securely.
- **Fixing centres (maximum):**
  - **Single layer boarding:** 300 mm centres generally and 200 mm centres at external angles.
  - **Multi-layer boarding:** Inner layers at 300 mm centres round perimeters; face layer at 300 mm centres.
- **Fixing positions:** Position screws 10 mm minimum from edges of boards.
- **Screw heads:** Set in a depression. Do not break paper or gypsum core.

#### 25-15-25/690 Sealing gaps and air paths around partitions

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

#### 45-45-50/605 Installing gypsum based board

- **General:** Use fixing, jointing, sealing and finishing installation methods recommended by board manufacturer.
- **Cutting plasterboard:** Neat and accurate. Do not damage core or tear paper facing.

- **Cut edges:** Minimize. Position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.
- **Fixing boards:** Securely, to suitably prepared and accurately levelled backgrounds.
- **Finishing:** Neat. Provide flush, smooth, flat surfaces free from bowing and abrupt changes of level.

#### 45-45-50/640 Level of dry lining across joints

- **Sudden irregularities:** Not permitted.
- **Joint deviations:**
  - **General:** Measure from faces of adjacent boards using methods and straight edges (450 mm long with feet/ pads) to BS 8212.
  - **Tapered edge joints:** 3 mm maximum permissible deviation across joints when measured with feet resting on boards.
  - **External angles:** 4 mm maximum permissible deviation for both faces.
  - **Internal angles:** 5 mm maximum permissible deviation for both faces.

#### 45-45-50/650 Seamless jointing to gypsum boards

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

### System completion

#### 25-15-25/895 Verification of performance

- **Requirements:** Contractor to check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-15-25/135 FPS-102 Gypsum board partition system - type C

### System outline

#### 25-15-25/135 FPS-102 Gypsum board partition system type C

- **Description:** Metal stud partition system, nominal 127mm, with 1 x layer of sound resistant board and 1 x layer of high performance plasterboard to both sides. Refer to (22) Series drawings for configuration, indicative design and heights.
- **System performance:** 25-15-25/207 Framed partition system design requirements; 25-15-25/230 Fire performance to BS EN 13501 type A; and 25-15-25/240 Acoustic performance type B.
- **System manufacturer:** British Gypsum or equivalent.
- **System reference:** GypWall ROBUST or equivalent.
- **Studs:**
  - **Type:** Corrosion resistant 'I' studs of suitable size and gauge with 'C' studs of suitable size and gauge at abutments.
  - **Centres:** 600mm nominally. Where the linings have to receive additional linings or finishes reduce centers to 300mm. Where linings are specialist systems, refer to 25-85 clauses provide additional studs and provide bracing to meet the design intent.
- **Head condition:**
  - **Type:** Corrosion resistant floor and ceiling channels of suitable size and gauge, fixed to slab and soffit.
  - **Deflection allowance:** Refer to the Structural Engineer's documentation.
- **Insulation:** Isover APR 1200 or equivalent in a suitable thickness to meet the performance requirements.
- **Linings:**
  - **Type:** 1 x sound resistant board in a suitable thickness to meet the performance requirements to one side and 1 x high performance plasterboard in a suitable thickness to meet the performance requirements on the other, to BS EN 520. Where receiving tiles replace outer board with tile backer board or similar, board to Category C Class 2 of BS EN 12467.
  - **Edge:** Submit proposals.
- **Finishing:**
  - **Type:** Taped seamless finish unless otherwise indicated, to BS EN 13963, Type 1.
  - **Primer/ Sealer:** One coat of Gyproc Drywall Prime or acceptable equivalent. For use where vapour control is a consideration: Two coats of Gyproc Drywall Sealer.
- **Accessories:** Rigid beads/ stops.  
Control Joint.  
Drywall Archbead.  
Drywall Metal Angle Bead.  
Drywall Metal Edge Bead.  
Drywall Plastic Edge Bead.  
Jack-Point Screws (for metal to metal): Corrosion-resistant self-drilling zinc plated steel screws with countersunk cross head.  
Drywall screws: Corrosion resistant self tapping steel screws with countersunk cross head.

Corner bead;  
Shadow gap trims;  
Pattressing and noggings;  
Provide accessories where required.

- **Other requirements:** As recommended by the system manufacturer.
- **Joint treatment:** 45-35-62/435 Gypsum-based bedding compounds
- **Finish:** 45-35-64/325 Primers for plasterboard  
Painted as Clause 35-85-60.  
Lined as Clause 25-85-45.  
Tiled as Clause 25-85-97.
- **Execution:** 25-15-25/610 Installing framed partitions generally;  
25-15-25/630 Installing framing for partitions;  
25-15-25/650 Installing deflection heads;  
25-15-25/690 Sealing gaps and air paths around partitions;  
and 25-15-25/660 Installing plasterboard to metal framing.
- **System completion:** 25-15-25/895 Verification of performance.

## System performance

### 25-15-25/207 Framed partition system design requirements

- **Standard:** To BS 8000-0, BS 8212, studs to BS EN 14195.
- **Materials, components and details:** Use only the same as those tested and identified in assessment reports.

### 25-15-25/230 Fire performance to BS EN 13501 type A

- **Fire resistance:** To BS EN 13501-2, class EI 120.
- **Reaction to fire classification:** To BS EN 13501-1, Class B-s3, d2 or better.
- **Fire Performance Partitions Identification:** Install fire performance labels to all new fire rated partitions and existing fire performance partitions where identifiable and verified by the appropriate person.

### 25-15-25/240 Acoustic performance type B

- **Sound attenuation:**
  - **Standards:** Laboratory tested in accordance with BS EN ISO 10848-3 and rated in accordance with BS EN ISO 717-1.
  - **Weighted normalized flanking level difference D<sub>nf, w</sub> (minimum):** 53 dB

## Execution

### 25-15-25/610 Installing framed partitions generally

- **Standard:** To BS 8000-0 and BS 8212.
- **Deviations and tolerances:**
  - **Vertical deviation (maximum):** ± 5 mm measured above or below the setting out position, in accordance with BS 8212 clause 3.3.2.
  - **Horizontal deviation (maximum):** ± 3 mm measured at the setting out level (ceiling or floor), in accordance with BS 8212 clause 3.3.2.

- **Finished surfaces:** Maximum deviation band of 10 mm in accordance with BS 8212 clause 3.3.3.

#### 25-15-25/630 Installing framing for partitions

- **Partition height:** As shown on (22) series design drawings.
- **Head condition:** Concrete slab and Metal decking with primary structural frame.
- **Layout:** Single row studs.
- **Stud centres (nominal):** 600 mm.
- **Setting out:**
  - **General:** Accurately align and plumb.
  - **Frame and stud positions:** Equal centres, to suit linings. Maintain sequence across openings.
  - **Additional supports:** As required.
- **Fixing perimeter framing to supporting structures:** Fix at maximum 600 mm centres.
- **Head deflection allowance (maximum):** Refer to the Structural Engineer's documentation.
- **Openings:**
  - **General:** Form accurately.
  - **Openings for doorsets:** Provide sleeved or boxed metal studs and/ or suitable timber framing to achieve strength grade requirements for framing assembly and adequately support weight of door.
  - **Services penetrations:** Allow for associated fire stopping.

#### 25-15-25/650 Installing deflection heads

- **Deflection head detail:** Concealed deflection head.
- **Fixing:** Do not fix boards to head framing channels. Do not fix head framing directly to soffit linings or metal decking.

#### 25-15-25/660 Installing plasterboard to metal framing

- **Wall linings:** Fix securely.
- **Fixing centres (maximum):**
  - **Single layer boarding:** 300 mm centres generally and 200 mm centres at external angles.
  - **Multi-layer boarding:** Inner layers at 300 mm centres round perimeters; face layer at 300 mm centres.
- **Fixing positions:** Position screws 10 mm minimum from edges of boards.
- **Screw heads:** Set in a depression. Do not break paper or gypsum core.

#### 25-15-25/690 Sealing gaps and air paths around partitions

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

#### 45-45-50/605 Installing gypsum based board

- **General:** Use fixing, jointing, sealing and finishing installation methods recommended by board manufacturer.
- **Cutting plasterboard:** Neat and accurate. Do not damage core or tear paper facing.



- **Cut edges:** Minimize. Position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.
- **Fixing boards:** Securely, to suitably prepared and accurately levelled backgrounds.
- **Finishing:** Neat. Provide flush, smooth, flat surfaces free from bowing and abrupt changes of level.

#### 45-45-50/640 Level of dry lining across joints

- **Sudden irregularities:** Not permitted.
- **Joint deviations:**
  - **General:** Measure from faces of adjacent boards using methods and straight edges (450 mm long with feet/ pads) to BS 8212.
  - **Tapered edge joints:** 3 mm maximum permissible deviation across joints when measured with feet resting on boards.
  - **External angles:** 4 mm maximum permissible deviation for both faces.
  - **Internal angles:** 5 mm maximum permissible deviation for both faces.

#### 45-45-50/650 Seamless jointing to gypsum boards

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

### System completion

#### 25-15-25/895 Verification of performance

- **Requirements:** Contractor to check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-15-25/135 FPS-103 Gypsum board partition system - type D

### System outline

#### 25-15-25/135 FPS-103 Gypsum board partition system type D

- **Description:** Metal stud partition system, nominal 162mm, with 2 x layer of sound resistant board to both sides. Refer to (22) Series drawings for configuration, indicative design and heights.
- **System performance:** 25-15-25/207 Framed partition system design requirements; 25-15-25/230 Fire performance to BS EN 13501 type B; and 25-15-25/240 Acoustic performance type A.
- **System manufacturer:** British Gypsum or equivalent.
- **System reference:** GypWall QUIET SF or equivalent.
- **Studs:**
  - **Type:** Corrosion resistant 'I' studs of suitable size and gauge with 'C' studs of suitable size and gauge at abutments.
  - **Centres:** 600mm nominally. Where the linings have to receive additional linings or finishes reduce centers to 300mm. Where linings are specialist systems, refer to 25-85 clauses provide additional studs and provide bracing to meet the design intent.
- **Head condition:**
  - **Type:** Corrosion resistant floor and ceiling channels of suitable size and gauge, fixed to slab and soffit.
  - **Deflection allowance:** Refer to the Structural Engineer's documentation.
- **Insulation:** Isover APR 1200 or equivalent in a suitable thickness to meet the performance requirements.
- **Linings:**
  - **Type:** 2 x sound resistant boards to each side to meet the performance requirements on the other, to BS EN 520. Where receiving tiles replace outer board with tile backer board or similar, board to Category C Class 2 of BS EN 12467.
  - **Edge:** Submit proposals.
- **Finishing:**
  - **Type:** Taped seamless finish unless otherwise indicated, to BS EN 13963, Type 1.
  - **Primer/ Sealer:** One coat of Gyproc Drywall Prime or acceptable equivalent. For use where vapour control is a consideration: Two coats of Gyproc Drywall Sealer.
- **Accessories:** Rigid beads/ stops.  
Control Joint.  
Drywall Archbead.  
Drywall Metal Angle Bead.  
Drywall Metal Edge Bead.  
Drywall Plastic Edge Bead.  
Jack-Point Screws (for metal to metal): Corrosion-resistant self-drilling zinc plated steel screws with countersunk cross head.  
Drywall screws: Corrosion resistant self tapping steel screws with countersunk cross head.  
Corner bead;  
Shadow gap trims;

Pattressing and noggings;  
Provide accessories where required.

- **Other requirements:** As recommended by the system manufacturer.
- **Joint treatment:** 45-35-62/435 Gypsum-based bedding compounds
- **Finish:** 45-35-64/325 Primers for plasterboard  
Painted as Clause 35-85-60.  
Lined as Clause 25-85-45.  
Tiled as Clause 25-85-97.
- **Execution:** 25-15-25/610 Installing framed partitions generally;  
25-15-25/630 Installing framing for partitions;  
25-15-25/650 Installing deflection heads;  
25-15-25/690 Sealing gaps and air paths around partitions;  
and 25-15-25/660 Installing plasterboard to metal framing.
- **System completion:** 25-15-25/895 Verification of performance.

## System performance

### 25-15-25/207 Framed partition system design requirements

- **Standard:** To BS 8000-0, BS 8212, studs to BS EN 14195.
- **Materials, components and details:** Use only the same as those tested and identified in assessment reports.

### 25-15-25/230 Fire performance to BS EN 13501 type B

- **Fire resistance:** To BS EN 13501-2, class EI 90.
- **Reaction to fire classification:** To BS EN 13501-1, Class B-s3, d2 or better.
- **Fire Performance Partitions Identification:** Install fire performance labels to all new fire rated partitions and existing fire performance partitions where identifiable and verified by the appropriate person.

### 25-15-25/240 Acoustic performance type A

- **Sound attenuation:**
  - **Standards:** Laboratory tested in accordance with BS EN ISO 10848-3 and rated in accordance with BS EN ISO 717-1.
  - **Weighted normalized flanking level difference D<sub>nf, w</sub> (minimum):** 48 dB
- **Sound absorption:**
  - **Standards:** Measured in accordance with BS EN ISO 354 and rated in accordance with BS EN ISO 11654.

## Execution

### 25-15-25/610 Installing framed partitions generally

- **Standard:** To BS 8000-0 and BS 8212.
- **Deviations and tolerances:**
  - **Vertical deviation (maximum):** ± 5 mm measured above or below the setting out position, in accordance with BS 8212 clause 3.3.2.
  - **Horizontal deviation (maximum):** ± 3 mm measured at the setting out level (ceiling or floor), in accordance with BS 8212 clause 3.3.2.

- **Finished surfaces:** Maximum deviation band of 10 mm in accordance with BS 8212 clause 3.3.3.

#### 25-15-25/630 Installing framing for partitions

- **Partition height:** As shown on (22) series design drawings.
- **Head condition:** Concrete slab and Metal decking with primary structural frame.
- **Layout:** Single row studs.
- **Stud centres (nominal):** 600 mm.
- **Setting out:**
  - **General:** Accurately align and plumb.
  - **Frame and stud positions:** Equal centres, to suit linings. Maintain sequence across openings.
  - **Additional supports:** As required.
- **Fixing perimeter framing to supporting structures:** Fix at maximum 600 mm centres.
- **Head deflection allowance (maximum):** Refer to the Structural Engineer's documentation.
- **Openings:**
  - **General:** Form accurately.
  - **Openings for doorsets:** Provide sleeved or boxed metal studs and/ or suitable timber framing to achieve strength grade requirements for framing assembly and adequately support weight of door.
  - **Services penetrations:** Allow for associated fire stopping.

#### 25-15-25/650 Installing deflection heads

- **Deflection head detail:** Concealed deflection head.
- **Fixing:** Do not fix boards to head framing channels. Do not fix head framing directly to soffit linings or metal decking.

#### 25-15-25/660 Installing plasterboard to metal framing

- **Wall linings:** Fix securely.
- **Fixing centres (maximum):**
  - **Single layer boarding:** 300 mm centres generally and 200 mm centres at external angles.
  - **Multi-layer boarding:** Inner layers at 300 mm centres round perimeters; face layer at 300 mm centres.
- **Fixing positions:** Position screws 10 mm minimum from edges of boards.
- **Screw heads:** Set in a depression. Do not break paper or gypsum core.

#### 25-15-25/690 Sealing gaps and air paths around partitions

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

#### 45-45-50/605 Installing gypsum based board

- **General:** Use fixing, jointing, sealing and finishing installation methods recommended by board manufacturer.
- **Cutting plasterboard:** Neat and accurate. Do not damage core or tear paper facing.

- **Cut edges:** Minimize. Position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.
- **Fixing boards:** Securely, to suitably prepared and accurately levelled backgrounds.
- **Finishing:** Neat. Provide flush, smooth, flat surfaces free from bowing and abrupt changes of level.

#### 45-45-50/640 Level of dry lining across joints

- **Sudden irregularities:** Not permitted.
- **Joint deviations:**
  - **General:** Measure from faces of adjacent boards using methods and straight edges (450 mm long with feet/ pads) to BS 8212.
  - **Tapered edge joints:** 3 mm maximum permissible deviation across joints when measured with feet resting on boards.
  - **External angles:** 4 mm maximum permissible deviation for both faces.
  - **Internal angles:** 5 mm maximum permissible deviation for both faces.

#### 45-45-50/650 Seamless jointing to gypsum boards

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

### System completion

#### 25-15-25/895 Verification of performance

- **Requirements:** Contractor to check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-15-25/135 FPS-104 Gypsum board partition system - type E

### System outline

#### 25-15-25/135 FPS-104 Gypsum board partition system type E

- **Description:** Metal stud partition system, nominal 200mm, with 4 x layers of sound resistant board to both sides. Refer to (22) Series drawings for configuration, indicative design and heights.
- **System performance:** 25-15-25/230 Fire performance to BS EN 13501 type A; 25-15-25/207 Framed partition system design requirements; and 25-15-25/240 Acoustic performance type A.
- **System manufacturer:** British Gypsum or equivalent.
- **System reference:** GypWall QUIET or equivalent.
- **Studs:**
  - **Type:** Corrosion resistant 'I' studs of suitable size and gauge with 'C' studs of suitable size and gauge at abutments.
  - **Centres:** 600mm nominally. Where the linings have to receive additional linings or finishes reduce centers to 300mm. Where linings are specialist systems, refer to 25-85 clauses provide additional studs and provide bracing to meet the design intent.
- **Head condition:**
  - **Type:** Corrosion resistant floor and ceiling channels of suitable size and gauge, fixed to slab and soffit.
  - **Deflection allowance:** Refer to the Structural Engineer's documentation.
- **Insulation:** Isover APR 1200 or equivalent in a suitable thickness to meet the performance requirements.
- **Linings:**
  - **Type:** 4 x sound resistant boards to each side to meet the performance requirements on the other, to BS EN 520. Where receiving tiles replace outer board with tile backer board or similar, board to Category C Class 2 of BS EN 12467.
  - **Edge:** Submit proposals.
- **Finishing:**
  - **Type:** Taped seamless finish unless otherwise indicated, to BS EN 13963, Type 1.
  - **Primer/ Sealer:** One coat of Gyproc Drywall Prime or acceptable equivalent. For use where vapour control is a consideration: Two coats of Gyproc Drywall Sealer.
- **Accessories:** Rigid beads/ stops.  
Control Joint.  
Drywall Archbead.  
Drywall Metal Angle Bead.  
Drywall Metal Edge Bead.  
Drywall Plastic Edge Bead.  
Jack-Point Screws (for metal to metal): Corrosion-resistant self-drilling zinc plated steel screws with countersunk cross head.  
Drywall screws: Corrosion resistant self tapping steel screws with countersunk cross head.  
Corner bead;

Shadow gap trims;  
Pattressing and noggings;  
Provide accessories where required.

- **Other requirements:** As recommended by the system manufacturer.
- **Linings:**
- **Joint treatment:** 45-35-62/435 Gypsum-based bedding compounds
- **Finish:** 45-35-64/325 Primers for plasterboard  
Painted as Clause 35-85-60.  
Lined as Clause 25-85-45.  
Tiled as Clause 25-85-97.
- **Execution:** 25-15-25/610 Installing framed partitions generally;  
25-15-25/630 Installing framing for partitions;  
25-15-25/650 Installing deflection heads;  
25-15-25/690 Sealing gaps and air paths around partitions;  
and 25-15-25/660 Installing plasterboard to metal framing.
- **System completion:** 25-15-25/895 Verification of performance.

## System performance

### 25-15-25/207 Framed partition system design requirements

- **Standard:** To BS 8000-0, BS 8212, studs to BS EN 14195.
- **Materials, components and details:** Use only the same as those tested and identified in assessment reports.

### 25-15-25/230 Fire performance to BS EN 13501 type A

- **Fire resistance:** To BS EN 13501-2, class EI 120.
- **Reaction to fire classification:** To BS EN 13501-1, Class B-s3, d2 or better.
- **Fire Performance Partitions Identification:** Install fire performance labels to all new fire rated partitions and existing fire performance partitions where identifiable and verified by the appropriate person.

### 25-15-25/240 Acoustic performance type A

- **Sound attenuation:**
  - **Standards:** Laboratory tested in accordance with BS EN ISO 10848-3 and rated in accordance with BS EN ISO 717-1.
  - **Weighted normalized flanking level difference Dnf, w (minimum):** 48 dB
- **Sound absorption:**
  - **Standards:** Measured in accordance with BS EN ISO 354 and rated in accordance with BS EN ISO 11654.

## Products

### 45-45-50/460 Specialist gypsum plasterboards type D

- **Manufacturer:** British Gypsum - Gyproc Habito
- **Standard:** Manufacturer's standard.
- **Thickness (nominal):** Manufacturer's standard.

- **Edge profile:** Tapered.
- **Execution:** 45-45-50/605 Installing gypsum based board;  
45-45-50/640 Level of dry lining across joints;  
and 45-45-50/650 Seamless jointing to gypsum boards.

## Execution

### 25-15-25/610 Installing framed partitions generally

- **Standard:** To BS 8000-0 and BS 8212.
- **Deviations and tolerances:**
  - **Vertical deviation (maximum):**  $\pm 5$  mm measured above or below the setting out position, in accordance with BS 8212 clause 3.3.2.
  - **Horizontal deviation (maximum):**  $\pm 3$  mm measured at the setting out level (ceiling or floor), in accordance with BS 8212 clause 3.3.2.
  - **Finished surfaces:** Maximum deviation band of 10 mm in accordance with BS 8212 clause 3.3.3.

### 25-15-25/630 Installing framing for partitions

- **Partition height:** As shown on (22) series design drawings.
- **Head condition:** Concrete slab and Metal decking with primary structural frame.
- **Layout:** Single row studs.
- **Stud centres (nominal):** 600 mm.
- **Setting out:**
  - **General:** Accurately align and plumb.
  - **Frame and stud positions:** Equal centres, to suit linings. Maintain sequence across openings.
  - **Additional supports:** As required.
- **Fixing perimeter framing to supporting structures:** Fix at maximum 600 mm centres.
- **Head deflection allowance (maximum):** Refer to the Structural Engineer's documentation.
- **Openings:**
  - **General:** Form accurately.
  - **Openings for doorsets:** Provide sleeved or boxed metal studs and/ or suitable timber framing to achieve strength grade requirements for framing assembly and adequately support weight of door.
  - **Services penetrations:** Allow for associated fire stopping.

### 25-15-25/650 Installing deflection heads

- **Deflection head detail:** Concealed deflection head.
- **Fixing:** Do not fix boards to head framing channels. Do not fix head framing directly to soffit linings or metal decking.

### 25-15-25/660 Installing plasterboard to metal framing

- **Wall linings:** Fix securely.
- **Fixing centres (maximum):**
  - **Single layer boarding:** 300 mm centres generally and 200 mm centres at external angles.



- **Multi-layer boarding:** Inner layers at 300 mm centres round perimeters; face layer at 300 mm centres.
- **Fixing positions:** Position screws 10 mm minimum from edges of boards.
- **Screw heads:** Set in a depression. Do not break paper or gypsum core.

#### 25-15-25/690 Sealing gaps and air paths around partitions

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

#### 45-45-50/605 Installing gypsum based board

- **General:** Use fixing, jointing, sealing and finishing installation methods recommended by board manufacturer.
- **Cutting plasterboard:** Neat and accurate. Do not damage core or tear paper facing.
- **Cut edges:** Minimize. Position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.
- **Fixing boards:** Securely, to suitably prepared and accurately levelled backgrounds.
- **Finishing:** Neat. Provide flush, smooth, flat surfaces free from bowing and abrupt changes of level.

#### 45-45-50/640 Level of dry lining across joints

- **Sudden irregularities:** Not permitted.
- **Joint deviations:**
  - **General:** Measure from faces of adjacent boards using methods and straight edges (450 mm long with feet/ pads) to BS 8212.
  - **Tapered edge joints:** 3 mm maximum permissible deviation across joints when measured with feet resting on boards.
  - **External angles:** 4 mm maximum permissible deviation for both faces.
  - **Internal angles:** 5 mm maximum permissible deviation for both faces.

#### 45-45-50/650 Seamless jointing to gypsum boards

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

## System completion

### 25-15-25/895 Verification of performance

- **Requirements:** Contractor to check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-25-10/110 BAL-100 Balustrade and guarding system - type A

### System outline

#### 25-25-10/110 BAL-100 Balustrade and guarding system type A

- **Description:** Balustrade and guarding system consisting of carbon steel posts with flat bar frame configuration, all welded construction, welds to be ground and polished smooth. Vertical posts welded to plates and bolted to string of concrete stair. Finish to be PPC, RAL to be confirmed. Stainless steel handrail, joints to be hairline.
- **System performance:** 25-25-10/205 Design submittals type A;  
25-25-10/210 Design of balustrade and handrail systems generally type A;  
25-25-10/220 Structural performance of handrails, balustrade and guarding systems type A;  
and 25-25-10/290 Compliance with performance requirements type A.
- **System manufacturer:** Submit proposals.
- **Uprights:** 45-60-50/384 Carbon steel hot finished hollow sections.
- **Rails:**
  - **Handrails:** 45-70-70/480 Stainless steel handrails type fixed to stair as part of balustrade/guarding system.
  - **Mid rails:** To match handrail.
- **Fixing to parent structure:** Submit proposals.
- **Samples required:** 25-25-10/305 Product samples type A.
- **Execution:** 25-25-10/620 Control inspections of balustrade and handrail systems type A;  
25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A;  
25-25-10/630 Fabrication of balustrade and handrail systems generally type A;  
25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A;  
25-25-10/610 Preconstruction survey;  
and 25-25-10/605 Preliminary installation.
- **System completion:** 25-25-10/810 Inspection of handrail, balustrade and guarding systems type A;  
25-25-10/820 Documentation for handrail, balustrade and guarding systems;  
25-25-10/895 Verification of performance type A;  
and 25-25-10/805 Removal of samples type A.

### System performance

#### 25-25-10/205 Design submittals type A

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Fully dimensioned general arrangement drawings, plans, elevations and sections. Mounting and fixing details. Details of paint systems and colour finishes. Shipping sections. Technical information, calculations and manufacturers' literature.
- **Timing:** Before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

#### 25-25-10/210 Design of balustrade and handrail systems generally type A

- **Detailed design:** Complete the design to meet structural and safety requirements of BS 6180 and in accordance with BS 8300.
- **Impact loads:** Comply with loading criteria for building occupancy in accordance with structural and safety requirements of BS 6180 Table 2 and BS 6399 (withdrawn but still cited in building regulations).

#### 25-25-10/220 Structural performance of handrails, balustrade and guarding systems type A

- **Structure and associated features:** Complete the detailed design in accordance with BS 8300-2.
- **Horizontal uniformly distributed line loads on balustrade or handrail (maximum):** To Structural Engineer's specification.

#### 25-25-10/290 Compliance with performance requirements type A

- **Requirement:** Proof of compliance with specified performance.
- **Method:** Submit evidence of compliance with BS 8300-2.
- **Testing authority:** UKAS or European equivalent.
- **Submittals:**
  - **Format:** Test results and certification.
  - **Timing:** Before manufacture.

### Products

#### 25-25-10/305 Product samples type A

- **Manufacturer:** Submit proposals.
- **Submittals:** 500mm long handrail to include connection with 500mm long upright.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project.

#### 45-60-50/384 Carbon steel hot finished hollow sections

- **Supplied by:** Submit proposals.
- **Corrosion protection:**
  - **Galvanizing:**  
**Standard:** Hot dip galvanized to BS EN ISO 1461.
- **Dimensions and dimensional tolerances:** To BS EN 10210-2.

#### 45-70-70/480 Stainless steel handrails type fixed to stair as part of balustrade/guarding system

- **Manufacturer:** Submit proposals.
- **Standard:** To BS EN 10088-2, Grade 1.4401 (316).
- **Diameter:** 33.7 mm.
- **Finish:** To BS EN 10088-2, 1K/ 2K Satin polished.
- **Accessories:**
  - **Materials generally:** To match handrail.

- **Posts:** To match handrail diameter. Post to be welded to handrail / midrail.
- **Base plates and covers:** Base plate, size to suit handrail diameter.
- **End caps:** Handrail tube scroll, size to suit handrail diameter.

## Execution

### 25-25-10/605 Preliminary installation

- **Required samples:**
  - **Types:** Balustrade and guarding system / handrail
  - **Purpose:** For use as an installation reference sample.
  - **Locations:** Location to be agreed with the architect.
  - **Features to be included:** Straight flight, single side.
  - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

### 25-25-10/610 Preconstruction survey

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Designated items:** All stairs.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### 25-25-10/620 Control inspections of balustrade and handrail systems type A

- **Location of inspections:** Factory or workshop.
- **Notice before inspection and testing:** 14 days.
- **Required inspections:** At completion of fabrication and prior to installation.

### 25-25-10/630 Fabrication of balustrade and handrail systems generally type A

- **Design:** Complete the detailed design and obtain approval before fabrication.
- **Frameworks:** Assemble and brace, including temporary members required for installation.
- **Contact between dissimilar metals:** Avoid.
- **Fixings:** Fully bolt together. Tighten bolts.
- **Temporary support:** Do not subject members to non-design loadings.

### 25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A

- **Standard:** In accordance with BS 6180.

### 25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A

- **Components:** Isolate using washers, sleeves or other suitable means to separate materials to avoid corrosion and or staining.

## System completion

### 25-25-10/805 Removal of samples type A

- **Items to be removed:** Prototype.
- **Timing:** At project completion.

### 25-25-10/810 Inspection of handrail, balustrade and guarding systems type A

- **Timing:** Two weeks prior to date when principal contractor expects work to be practically complete.
- **Period of notice (minimum):** Three working days.

### 25-25-10/820 Documentation for handrail, balustrade and guarding systems

- **Contents:** Copies of structural design calculations and test reports. General product information. Installation information. Inspection and maintenance reports.
- **Number of copies:** Paper and digital copies in BIM compatible format.
- **Submission:** Two weeks before date when principal contractor expects work to be practically complete.

### 25-25-10/895 Verification of performance type A

- **Requirement:** Check completed system and provide assurance of compliance with specified performance.
- **Submittals:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-25-10/110 BAL-101 Balustrade and guarding system - type B

### System outline

#### 25-25-10/110 BAL-101 Balustrade and guarding system type B

- **Description:** Bronze balustrade and guarding system to stairs.
- **System performance:** 25-25-10/205 Design submittals type A;  
25-25-10/210 Design of balustrade and handrail systems generally type A;  
25-25-10/220 Structural performance of handrails, balustrade and guarding systems type A;  
and 25-25-10/290 Compliance with performance requirements type A.
- **System manufacturer:** Submit proposals.
- **Uprights:** Anodised aluminium tubular posts with brushed bronze finish (RAL colour TBC), diameter to match handrail, welded to handrail and midrail.
- **Rails:**
  - **Handrails:** 45-70-70/480 Bronze handrails type fixed to balustrade/guarding system B.
- **Fixing to parent structure:** Submit proposals.
- **Samples required:** 25-25-10/305 Product samples type A.
- **Execution:** 25-25-10/620 Control inspections of balustrade and handrail systems type A;  
25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A;  
25-25-10/630 Fabrication of balustrade and handrail systems generally type A;  
25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A;  
25-25-10/610 Preconstruction survey;  
and 25-25-10/605 Preliminary installation.
- **System completion:** 25-25-10/810 Inspection of handrail, balustrade and guarding systems type A;  
25-25-10/820 Documentation for handrail, balustrade and guarding systems;  
25-25-10/895 Verification of performance type A;  
and 25-25-10/805 Removal of samples type A.

### System performance

#### 25-25-10/205 Design submittals type A

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Fully dimensioned general arrangement drawings, plans, elevations and sections. Mounting and fixing details. Details of paint systems and colour finishes. Shipping sections. Technical information, calculations and manufacturers' literature.
- **Timing:** Before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

#### 25-25-10/210 Design of balustrade and handrail systems generally type A

- **Detailed design:** Complete the design to meet structural and safety requirements of BS 6180 and in accordance with BS 8300.
- **Impact loads:** Comply with loading criteria for building occupancy in accordance with structural and safety requirements of BS 6180 Table 2 and BS 6399 (withdrawn but still cited in building regulations).

#### 25-25-10/220 Structural performance of handrails, balustrade and guarding systems type A

- **Structure and associated features:** Complete the detailed design in accordance with BS 8300-2.
- **Horizontal uniformly distributed line loads on balustrade or handrail (maximum):** To Structural Engineer's specification.

#### 25-25-10/290 Compliance with performance requirements type A

- **Requirement:** Proof of compliance with specified performance.
- **Method:** Submit evidence of compliance with BS 8300-2.
- **Testing authority:** UKAS or European equivalent.
- **Submittals:**
  - **Format:** Test results and certification.
  - **Timing:** Before manufacture.

### Products

#### 25-25-10/305 Product samples type A

- **Manufacturer:** Submit proposals.
- **Submittals:** 500mm long handrail to include connection with 500mm long upright.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project.

#### 45-70-70/480 Bronze handrails type fixed to balustrade/guarding system B

- **Manufacturer:** Submit proposals
- **Diameter:** 33.7 mm.
- **Finish:** Anodised aluminium with non-directional brush bronze finish. Colour TBC.
- **Accessories:**
  - **Materials generally:** To match handrail.
  - **Posts:** To match handrail diameter. Post to be welded to handrail / midrail.
  - **Base plates and covers:** Base plate, size to suit handrail diameter.
  - **End caps:** Handrail tube scroll, size to suit handrail diameter.



## Execution

### 25-25-10/605 Preliminary installation

- **Required samples:**
  - **Types:** Balustrade and guarding system / handrail
  - **Purpose:** For use as an installation reference sample.
  - **Locations:** Location to be agreed with the architect.
  - **Features to be included:** Straight flight, single side.
  - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

### 25-25-10/610 Preconstruction survey

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Designated items:** All stairs.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### 25-25-10/620 Control inspections of balustrade and handrail systems type A

- **Location of inspections:** Factory or workshop.
- **Notice before inspection and testing:** 14 days.
- **Required inspections:** At completion of fabrication and prior to installation.

### 25-25-10/630 Fabrication of balustrade and handrail systems generally type A

- **Design:** Complete the detailed design and obtain approval before fabrication.
- **Frameworks:** Assemble and brace, including temporary members required for installation.
- **Contact between dissimilar metals:** Avoid.
- **Fixings:** Fully bolt together. Tighten bolts.
- **Temporary support:** Do not subject members to non-design loadings.

### 25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A

- **Standard:** In accordance with BS 6180.

### 25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A

- **Components:** Isolate using washers, sleeves or other suitable means to separate materials to avoid corrosion and or staining.

## System completion

### 25-25-10/805 Removal of samples type A

- **Items to be removed:** Prototype.
- **Timing:** At project completion.

**25-25-10/810 Inspection of handrail, balustrade and guarding systems type A**

- **Timing:** Two weeks prior to date when principal contractor expects work to be practically complete.
- **Period of notice (minimum):** Three working days.

**25-25-10/820 Documentation for handrail, balustrade and guarding systems**

- **Contents:** Copies of structural design calculations and test reports. General product information. Installation information. Inspection and maintenance reports.
- **Number of copies:** Paper and digital copies in BIM compatible format.
- **Submission:** Two weeks before date when principal contractor expects work to be practically complete.

**25-25-10/895 Verification of performance type A**

- **Requirement:** Check completed system and provide assurance of compliance with specified performance.
- **Submittals:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-25-10/110 BAL-121 Balustrade and guarding system - type C

### System outline

#### 25-25-10/110 BAL-121 Balustrade and guarding system type C

- **Description:** External grade metal balustrade & Handrail

To be read in conjunction with AHMM's [21] series - External cladding package drawings.

To also be read with AHMM general architectural requirements and project prelims and conditions, Acoustic engineers Information, Fire Engineers Information and Structural engineers information

- **System performance:** 25-25-10/205 Design submittals type A;  
25-25-10/210 Design of balustrade and handrail systems generally type A;  
25-25-10/290 Compliance with performance requirements type A;  
and 25-25-10/220 Structural performance of handrails, balustrade and guarding systems type B.
- **System manufacturer:** Submit proposals.
- **Newels:**
  - **Material:** Galvanised carbon steel
  - **Coating:** Polyester Powder Coated (PPC)
  - **Accessories:** All
- **Uprights:** 45-60-50/384 Carbon steel hot finished hollow sections.
- **Infills:** 45-60-50/381 Carbon steel bars BAL-121.
- **Rails:**
  - **Handrails:** 45-70-70/475 Carbon steel handrails.
  - **Base rails:** 45-60-50/381 Carbon steel bars type C.
- **Fixing to parent structure:** All accessories necessary to complete the installation
- **Samples required:** 600mm length including handrail and fixing detail
- **Execution:** 25-25-10/605 Preliminary installation;  
25-25-10/620 Control inspections of balustrade and handrail systems type B;  
25-25-10/630 Fabrication of balustrade and handrail systems generally type B;  
25-25-10/640 Installation of handrail, balustrade and guarding systems generally type B;  
and 25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type B.
- **System completion:** 25-25-10/810 Inspection of handrail, balustrade and guarding systems type A;  
25-25-10/820 Documentation for handrail, balustrade and guarding systems;  
and 25-25-10/895 Verification of performance type A.

### System performance

#### 25-25-10/205 Design submittals type A

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.

- **Submittals:** Fully dimensioned general arrangement drawings, plans, elevations and sections. Mounting and fixing details. Details of paint systems and colour finishes. Shipping sections. Technical information, calculations and manufacturers' literature.
- **Timing:** Before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

#### 25-25-10/210 Design of balustrade and handrail systems generally type A

- **Detailed design:** Complete the design to meet structural and safety requirements of BS 6180 and in accordance with BS 8300.
- **Impact loads:** Comply with loading criteria for building occupancy in accordance with structural and safety requirements of BS 6180 Table 2 and BS 6399 (withdrawn but still cited in building regulations).

#### 25-25-10/220 Structural performance of handrails, balustrade and guarding systems type B

- **Structure and associated features:** Complete the detailed design in accordance with BS 8300-2.
- **Horizontal uniformly distributed line loads on balustrade or handrail (maximum):** To meet load prescribed Part K requirement

#### 25-25-10/290 Compliance with performance requirements type A

- **Requirement:** Proof of compliance with specified performance.
- **Method:** Submit evidence of compliance with BS 8300-2.
- **Testing authority:** UKAS or European equivalent.
- **Submittals:**
  - **Format:** Test results and certification.
  - **Timing:** Before manufacture.

### Products

#### 45-60-50/381 Carbon steel bars BAL-121

- **Type:** C
- **Corrosion protection:**
  - **Galvanizing:**

**Standard:** Hot dip galvanized to BS EN ISO 1461.

**Coating thickness (minimum):** Submit proposals.
- **Dimensional tolerances:** To BS EN 10060.

#### 45-60-50/384 Carbon steel hot finished hollow sections

- **Supplied by:** Submit proposals.
- **Corrosion protection:**
  - **Galvanizing:**

**Standard:** Hot dip galvanized to BS EN ISO 1461.
- **Dimensions and dimensional tolerances:** To BS EN 10210-2.

#### 45-70-70/475 Carbon steel handrails

- **Manufacturer:** Submit proposals.
- **Finish:**
  - **Requirement:** Hot dip galvanized to BS EN ISO 1461 and Powder coating to BS EN 13438.
  - **Colour:** RAL 9005
  - **Film thickness (minimum):** 60 micrometres.

### Execution

#### 25-25-10/605 Preliminary installation

- **Required samples:**
  - **Types:** Balustrade and guarding system / handrail
  - **Purpose:** For use as an installation reference sample.
  - **Locations:** Location to be agreed with the architect.
  - **Features to be included:** Straight flight, single side.
  - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

#### 25-25-10/630 Fabrication of balustrade and handrail systems generally type B

- **Design:** Complete the detailed design and obtain approval before fabrication.
- **Frameworks:** Assemble and brace, including temporary members required for installation.
- **Contact between dissimilar metals:** Avoid.
- **Fixings:** Fully bolt together. Tighten bolts.
- **Temporary support:** Do not subject members to non-design loadings.

#### 25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type B

- **Components:** Isolate using washers, sleeves or other suitable means to separate materials to avoid corrosion and or staining.

### System completion

#### 25-25-10/810 Inspection of handrail, balustrade and guarding systems type A

- **Timing:** Two weeks prior to date when principal contractor expects work to be practically complete.
- **Period of notice (minimum):** Three working days.

#### 25-25-10/820 Documentation for handrail, balustrade and guarding systems

- **Contents:** Copies of structural design calculations and test reports. General product information. Installation information. Inspection and maintenance reports.
- **Number of copies:** Paper and digital copies in BIM compatible format.
- **Submission:** Two weeks before date when principal contractor expects work to be practically complete.

**25-25-10/895 Verification of performance type A**

- **Requirement:** Check completed system and provide assurance of compliance with specified performance.
- **Submittals:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-25-10/110 BAL-110 Balustrade and guarding system - type D

### System outline

#### 25-25-10/110 BAL-110 Balustrade and guarding system type D

- **Description:** External (frameless) Non-Structural Glass balustrade to terraces

To be read in conjunction with AHMM's [21] series - External cladding package drawings.

To also be read with AHMM general architectural requirements and project prelims and conditions, Acoustic engineers Information, Fire Engineers Information and Structural engineers information

- **System performance:** 25-25-10/205 Design submittals type A;  
25-25-10/210 Design of balustrade and handrail systems generally type A;  
25-25-10/220 Structural performance of handrails, balustrade and guarding systems;
- **System manufacturer:** Submit proposals.
- **Newels:**
  - **Material:** Low iron glass.
  - **Accessories:** Include all fixing or factory formed apertures to complete the installation.
- **Infills:** 45-65-40/320 Laminated glass.  
All exposed edges ground with no arrises. Ensure that finishing processes do not compromise that laminating layer.
- **Base Infills & Finishes:** Lower part of the laminated glass to be fritted glass to conceal the concrete upstand and existing portland stone behind - To be read in conjunction with AHMM's [21] series - External cladding package drawings.
- **Rails:**
  - **Base rails:** 45-60-50/301 Y Shape for Fascia Mount Base Channel recessed into terrace floor.  
Provide neoprene gasket or similar to separate glass and metal. Colour of spacer to be confirmed through the submittal of samples.
- **Fixing to parent structure:** Fixed directly to concrete upstand with all accessories necessary to complete the installation
- **Samples required:** 600mm long sample of glass with proposed frit including fixing detail. Sample of neoprene insert or similar.
- **Execution:** 25-25-10/605 Preliminary installation;  
25-25-10/620 Control inspections of balustrade and handrail systems type A;  
25-25-10/630 Fabrication of balustrade and handrail systems generally type A;  
25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A;  
and 25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A.
- **System completion:** 25-25-10/810 Inspection of handrail, balustrade and guarding systems type A and 25-25-10/820 Documentation for handrail, balustrade and guarding systems.

## System performance

### 25-25-10/205 Design submittals type A

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Fully dimensioned general arrangement drawings, plans, elevations and sections. Mounting and fixing details. Details of paint systems and colour finishes. Shipping sections. Technical information, calculations and manufacturers' literature.
- **Timing:** Before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

### 25-25-10/210 Design of balustrade and handrail systems generally type A

- **Detailed design:** Complete the design to meet structural and safety requirements of BS 6180 and in accordance with BS 8300.
- **Impact loads:** Comply with loading criteria for building occupancy in accordance with structural and safety requirements of BS 6180 Table 2 and BS 6399 (withdrawn but still cited in building regulations).

### 25-25-10/220 Structural performance of handrails, balustrade and guarding systems type A

- **Structure and associated features:** Complete the detailed design in accordance with BS 8300-2.
- **Horizontal uniformly distributed line loads on balustrade or handrail (maximum):** To Structural Engineer's specification.

## Products

### 25-25-10/301 SentryGlass

- **Manufacturer:** Kuraray Europe GmbH  
Glass Laminating Solutions  
Philipp-Reis-Str. 4  
65795 Hattersheim, Germany  
Phone: +49 (0) 69 30585300
- **Product:** Kuraray SentryGlas® (SG5000) interlayer - or equal approved
- **Roll dimensions:** Submit proposals.
- **Sheet dimensions:** Submit proposals.

### 45-60-50/301 Y Shape for Fascia Mount Base Channel

- **Manufacturer:** S3i Limited, Harworth, DN11 8RU or equal approved
- **Product:** Fascia Mount Y Shaped Base Profile
- **Material:** Aluminium
- **Fixing:** Anchor bolts
- **Finish:** Anodised stainless steel effect finish.  
Provide neoprene gasket or similar to separate glass and metal. Colour of spacer to be confirmed through the submittal of samples.



#### 45-65-40/320 Laminated glass

- **General requirements:** 45-65-40/305 Glass generally .
- **Manufacturer:** Submit proposals.
- **Third party accreditation:** Third party accredited by UKAS approved/ recognized body.
- **Laminate glass type:** Heat strengthen and toughened
- **Thickness:** Submit proposals. - sufficient to resist all uniform and point loads
- **Outer leaf:** Lower part with ceramic frit to face - to conceal concrete upstand and existing portland stone behind
- **Interlayer to glass leaves:** Rigid Interlayer 25-25-10/301 SentryGlass or equal approved
- **Sealing:** At perimeter to prevent deterioration due to water or glass joint sealant.
- **Body colour:** Low iron
- **Coating:**
  - **Type:** Self-cleaning.
  - **Design:** Manufacturer's standard.
  - **Colour or effect:** None
- **Performance requirements:**

#### Execution

##### 25-25-10/605 Preliminary installation

- **Required samples:**
  - **Types:** Balustrade and guarding system / handrail
  - **Purpose:** For use as an installation reference sample.
  - **Locations:** Location to be agreed with the architect.
  - **Features to be included:** Straight flight, single side.
  - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

##### 25-25-10/620 Control inspections of balustrade and handrail systems type A

- **Location of inspections:** Factory or workshop.
- **Notice before inspection and testing:** 14 days.
- **Required inspections:** At completion of fabrication and prior to installation.

##### 25-25-10/630 Fabrication of balustrade and handrail systems generally type A

- **Design:** Complete the detailed design and obtain approval before fabrication.
- **Frameworks:** Assemble and brace, including temporary members required for installation.
- **Contact between dissimilar metals:** Avoid.
- **Fixings:** Fully bolt together. Tighten bolts.
- **Temporary support:** Do not subject members to non-design loadings.

##### 25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A

- **Standard:** In accordance with BS 6180.

**25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A**

- **Components:** Isolate using washers, sleeves or other suitable means to separate materials to avoid corrosion and or staining.

**System completion**

**25-25-10/810 Inspection of handrail, balustrade and guarding systems type A**

- **Timing:** Two weeks prior to date when principal contractor expects work to be practically complete.
- **Period of notice (minimum):** Three working days.

**25-25-10/820 Documentation for handrail, balustrade and guarding systems**

- **Contents:** Copies of structural design calculations and test reports. General product information. Installation information. Inspection and maintenance reports.
- **Number of copies:** Paper and digital copies in BIM compatible format.
- **Submission:** Two weeks before date when principal contractor expects work to be practically complete.

Ω End of system

## 25-25-10/110 BAL-111 Balustrade and guarding system - type E

### System outline

#### 25-25-10/110 BAL-111 Balustrade and guarding system type E

- **Description:** External (frameless) Free Standing Glass balustrade to terraces

To be read in conjunction with AHMM's [21] series - External cladding package drawings.

To also be read with AHMM general architectural requirements and project prelims and conditions, Acoustic engineers Information, Fire Engineers Information and Structural engineers information

- **System performance:** 25-25-10/205 Design submittals type A;  
25-25-10/210 Design of balustrade and handrail systems generally type A;  
25-25-10/220 Structural performance of handrails, balustrade and guarding systems;
- **System manufacturer:** Submit proposals.
- **Newels:**
  - **Material:** low iron glass
  - **Accessories:** Include all fixing or factory formed apertures to complete the installation.
- **Infills:** 45-65-40/320 Laminated glass.
- **Rails:**
  - **Base rails:** 25-25-10/303 Top Mount Base Profile recessed into terrace floor
- **Fixing to parent structure:** Fixed directly to concrete upstand with all accessories necessary to complete the installation
- **Samples required:** 600mm length including fixing detail
- **Execution:** 25-25-10/605 Preliminary installation;  
25-25-10/620 Control inspections of balustrade and handrail systems type A;  
25-25-10/630 Fabrication of balustrade and handrail systems generally type A;  
25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A;  
and 25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A.
- **System completion:** 25-25-10/810 Inspection of handrail, balustrade and guarding systems type A and 25-25-10/820 Documentation for handrail, balustrade and guarding systems.

### System performance

#### 25-25-10/205 Design submittals type A

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Fully dimensioned general arrangement drawings, plans, elevations and sections. Mounting and fixing details. Details of paint systems and colour finishes. Shipping sections. Technical information, calculations and manufacturers' literature.
- **Timing:** Before manufacture.

- **Format:** Drawings and specification in BIM compliant format.

#### 25-25-10/210 Design of balustrade and handrail systems generally type A

- **Detailed design:** Complete the design to meet structural and safety requirements of BS 6180 and in accordance with BS 8300.
- **Impact loads:** Comply with loading criteria for building occupancy in accordance with structural and safety requirements of BS 6180 Table 2 and BS 6399 (withdrawn but still cited in building regulations).

#### 25-25-10/220 Structural performance of handrails, balustrade and guarding systems type A

- **Structure and associated features:** Complete the detailed design in accordance with BS 8300-2.
- **Horizontal uniformly distributed line loads on balustrade or handrail (maximum):** To Structural Engineer's specification.

### Products

#### 25-25-10/301 SentryGlass

- **Manufacturer:** Kuraray Europe GmbH  
Glass Laminating Solutions  
Philipp-Reis-Str. 4  
65795 Hattersheim, Germany  
Phone: +49 (0) 69 30585300
- **Product:** Kuraray SentryGlas® (SG5000) interlayer - or equal approved
- **Roll dimensions:** Submit proposals.
- **Sheet dimensions:** Submit proposals.

#### 25-25-10/303 Top Mount Base Profile

- **Manufacturer:** S3i Limited, Harworth, DN11 8RU or equal approved
- **Product:** Top Mount Base Profile
- **Material:** Aluminium
- **Finish:** Stainless steel effect satin finish
- **Fixing:** Top mount with anchor bolts

#### 45-65-40/320 Laminated glass

- **General requirements:** 45-65-40/305 Glass generally .
- **Manufacturer:** Submit proposals.
- **Third party accreditation:** Third party accredited by UKAS approved/ recognized body.
- **Laminate glass type:** Heat strengthen and toughened
- **Thickness:** Submit proposals. - sufficient to resist all uniform and point loads
- **Outer leaf:** Lower part with ceramic frit to face - to conceal concrete upstand and existing portland stone behind
- **Interlayer to glass leaves:** Rigid Interlayer 25-25-10/301 SentryGlass or equal approved
- **Sealing:** At perimeter to prevent deterioration due to water or glass joint sealant.
- **Body colour:** Low iron
- **Coating:**

- **Type:** Self-cleaning.
- **Design:** Manufacturer's standard.
- **Colour or effect:** None
- **Performance requirements:**

## Execution

### 25-25-10/605 Preliminary installation

- **Required samples:**
  - **Types:** Balustrade and guarding system / handrail
  - **Purpose:** For use as an installation reference sample.
  - **Locations:** Location to be agreed with the architect.
  - **Features to be included:** Straight flight, single side.
  - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

### 25-25-10/620 Control inspections of balustrade and handrail systems type A

- **Location of inspections:** Factory or workshop.
- **Notice before inspection and testing:** 14 days.
- **Required inspections:** At completion of fabrication and prior to installation.

### 25-25-10/630 Fabrication of balustrade and handrail systems generally type A

- **Design:** Complete the detailed design and obtain approval before fabrication.
- **Frameworks:** Assemble and brace, including temporary members required for installation.
- **Contact between dissimilar metals:** Avoid.
- **Fixings:** Fully bolt together. Tighten bolts.
- **Temporary support:** Do not subject members to non-design loadings.

### 25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A

- **Standard:** In accordance with BS 6180.

### 25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A

- **Components:** Isolate using washers, sleeves or other suitable means to separate materials to avoid corrosion and or staining.

## System completion

### 25-25-10/810 Inspection of handrail, balustrade and guarding systems type A

- **Timing:** Two weeks prior to date when principal contractor expects work to be practically complete.
- **Period of notice (minimum):** Three working days.

**25-25-10/820 Documentation for handrail, balustrade and guarding systems**

- **Contents:** Copies of structural design calculations and test reports. General product information. Installation information. Inspection and maintenance reports.
- **Number of copies:** Paper and digital copies in BIM compatible format.
- **Submission:** Two weeks before date when principal contractor expects work to be practically complete.

Ω End of system

## 25-25-10/135 BAL-200 Handrail system - type A

### System outline

#### 25-25-10/135 BAL-200 Handrail system type A

- **Description:** Stainless steel handrail system fixed to wall. Fixing detail recessed with rose plate, hairline joints in handrail. Fabrication and deliver to site (fabricated in largest sections that are practical for fabrication, handling and site delivery).
- **System performance:** 25-25-10/205 Design submittals type A;  
25-25-10/210 Design of balustrade and handrail systems generally type A;  
25-25-10/220 Structural performance of handrails, balustrade and guarding systems type A;  
and 25-25-10/290 Compliance with performance requirements type A.
- **System manufacturer:** Submit proposals.
- **Handrails:** 45-70-70/480 Stainless steel handrails type fixed to wall.
- **Fixing to parent structure:** Submit proposals.
- **Samples required:** 25-25-10/305 Product samples type B.
- **Execution:** 25-25-10/605 Preliminary installation;  
25-25-10/610 Preconstruction survey;  
25-25-10/620 Control inspections of balustrade and handrail systems type A;  
25-25-10/630 Fabrication of balustrade and handrail systems generally type A;  
25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A;  
and 25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A.
- **System completion:** 25-25-10/805 Removal of samples type A;  
25-25-10/810 Inspection of handrail, balustrade and guarding systems type A;  
25-25-10/820 Documentation for handrail, balustrade and guarding systems;  
and 25-25-10/895 Verification of performance type A.

### System performance

#### 25-25-10/205 Design submittals type A

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Fully dimensioned general arrangement drawings, plans, elevations and sections. Mounting and fixing details. Details of paint systems and colour finishes. Shipping sections. Technical information, calculations and manufacturers' literature.
- **Timing:** Before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

#### 25-25-10/210 Design of balustrade and handrail systems generally type A

- **Detailed design:** Complete the design to meet structural and safety requirements of BS 6180 and in accordance with BS 8300.
- **Impact loads:** Comply with loading criteria for building occupancy in accordance with structural and safety requirements of BS 6180 Table 2 and BS 6399 (withdrawn but still cited in building regulations).

#### 25-25-10/220 Structural performance of handrails, balustrade and guarding systems type A

- **Structure and associated features:** Complete the detailed design in accordance with BS 8300-2.
- **Horizontal uniformly distributed line loads on balustrade or handrail (maximum):** To Structural Engineer's specification.

#### 25-25-10/290 Compliance with performance requirements type A

- **Requirement:** Proof of compliance with specified performance.
- **Method:** Submit evidence of compliance with BS 8300-2.
- **Testing authority:** UKAS or European equivalent.
- **Submittals:**
  - **Format:** Test results and certification.
  - **Timing:** Before manufacture.

### Products

#### 25-25-10/305 Product samples type B

- **Manufacturer:** Submit proposals.
- **Submittals:** 500mm long handrail in proposed finish to include connection with wall bracketry including joint detail between two sections.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project.

#### 45-70-70/480 Stainless steel handrails type fixed to wall

- **Manufacturer:** Submit proposals.
- **Standard:** To BS EN 10088-2, Grade 1.4401 (316).
- **Diameter:** 33.7 mm.
- **Finish:** To BS EN 10088-2, 1K/ 2K Satin polished.
- **Accessories:**
  - **Materials generally:** To match handrail.
  - **Brackets:** Handrail tube wall bracket with adjustable top, size to suit handrail diameter
  - **Base plates and covers:** Base plate, size to suit handrail diameter
  - **End caps:** Handrail tube scroll, size to suit handrail diameter.
  - **Angles and tees:** Handrail tube fixed 90° elbow, size to suit handrail diameter

### Execution

#### 25-25-10/605 Preliminary installation

- **Required samples:**
  - **Types:** Balustrade and guarding system / handrail
  - **Purpose:** For use as an installation reference sample.
  - **Locations:** Location to be agreed with the architect.



- **Features to be included:** Straight flight, single side.
- **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

#### **25-25-10/610 Preconstruction survey**

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Designated items:** All stairs.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

#### **25-25-10/620 Control inspections of balustrade and handrail systems type A**

- **Location of inspections:** Factory or workshop.
- **Notice before inspection and testing:** 14 days.
- **Required inspections:** At completion of fabrication and prior to installation.

#### **25-25-10/630 Fabrication of balustrade and handrail systems generally type A**

- **Design:** Complete the detailed design and obtain approval before fabrication.
- **Frameworks:** Assemble and brace, including temporary members required for installation.
- **Contact between dissimilar metals:** Avoid.
- **Fixings:** Fully bolt together. Tighten bolts.
- **Temporary support:** Do not subject members to non-design loadings.

#### **25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A**

- **Standard:** In accordance with BS 6180.

#### **25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A**

- **Components:** Isolate using washers, sleeves or other suitable means to separate materials to avoid corrosion and or staining.

### **System completion**

#### **25-25-10/805 Removal of samples type A**

- **Items to be removed:** Prototype.
- **Timing:** At project completion.

#### **25-25-10/810 Inspection of handrail, balustrade and guarding systems type A**

- **Timing:** Two weeks prior to date when principal contractor expects work to be practically complete.
- **Period of notice (minimum):** Three working days.

#### **25-25-10/820 Documentation for handrail, balustrade and guarding systems**

- **Contents:** Copies of structural design calculations and test reports. General product information. Installation information. Inspection and maintenance reports.

- **Number of copies:** Paper and digital copies in BIM compatible format.
- **Submission:** Two weeks before date when principal contractor expects work to be practically complete.

**25-25-10/895 Verification of performance type A**

- **Requirement:** Check completed system and provide assurance of compliance with specified performance.
- **Submittals:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-25-10/135 BAL-201 Handrail system - type B

### System outline

#### 25-25-10/135 BAL-201 Handrail system type B

- **Description:** Bronze handrail system fixed to wall.
- **System performance:** 25-25-10/205 Design submittals type A;  
25-25-10/210 Design of balustrade and handrail systems generally type A;  
25-25-10/220 Structural performance of handrails, balustrade and guarding systems type A;  
and 25-25-10/290 Compliance with performance requirements type A.
- **System manufacturer:** Submit proposals.
- **Handrails:** 45-70-70/480 Bronze handrails type fixed to wall B.
- **Fixing to parent structure:** Submit proposals.
- **Site finish:** As Finishes Schedule.
- **Samples required:** 25-25-10/305 Product samples type B.
- **Execution:** 25-25-10/605 Preliminary installation;  
25-25-10/610 Preconstruction survey;  
25-25-10/620 Control inspections of balustrade and handrail systems type A;  
25-25-10/630 Fabrication of balustrade and handrail systems generally type A;  
25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A;  
and 25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A.
- **System completion:** 25-25-10/805 Removal of samples type A;  
25-25-10/810 Inspection of handrail, balustrade and guarding systems type A;  
25-25-10/820 Documentation for handrail, balustrade and guarding systems;  
and 25-25-10/895 Verification of performance type A.

### System performance

#### 25-25-10/205 Design submittals type A

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Fully dimensioned general arrangement drawings, plans, elevations and sections. Mounting and fixing details. Details of paint systems and colour finishes. Shipping sections. Technical information, calculations and manufacturers' literature.
- **Timing:** Before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

#### 25-25-10/210 Design of balustrade and handrail systems generally type A

- **Detailed design:** Complete the design to meet structural and safety requirements of BS 6180 and in accordance with BS 8300.
- **Impact loads:** Comply with loading criteria for building occupancy in accordance with structural and safety requirements of BS 6180 Table 2 and BS 6399 (withdrawn but still cited in building regulations).

#### 25-25-10/220 Structural performance of handrails, balustrade and guarding systems type A

- **Structure and associated features:** Complete the detailed design in accordance with BS 8300-2.
- **Horizontal uniformly distributed line loads on balustrade or handrail (maximum):** To Structural Engineer's specification.

#### 25-25-10/290 Compliance with performance requirements type A

- **Requirement:** Proof of compliance with specified performance.
- **Method:** Submit evidence of compliance with BS 8300-2.
- **Testing authority:** UKAS or European equivalent.
- **Submittals:**
  - **Format:** Test results and certification.
  - **Timing:** Before manufacture.

### Products

#### 25-25-10/305 Product samples type B

- **Manufacturer:** Submit proposals.
- **Submittals:** 500mm long handrail in proposed finish to include connection with wall bracketry including joint detail between two sections.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project.

#### 45-70-70/480 Bronze handrails type fixed to wall B

- **Manufacturer:** Submit proposals.
- **Diameter:** 33.7 mm.
- **Finish:** Anodised aluminium with non-directional brush bronze finish. RAL colour TBC.
- **Accessories:**
  - **Materials generally:** To match handrail.
  - **Brackets:** Handrail tube wall bracket with adjustable top, size to suit handrail diameter
  - **Base plates and covers:** Base plate, size to suit handrail diameter
  - **End caps:** Handrail tube scroll, size to suit handrail diameter.
  - **Angles and tees:** Handrail tube fixed 90° elbow, size to suit handrail diameter

### Execution

#### 25-25-10/605 Preliminary installation

- **Required samples:**
  - **Types:** Balustrade and guarding system / handrail
  - **Purpose:** For use as an installation reference sample.
  - **Locations:** Location to be agreed with the architect.
  - **Features to be included:** Straight flight, single side.

- **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

#### **25-25-10/610 Preconstruction survey**

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Designated items:** All stairs.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

#### **25-25-10/620 Control inspections of balustrade and handrail systems type A**

- **Location of inspections:** Factory or workshop.
- **Notice before inspection and testing:** 14 days.
- **Required inspections:** At completion of fabrication and prior to installation.

#### **25-25-10/630 Fabrication of balustrade and handrail systems generally type A**

- **Design:** Complete the detailed design and obtain approval before fabrication.
- **Frameworks:** Assemble and brace, including temporary members required for installation.
- **Contact between dissimilar metals:** Avoid.
- **Fixings:** Fully bolt together. Tighten bolts.
- **Temporary support:** Do not subject members to non-design loadings.

#### **25-25-10/640 Installation of handrail, balustrade and guarding systems generally type A**

- **Standard:** In accordance with BS 6180.

#### **25-25-10/650 Corrosion protection of dissimilar materials in handrail, balustrade and guarding systems type A**

- **Components:** Isolate using washers, sleeves or other suitable means to separate materials to avoid corrosion and or staining.

### **System completion**

#### **25-25-10/805 Removal of samples type A**

- **Items to be removed:** Prototype.
- **Timing:** At project completion.

#### **25-25-10/810 Inspection of handrail, balustrade and guarding systems type A**

- **Timing:** Two weeks prior to date when principal contractor expects work to be practically complete.
- **Period of notice (minimum):** Three working days.

#### **25-25-10/820 Documentation for handrail, balustrade and guarding systems**

- **Contents:** Copies of structural design calculations and test reports. General product information. Installation information. Inspection and maintenance reports.
- **Number of copies:** Paper and digital copies in BIM compatible format.

- **Submission:** Two weeks before date when principal contractor expects work to be practically complete.

#### 25-25-10/895 Verification of performance type A

- **Requirement:** Check completed system and provide assurance of compliance with specified performance.
- **Submittals:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-50-20/120 DRS-100 Doorset system - type A

### System outline

#### 25-50-20/120 DRS-100 Doorset system type A

- **Type:** A
- **Description:** White wood doorset, Fire and Acoustic rated.
- **System performance:** 25-50-20/205 Design submittals;  
25-50-20/210 Performance requirements generally;  
25-50-20/240 Acoustic performance;  
25-50-20/250 Mechanical strength requirements to BS EN 1192;  
25-50-20/265 Inclusive design;  
25-50-20/290 Compliance with performance requirements;  
and 25-50-20/218 Fire performance requirements to BS EN 13501 type A.
- **System manufacturer:** Submit proposals.
- **Doorset:**
  - **Type:** 45-25-28/348 Wood doorsets type A.
  - **Fasteners:** Submit proposals.
- **Hardware:** Refer to Door Schedule.
- **Filler between frame and reveal:** Submit proposals.
- **System accessories:** All accessories necessary to complete the installation.
- **Samples required:** 25-50-20/305 Product samples.
- **Execution:** 25-50-20/605 Installation control samples;  
25-50-20/610 Preconstruction survey type A;  
25-50-20/620 Priming and sealing;  
25-50-20/640 Fixing of wood frames;  
25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors;  
25-50-20/655 Fixing hardware;  
25-50-20/680 Frame sealant joints type A;  
25-50-20/685 Timing of fixing of doorsets;  
25-50-20/690 Building-in permissions;  
and 25-50-20/695 Protection of components.
- **System completion:** 25-50-20/810 Documentation relating to doors, door assemblies and doorsets and 25-50-20/895 Verification of performance.
- **System facility management:** 25-50-20/905 Fire door inspection and maintenance.

### System performance

#### 25-50-20/205 Design submittals

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Design submittals:** Typical plan, elevational and section drawings at suitable scales.
- **Validation submittals:** Test certification for doors/ assemblies to show proposals for meeting performance requirements.
- **Timing:** Submit during construction stage before manufacture.

- **Format:** Drawings and specification in BIM compliant format.

#### 25-50-20/210 Performance requirements generally

- **Requirement:** Complete the design of the system to BS EN 1634-1.

#### 25-50-20/218 Fire performance requirements to BS EN 13501 type A

- **Fire resistance:**
  - **Standard:** To BS EN 1634-1; classification to BS EN 13501-2.
  - **Integrity:** Refer to Door Schedule.
- **Smoke leakage:**
  - **Ambient temperature smoke:** To BS EN 13501-2, Class S<sub>a</sub>.
  - **Medium temperature smoke:** To BS EN 13501-2, Class S<sub>m</sub>.
- **Reaction to fire:** To BS EN 13501-1, class B-s3, d2 or better.

#### 25-50-20/240 Acoustic performance

- **Sound insulation rating:** Refer to Door Schedule.

#### 25-50-20/250 Mechanical strength requirements to BS EN 1192

- **Standard:** To BS EN 1192.
- **Category of duty:** Class 3.  
Glass to be impact load resistant.

#### 25-50-20/265 Inclusive design

- **Design standards:** Building Regulations –England Approved Document M1M2 and BS 8300-2.
- **Design considerations:**
  - **Occupancy:** Retail at Ground and Basement, Office all levels, Hotel all levels.
  - **Planning Permission use class:** A1, B1 & C1.
  - **Additional requirements:** The opening force shall meet the requirements of Approved Document M2 Clause 3.10 a.
- **Inclusive design:** Complete design in accordance with recommendations in Building Regulations Eng Approved Document M1M2 and Submit proposals.
- **Best practice design:**
  - **Visual contrast:** As Building Regulations.
  - **Door furniture:**
    - Operability:** Knobs not permitted. Operable with clenched fist.
    - Projection:** 70 mm maximum.
    - Maximum torque:** Oval cross-section handle: 8 N m to depress and 5.5 N to lift.

#### 25-50-20/290 Compliance with performance requirements

- **Purpose:** To demonstrate that the products installed on site comply with the performance requirements of this specification.
- **General requirements:** Test Certification to be provided.
- **Method:**
  - **Previous test results:** For fire and acoustic performance.
- **Testing authority:** UKAS-accredited (or European equivalent)
- **Submissions:**



- **Format:** Declarations of Performance for all CE marked doorsets. Test Certificates for all fire and acoustic doors.
- **Timing:** During construction stage before manufacture.

## Products

### 25-50-20/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** 1/2 size doorset with associated ironmongery, fire and smoke seals, acoustic seals, and any glazing if relevant.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to procurement.

### 45-25-28/348 Wood doorsets type A

- **Manufacturer:** Submit proposals.
- **Third party accreditation:** UKAS accredited
- **Standard:** Internal fire rated doorset to BS 8214 and third party accredited.
- **Wood in joinery standard:** To BS EN 942.
- **Configuration:** Refer to Door Schedule.
- **Doorset size:** Refer to Door Schedule.
- **Format:** Refer to Door Schedule.
- **Performance:**
  - **Fire performance:**
    - Fire integrity:** Refer to Door Schedule.
    - Reaction to fire:** Refer to Door Schedule.
  - **Acoustic performance:** BS EN ISO 10140-2, sound reduction index. Refer to Door Schedule for performance.
  - **Strength and durability:** To BS EN 1192, Class 3.
  - **Accessibility:** In accordance with Building Regulations Approved Document Part M2.
- **Frame:**
  - **Material:** Hardwood.
  - **Species:** Submit proposals.
  - **Appearance class:** J10.
  - **Perimeter seals or inserts:** Acoustic seal and Fire and smoke seal.
  - **Finish:** Primed ready for site finish.
  - **Colour:** White.
  - **Installation fasteners:** Manufacturer's standard.
  - **Frame accessories:** Manufacturer's standard as required to complete the installation.
- **Door leaf:**
  - **Thickness:** 44 mm. minimum, or as required to achieve the fire or acoustic performance.
  - **Core:** Solid Core.
  - **Appearance class:** J10.
  - **Panel details:** Refer to Door Drawings and Schedule.
  - **Facings:** Hardwood veneer for painted finish.

- **Species:** Submit proposals.
- **Cut:** Crown cut veneer.
- **Lippings:** Concealed lippings to all edges.
- **Perimeter seals:** Acoustic seals and Fire and smoke seals.
- **Finish:** Primed ready for site finish.
- **Colour:**
  - Internal:** White.
- **Glazing:**
  - Type:** Clear fire-resisting safety glazing in accordance with BS 6262-4.
- **Beading:**
  - Type:** Internal.
  - Material:** Hardwood.
  - Fixing:** Manufacturer's standard.
- **Door accessories:** All accessories necessary to complete the installation.
- **Planted stops:**
  - **Wood species:** Submit proposals.
  - **Appearance class:** J10.
  - **Finish:** Primed ready for site finish.
- **Hardware:** Allgood Sembla Range for Front of House ironmongery. Allgood Modric range for Back of House ironmongery. Refer to Door Schedule for Ironmongery Sets.
- **Architraves:**
  - **Material:** Hardwood. Submit proposals.
  - **Wood appearance class:** J10.
  - **Finish:** Primed ready for site finish.
  - **Colour:**
    - Internal:** White.
- **Accessories:** All accessories necessary to complete the installation.
- **Execution:** 45-25-28/605 Moisture content of wood products;  
45-25-28/630 Installing hardware;  
and 45-25-28/640 Workmanship in joinery.

## Execution

### 25-50-20/605 Installation control samples

- **Samples:** Refer to 25-50-20/305 Product samples.
- **Purpose:** For use as an installation reference sample.
- **Locations:** Submit proposals.
- **Features to be included:** To include edges, framing, glazing, hardware and small accessories.
- **Timing:** Construct during preliminary installation in an approved location. First doorset of each type installed and accepted by the Employer's Agent. This will act as a benchmark for all other doorset installations for each type.

### 25-50-20/610 Preconstruction survey type A

- **Procedure:** Before starting work on designated items, take the site dimensions, record them on shop drawings and use them to ensure accurate fabrication.

- **Designated items:** All door openings
- **Primary support structure:** Survey sufficiently to verify that the required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

#### 25-50-20/620 Priming and sealing

- **Application:** Prepare and prime.
- **Wood surfaces inaccessible after installation:** Prime or seal before fixing components.

#### 25-50-20/640 Fixing of wood frames

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

#### 25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors

- **Standard:** In accordance with BS EN 16034.
- **Installer:** A firm currently registered under a third party accredited fire door installer scheme.
- **Installation:** In accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.
- **Gaps between frames and supporting construction:** The gap between the door and frame must be suitable for the intumescent seal. It should not exceed 3 mm along the two long edges and along the top of the of the door leaf (tolerance of  $\pm 1$  mm).
- **Labelling:** To include manufacturer's name, fire rating and traceable serial number

#### 25-50-20/655 Fixing hardware

- **Holes for components:** No larger than required for satisfactory fit and operation.
- **Adjacent surfaces:** Do not damage.
- **Integrity of the assembly, as established by testing:** Do not compromise.
- **Cutting:** Cut accurately.

#### 25-50-20/680 Frame sealant joints type A

- **Application:** Prepare joints. Form triangular fillets finished to a flat or slightly convex profile.

#### 25-50-20/685 Timing of fixing of doorsets

- **Timing:** After rooms served have been made weathertight and the work of wet trades locally is finished and dried out.

#### 25-50-20/690 Building-in permissions

- **General:** Not permitted unless indicated on drawings.
- **Where permitted:**
  - **Preparation:** Remove horns and provide support.
  - **Fixing cramps:** Fully bed in mortar or affix to subframe or reveal structure.

#### 25-50-20/695 Protection of components

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

#### 45-25-28/605 Moisture content of wood products

- **Standard:** To BS EN 942.
- **Moisture content on delivery:** 9–13% for buildings with heating providing room temperatures in the range 12–21°C.

#### 45-25-28/630 Installing hardware

- **Standard:** In accordance with door, door assembly or doorset and hardware manufacturers' recommendations.
- **Submissions:** Evidence of compliance with certification.

#### 45-25-28/640 Workmanship in joinery

- **Standard:** To BS 1186-2.

### System completion

#### 25-50-20/810 Documentation relating to doors, door assemblies and doorsets

- **Fire safety information:** Location of every fire door in the building, the fire door certificate relevant to the installed door, fire safety strategy, maintenance information for each component, frequency of inspection and maintenance depending on expected usage of the door.
- **Fire performance evidence:** Provide third party certification of product conformity with the specified fire performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located.
- **Smoke performance:** Provide third party certification of product conformity with the specified smoke performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located. Test evidence must be in the name of the door or doorset manufacturer.
- **Acoustic performance evidence:** Provide third party certification of product conformity for specified acoustic performance for sound attenuating door or doorset supplied.
- **Submittals:**
  - **Manufacturer's operation and maintenance instructions for the following products:** All products used throughout this system.
  - **Record layout drawings indicating:** General arrangement drawings showing the location of doors, shutters or hatches. Drawings may be cross-referenced to schedule.
  - **Drawing and schedule format:** Electronic.
  - **Number of copies:** Two.

#### 25-50-20/895 Verification of performance

- **Requirements:** Third party test certificates to confirm performance
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Prior to Practical Completion.

## System facility management

### 25-50-20/905 Fire door inspection and maintenance

- **Requirements:** Fire door register to include door identification number, door location, fire rating, installation date and name of installer. Check condition of components against the Fire Certificate data. Replace if worn or damaged
- **Frequency of inspection:** At least once every six months.

Ω End of system

## 25-50-20/120 DRS-104 Doorset system - type B

### System outline

#### 25-50-20/120 DRS-104 Doorset system type B

- **Description:** Riser timber doorset.
- **System performance:** 25-50-20/205 Design submittals;  
25-50-20/210 Performance requirements generally;  
25-50-20/240 Acoustic performance;  
25-50-20/250 Mechanical strength requirements to BS EN 1192;  
25-50-20/290 Compliance with performance requirements;  
and 25-50-20/218 Fire performance requirements to BS EN 13501 type A.
- **System manufacturer:** Submit proposals.
- **Doorset:**
  - **Type:** 45-25-28/348 Wood doorsets type riser door..
  - **Fasteners:** Submit proposals.
- **Hardware:** Refer to Door Schedule.
- **Filler between frame and reveal:** Submit proposals.
- **System accessories:** All accessories necessary to complete the installation.
- **Samples required:** 25-50-20/305 Product samples.
- **Execution:** 25-50-20/605 Installation control samples;  
25-50-20/610 Preconstruction survey type A;  
25-50-20/620 Priming and sealing;  
25-50-20/640 Fixing of wood frames;  
25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors;  
25-50-20/655 Fixing hardware;  
25-50-20/680 Frame sealant joints type A;  
25-50-20/685 Timing of fixing of doorsets;  
25-50-20/690 Building-in permissions;  
and 25-50-20/695 Protection of components.
- **System completion:** 25-50-20/810 Documentation relating to doors, door assemblies and doorsets and 25-50-20/895 Verification of performance.
- **System facility management:** 25-50-20/905 Fire door inspection and maintenance.

### System performance

#### 25-50-20/205 Design submittals

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Design submittals:** Typical plan, elevational and section drawings at suitable scales.
- **Validation submittals:** Test certification for doors/ assemblies to show proposals for meeting performance requirements.
- **Timing:** Submit during construction stage before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

#### 25-50-20/210 Performance requirements generally

- **Requirement:** Complete the design of the system to BS EN 1634-1.

#### 25-50-20/218 Fire performance requirements to BS EN 13501 type A

- **Fire resistance:**
  - **Standard:** To BS EN 1634-1; classification to BS EN 13501-2.
  - **Integrity:** Refer to Door Schedule.
- **Smoke leakage:**
  - **Ambient temperature smoke:** To BS EN 13501-2, Class S<sub>a</sub>.
  - **Medium temperature smoke:** To BS EN 13501-2, Class S<sub>m</sub>.
- **Reaction to fire:** To BS EN 13501-1, class B-s3, d2 or better.

#### 25-50-20/240 Acoustic performance

- **Sound insulation rating:** Refer to Door Schedule.

#### 25-50-20/250 Mechanical strength requirements to BS EN 1192

- **Standard:** To BS EN 1192.
- **Category of duty:** Class 3.  
Glass to be impact load resistant.

#### 25-50-20/290 Compliance with performance requirements

- **Purpose:** To demonstrate that the products installed on site comply with the performance requirements of this specification.
- **General requirements:** Test Certification to be provided.
- **Method:**
  - **Previous test results:** For fire and acoustic performance.
- **Testing authority:** UKAS-accredited (or European equivalent)
- **Submissions:**
  - **Format:** Declarations of Performance for all CE marked doorsets. Test Certificates for all fire and acoustic doors.
  - **Timing:** During construction stage before manufacture.

### Products

#### 25-50-20/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** 1/2 size doorset with associated ironmongery, fire and smoke seals, acoustic seals, and any glazing if relevant.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to procurement.

#### 45-25-28/348 Wood doorsets type riser door.

- **Manufacturer:** Submit proposals.

- **Third party accreditation:** UKAS accredited.
- **Standard:** Internal fire rated doorset to BS 8214 and third party accredited.
- **Wood in joinery standard:** To BS EN 942.
- **Configuration:** Refer to Door Schedule.
- **Doorset size:** Refer to Door Schedule.
- **Format:** Refer to Door Schedule.
- **Performance:**
  - **Fire performance:**
    - Fire integrity:** Refer to Door Schedule.
    - Fire insulation:** Refer to Door Schedule.
    - Smoke control:** Refer to Door Schedule.
    - Reaction to fire:** Refer to Door Schedule.
  - **Acoustic performance:** BS EN ISO 10140-2, sound reduction index. Refer to Door Schedule for performance.
  - **Strength and durability:** To BS EN 1192, Class 3.
- **Frame:**
  - **Material:** Hardwood.
  - **Species:** Submit proposals
  - **Appearance class:** J10.
  - **Perimeter seals or inserts:** Acoustic seal and Fire and smoke seal.
  - **Finish:** Primed ready for site finish.
  - **Colour:** White.
  - **Installation fasteners:** Manufacturer's standard.
  - **Frame accessories:** Manufacturer's standard as required to complete the installation.
- **Door leaf:**
  - **Thickness:** 44 mm. minimum, or as required to achieve the fire or acoustic performance.
  - **Core:** Solid Core.
  - **Appearance class:** J10.
  - **Panel details:** Refer to Door Drawings and Schedule.
  - **Facings:** Hardwood veneer for painted finish.
  - **Species:** Submit proposals.
  - **Cut:** Crown cut veneer.
  - **Lippings:** Concealed lippings to all edges.
  - **Perimeter seals:** Acoustic seals and Fire and smoke seals.
  - **Finish:** Primed ready for site finish.
  - **Colour:**
    - Internal:** White.
  - **Door accessories:** All accessories necessary to complete the installation.
- **Hardware:** Refer to Door Schedule for Ironmongery Sets.
- **Accessories:** All accessories necessary to complete the installation.
- **Execution:** 45-25-28/605 Moisture content of wood products;  
45-25-28/630 Installing hardware;  
and 45-25-28/640 Workmanship in joinery.



## Execution

### 25-50-20/605 Installation control samples

- **Samples:** Refer to 25-50-20/305 Product samples.
- **Purpose:** For use as an installation reference sample.
- **Locations:** Submit proposals.
- **Features to be included:** To include edges, framing, glazing, hardware and small accessories.
- **Timing:** Construct during preliminary installation in an approved location. First doorset of each type installed and accepted by the Employer's Agent. This will act as a benchmark for all other doorset installations for each type.

### 25-50-20/610 Preconstruction survey type A

- **Procedure:** Before starting work on designated items, take the site dimensions, record them on shop drawings and use them to ensure accurate fabrication.
- **Designated items:** All door openings
- **Primary support structure:** Survey sufficiently to verify that the required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### 25-50-20/620 Priming and sealing

- **Application:** Prepare and prime.
- **Wood surfaces inaccessible after installation:** Prime or seal before fixing components.

### 25-50-20/640 Fixing of wood frames

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

### 25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors

- **Standard:** In accordance with BS EN 16034.
- **Installer:** A firm currently registered under a third party accredited fire door installer scheme.
- **Installation:** In accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.
- **Gaps between frames and supporting construction:** The gap between the door and frame must be suitable for the intumescent seal. It should not exceed 3 mm along the two long edges and along the top of the of the door leaf (tolerance of  $\pm 1$  mm).
- **Labelling:** To include manufacturer's name, fire rating and traceable serial number

### 25-50-20/655 Fixing hardware

- **Holes for components:** No larger than required for satisfactory fit and operation.
- **Adjacent surfaces:** Do not damage.
- **Integrity of the assembly, as established by testing:** Do not compromise.
- **Cutting:** Cut accurately.

### 25-50-20/680 Frame sealant joints type A

- **Application:** Prepare joints. Form triangular fillets finished to a flat or slightly convex profile.

#### 25-50-20/685 Timing of fixing of doorsets

- **Timing:** After rooms served have been made weathertight and the work of wet trades locally is finished and dried out.

#### 25-50-20/690 Building-in permissions

- **General:** Not permitted unless indicated on drawings.
- **Where permitted:**
  - **Preparation:** Remove horns and provide support.
  - **Fixing cramps:** Fully bed in mortar or affix to subframe or reveal structure.

#### 25-50-20/695 Protection of components

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

#### 45-25-28/605 Moisture content of wood products

- **Standard:** To BS EN 942.
- **Moisture content on delivery:** 9–13% for buildings with heating providing room temperatures in the range 12–21°C.

#### 45-25-28/630 Installing hardware

- **Standard:** In accordance with door, door assembly or doorset and hardware manufacturers' recommendations.
- **Submissions:** Evidence of compliance with certification.

#### 45-25-28/640 Workmanship in joinery

- **Standard:** To BS 1186-2.

### System completion

#### 25-50-20/810 Documentation relating to doors, door assemblies and doorsets

- **Fire safety information:** Location of every fire door in the building, the fire door certificate relevant to the installed door, fire safety strategy, maintenance information for each component, frequency of inspection and maintenance depending on expected usage of the door.
- **Fire performance evidence:** Provide third party certification of product conformity with the specified fire performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located.
- **Smoke performance:** Provide third party certification of product conformity with the specified smoke performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located. Test evidence must be in the name of the door or doorset manufacturer.
- **Acoustic performance evidence:** Provide third party certification of product conformity for specified acoustic performance for sound attenuating door or doorset supplied.
- **Submittals:**
  - **Manufacturer's operation and maintenance instructions for the following products:**  
All products used throughout this system.

- **Record layout drawings indicating:** General arrangement drawings showing the location of doors, shutters or hatches. Drawings may be cross-referenced to schedule.
- **Drawing and schedule format:** Electronic.
- **Number of copies:** Two.

#### 25-50-20/895 Verification of performance

- **Requirements:** Third party test certificates to confirm performance
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Prior to Practical Completion.

### System facility management

#### 25-50-20/905 Fire door inspection and maintenance

- **Requirements:** Fire door register to include door identification number, door location, fire rating, installation date and name of installer. Check condition of components against the Fire Certificate data. Replace if worn or damaged
- **Frequency of inspection:** At least once every six months.

Ω End of system

## 25-50-20/120 DRS-106 Doorset system - type C

### System outline

#### 25-50-20/120 DRS-106 Doorset system type C

- **Description:** White wood doorset, Fire and Acoustic rated, with reeded glass finish on pull side.
- **System performance:** 25-50-20/205 Design submittals;  
25-50-20/210 Performance requirements generally;  
25-50-20/240 Acoustic performance;  
25-50-20/250 Mechanical strength requirements to BS EN 1192;  
25-50-20/265 Inclusive design;  
25-50-20/290 Compliance with performance requirements;  
and 25-50-20/218 Fire performance requirements to BS EN 13501 type A.
- **System manufacturer:** Submit proposals.
- **Doorset:**
  - **Type:** 45-25-28/348 Wood doorsets type reeded glass finish applied to timber door leaf.
  - **Fasteners:** Submit proposals.
- **Hardware:** Refer to Door Schedule.
- **Filler between frame and reveal:** Submit proposals.
- **System accessories:** All accessories necessary to complete the installation.
- **Samples required:** 25-50-20/305 Product samples.
- **Execution:** 25-50-20/605 Installation control samples;  
25-50-20/610 Preconstruction survey type A;  
25-50-20/620 Priming and sealing;  
25-50-20/640 Fixing of wood frames;  
25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors;  
25-50-20/655 Fixing hardware;  
25-50-20/680 Frame sealant joints type A;  
25-50-20/685 Timing of fixing of doorsets;  
25-50-20/690 Building-in permissions;  
and 25-50-20/695 Protection of components.
- **System completion:** 25-50-20/810 Documentation relating to doors, door assemblies and doorsets and 25-50-20/895 Verification of performance.
- **System facility management:** 25-50-20/905 Fire door inspection and maintenance.

### System performance

#### 25-50-20/205 Design submittals

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Design submittals:** Typical plan, elevational and section drawings at suitable scales.
- **Validation submittals:** Test certification for doors/ assemblies to show proposals for meeting performance requirements.
- **Timing:** Submit during construction stage before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

#### 25-50-20/210 Performance requirements generally

- **Requirement:** Complete the design of the system to BS EN 1634-1.

#### 25-50-20/218 Fire performance requirements to BS EN 13501 type A

- **Fire resistance:**
  - **Standard:** To BS EN 1634-1; classification to BS EN 13501-2.
  - **Integrity:** Refer to Door Schedule.
- **Smoke leakage:**
  - **Ambient temperature smoke:** To BS EN 13501-2, Class S<sub>a</sub>.
  - **Medium temperature smoke:** To BS EN 13501-2, Class S<sub>m</sub>.
- **Reaction to fire:** To BS EN 13501-1, class B-s3, d2 or better.

#### 25-50-20/240 Acoustic performance

- **Sound insulation rating:** Refer to Door Schedule.

#### 25-50-20/250 Mechanical strength requirements to BS EN 1192

- **Standard:** To BS EN 1192.
- **Category of duty:** Class 3.  
Glass to be impact load resistant.

#### 25-50-20/265 Inclusive design

- **Design standards:** Building Regulations –England Approved Document M1M2 and BS 8300-2.
- **Design considerations:**
  - **Occupancy:** Retail at Ground and Basement, Office all levels, Hotel all levels.
  - **Planning Permission use class:** A1, B1 & C1.
  - **Additional requirements:** The opening force shall meet the requirements of Approved Document M2 Clause 3.10 a.
- **Inclusive design:** Complete design in accordance with recommendations in Building Regulations Eng Approved Document M1M2 and Submit proposals.
- **Best practice design:**
  - **Visual contrast:** As Building Regulations.
  - **Door furniture:**
    - Operability:** Knobs not permitted. Operable with clenched fist.
    - Projection:** 70 mm maximum.
    - Maximum torque:** Oval cross-section handle: 8 N m to depress and 5.5 N to lift.

#### 25-50-20/290 Compliance with performance requirements

- **Purpose:** To demonstrate that the products installed on site comply with the performance requirements of this specification.
- **General requirements:** Test Certification to be provided.
- **Method:**
  - **Previous test results:** For fire and acoustic performance.
- **Testing authority:** UKAS-accredited (or European equivalent)
- **Submissions:**

- **Format:** Declarations of Performance for all CE marked doorsets. Test Certificates for all fire and acoustic doors.
- **Timing:** During construction stage before manufacture.

## Products

### 25-50-20/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** 1/2 size doorset with associated ironmongery, fire and smoke seals, acoustic seals, and any glazing if relevant.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to procurement.

### 45-25-28/348 Wood doorsets type reeded glass finish applied to timber door leaf.

- **Manufacturer:** Submit proposals.
- **Third party accreditation:** UKAS accredited.
- **Standard:** Internal fire rated doorset to BS 8214 and third party accredited.
- **Wood in joinery standard:** To BS EN 942.
- **Configuration:** Refer to Door Schedule.
- **Doorset size:** Refer to Door Schedule.
- **Format:** Refer to Door Schedule.
- **Performance:**
  - **Fire performance:**
    - Fire integrity:** Refer to Door Schedule.
    - Fire insulation:** Refer to Door Schedule.
  - **Acoustic performance:** BS EN ISO 10140-2, sound reduction index. Refer to Door Schedule for performance.
  - **Strength and durability:** To BS EN 1192, Class 3.
  - **Accessibility:** In accordance with Building Regulations Approved Document Part M2.
- **Frame:**
  - **Material:** Hardwood.
  - **Species:** Submit species.
  - **Appearance class:** J10.
  - **Perimeter seals or inserts:** Acoustic seal and Fire and smoke seal.
  - **Finish:** Primed ready for site finish.
  - **Installation fasteners:** Manufacturer's standard.
  - **Frame accessories:** Manufacturer's standard as required to complete the installation.
- **Door leaf:**
  - **Thickness:** 44 mm. minimum, or as required to achieve the fire or acoustic performance.
  - **Core:** Solid Core.
  - **Appearance class:** J10.
  - **Panel details:** Refer to Door Drawings and Schedule.
  - **Facings:** Hardwood veneer for painted finish. Reeded-glass panel fixed securely and neatly to pull side of door only. Fixings to be concealed. The application of the reeded

glass panel shall not compromise the performance requirements of the door. Manufacturer to provide certification for compliance with fire requirements.

- **Species:** Submit proposals.
- **Cut:** Crown cut veneer.
- **Lippings:** Concealed lippings to all edges.
- **Perimeter seals:** Acoustic seals and Fire and smoke seals.
- **Finish:** Primed ready for site finish.
- **Door accessories:** All accessories necessary to complete the installation.
- **Planted stops:**
  - **Wood species:** Submit proposals.
  - **Appearance class:** J10.
  - **Finish:** Primed ready for site finish.
- **Hardware:** Allgood Sembla Range for Front of House ironmongery. Allgood Modric range for Back of House ironmongery. Refer to Door Schedule for Ironmongery Sets.
- **Accessories:** All accessories necessary to complete the installation.
- **Execution:** 45-25-28/605 Moisture content of wood products;  
45-25-28/630 Installing hardware;  
and 45-25-28/640 Workmanship in joinery.

## Execution

### 25-50-20/605 Installation control samples

- **Samples:** Refer to 25-50-20/305 Product samples.
- **Purpose:** For use as an installation reference sample.
- **Locations:** Submit proposals.
- **Features to be included:** To include edges, framing, glazing, hardware and small accessories.
- **Timing:** Construct during preliminary installation in an approved location. First doorset of each type installed and accepted by the Employer's Agent. This will act as a benchmark for all other doorset installations for each type.

### 25-50-20/610 Preconstruction survey type A

- **Procedure:** Before starting work on designated items, take the site dimensions, record them on shop drawings and use them to ensure accurate fabrication.
- **Designated items:** All door openings
- **Primary support structure:** Survey sufficiently to verify that the required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### 25-50-20/620 Priming and sealing

- **Application:** Prepare and prime.
- **Wood surfaces inaccessible after installation:** Prime or seal before fixing components.

### 25-50-20/640 Fixing of wood frames

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

#### 25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors

- **Standard:** In accordance with BS EN 16034.
- **Installer:** A firm currently registered under a third party accredited fire door installer scheme.
- **Installation:** In accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.
- **Gaps between frames and supporting construction:** The gap between the door and frame must be suitable for the intumescent seal. It should not exceed 3 mm along the two long edges and along the top of the of the door leaf (tolerance of  $\pm 1$  mm).
- **Labelling:** To include manufacturer's name, fire rating and traceable serial number

#### 25-50-20/655 Fixing hardware

- **Holes for components:** No larger than required for satisfactory fit and operation.
- **Adjacent surfaces:** Do not damage.
- **Integrity of the assembly, as established by testing:** Do not compromise.
- **Cutting:** Cut accurately.

#### 25-50-20/680 Frame sealant joints type A

- **Application:** Prepare joints. Form triangular fillets finished to a flat or slightly convex profile.

#### 25-50-20/685 Timing of fixing of doorsets

- **Timing:** After rooms served have been made weathertight and the work of wet trades locally is finished and dried out.

#### 25-50-20/690 Building-in permissions

- **General:** Not permitted unless indicated on drawings.
- **Where permitted:**
  - **Preparation:** Remove horns and provide support.
  - **Fixing cramps:** Fully bed in mortar or affix to subframe or reveal structure.

#### 25-50-20/695 Protection of components

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

#### 45-25-28/605 Moisture content of wood products

- **Standard:** To BS EN 942.
- **Moisture content on delivery:** 9–13% for buildings with heating providing room temperatures in the range 12–21°C.

#### 45-25-28/630 Installing hardware

- **Standard:** In accordance with door, door assembly or doorset and hardware manufacturers' recommendations.
- **Submissions:** Evidence of compliance with certification.



#### 45-25-28/640 Workmanship in joinery

- **Standard:** To BS 1186-2.

### System completion

#### 25-50-20/810 Documentation relating to doors, door assemblies and doorsets

- **Fire safety information:** Location of every fire door in the building, the fire door certificate relevant to the installed door, fire safety strategy, maintenance information for each component, frequency of inspection and maintenance depending on expected usage of the door.
- **Fire performance evidence:** Provide third party certification of product conformity with the specified fire performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located.
- **Smoke performance:** Provide third party certification of product conformity with the specified smoke performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located. Test evidence must be in the name of the door or doorset manufacturer.
- **Acoustic performance evidence:** Provide third party certification of product conformity for specified acoustic performance for sound attenuating door or doorset supplied.
- **Submittals:**
  - **Manufacturer's operation and maintenance instructions for the following products:**  
All products used throughout this system.
  - **Record layout drawings indicating:** General arrangement drawings showing the location of doors, shutters or hatches. Drawings may be cross-referenced to schedule.
  - **Drawing and schedule format:** Electronic.
  - **Number of copies:** Two.

#### 25-50-20/895 Verification of performance

- **Requirements:** Third party test certificates to confirm performance
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Prior to Practical Completion.

### System facility management

#### 25-50-20/905 Fire door inspection and maintenance

- **Requirements:** Fire door register to include door identification number, door location, fire rating, installation date and name of installer. Check condition of components against the Fire Certificate data. Replace if worn or damaged
- **Frequency of inspection:** At least once every six months.

Ω End of system

## 25-50-20/120 DRS-105 Doorset system - type D

### System outline

#### 25-50-20/120 DRS-105 Doorset system type D

- **Description:** White wood doorset, Fire and Acoustic rated, with Timber grid lining finish on pull side.
- **System performance:** 25-50-20/205 Design submittals;  
25-50-20/210 Performance requirements generally;  
25-50-20/240 Acoustic performance;  
25-50-20/250 Mechanical strength requirements to BS EN 1192;  
25-50-20/265 Inclusive design;  
25-50-20/290 Compliance with performance requirements;  
and 25-50-20/218 Fire performance requirements to BS EN 13501 type A.
- **System manufacturer:** Submit proposals.
- **Doorset:**
  - **Type:** 45-25-28/348 Wood doorsets type timber grid lining finish IWS-300 applied to timber door leaf.
  - **Fasteners:** Submit proposals.
- **Hardware:** Refer to Door Schedule.
- **Filler between frame and reveal:** Submit proposals.
- **System accessories:** All accessories necessary to complete the installation.
- **Samples required:** 25-50-20/305 Product samples.
- **Execution:** 25-50-20/605 Installation control samples;  
25-50-20/610 Preconstruction survey type A;  
25-50-20/620 Priming and sealing;  
25-50-20/640 Fixing of wood frames;  
25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors;  
25-50-20/655 Fixing hardware;  
25-50-20/680 Frame sealant joints type A;  
25-50-20/685 Timing of fixing of doorsets;  
25-50-20/690 Building-in permissions;  
and 25-50-20/695 Protection of components.
- **System completion:** 25-50-20/810 Documentation relating to doors, door assemblies and doorsets and 25-50-20/895 Verification of performance.
- **System facility management:** 25-50-20/905 Fire door inspection and maintenance.

### System performance

#### 25-50-20/205 Design submittals

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Design submittals:** Typical plan, elevational and section drawings at suitable scales.
- **Validation submittals:** Test certification for doors/ assemblies to show proposals for meeting performance requirements.
- **Timing:** Submit during construction stage before manufacture.

- **Format:** Drawings and specification in BIM compliant format.

#### 25-50-20/210 Performance requirements generally

- **Requirement:** Complete the design of the system to BS EN 1634-1.

#### 25-50-20/218 Fire performance requirements to BS EN 13501 type A

- **Fire resistance:**
  - **Standard:** To BS EN 1634-1; classification to BS EN 13501-2.
  - **Integrity:** Refer to Door Schedule.
- **Smoke leakage:**
  - **Ambient temperature smoke:** To BS EN 13501-2, Class S<sub>a</sub>.
  - **Medium temperature smoke:** To BS EN 13501-2, Class S<sub>m</sub>.
- **Reaction to fire:** To BS EN 13501-1, class B-s3, d2 or better.

#### 25-50-20/240 Acoustic performance

- **Sound insulation rating:** Refer to Door Schedule.

#### 25-50-20/250 Mechanical strength requirements to BS EN 1192

- **Standard:** To BS EN 1192.
- **Category of duty:** Class 3.  
Glass to be impact load resistant.

#### 25-50-20/265 Inclusive design

- **Design standards:** Building Regulations –England Approved Document M1M2 and BS 8300-2.
- **Design considerations:**
  - **Occupancy:** Retail at Ground and Basement, Office all levels, Hotel all levels.
  - **Planning Permission use class:** A1, B1 & C1.
  - **Additional requirements:** The opening force shall meet the requirements of Approved Document M2 Clause 3.10 a.
- **Inclusive design:** Complete design in accordance with recommendations in Building Regulations Eng Approved Document M1M2 and Submit proposals.
- **Best practice design:**
  - **Visual contrast:** As Building Regulations.
  - **Door furniture:**
    - Operability:** Knobs not permitted. Operable with clenched fist.
    - Projection:** 70 mm maximum.
    - Maximum torque:** Oval cross-section handle: 8 N m to depress and 5.5 N to lift.

#### 25-50-20/290 Compliance with performance requirements

- **Purpose:** To demonstrate that the products installed on site comply with the performance requirements of this specification.
- **General requirements:** Test Certification to be provided.
- **Method:**
  - **Previous test results:** For fire and acoustic performance.
- **Testing authority:** UKAS-accredited (or European equivalent)
- **Submissions:**

- **Format:** Declarations of Performance for all CE marked doorsets. Test Certificates for all fire and acoustic doors.
- **Timing:** During construction stage before manufacture.

## Products

### 25-50-20/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** 1/2 size doorset with associated ironmongery, fire and smoke seals, acoustic seals, and any glazing if relevant.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to procurement.

### 45-25-28/348 Wood doorsets type timber grid lining finish IWS-300 applied to timber door leaf

- **Manufacturer:** Submit proposals.
- **Third party accreditation:** UKAS accreditation.
- **Standard:** Internal fire rated doorset to BS 8214 and third party accredited.
- **Wood in joinery standard:** To BS EN 942.
- **Configuration:** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
- **Doorset size:** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
- **Format:** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
- **Performance:**
  - **Fire performance:**
    - Fire integrity:** Refer to Door Schedule.
    - Fire insulation:** Refer to Door Schedule.
    - Reaction to fire:** Refer to Door Schedule.
  - **Acoustic performance:** BS EN ISO 10140-2, sound reduction index. Refer to Door Schedule for performance.
  - **Strength and durability:** To BS EN 1192, Class 3.
  - **Accessibility:** In accordance with Building Regulations Approved Document Part M2.
- **Frame:**
  - **Material:** Hardwood.
  - **Species:** Submit proposals.
  - **Appearance class:** J10.
  - **Perimeter seals or inserts:** Acoustic seal and Fire and smoke seal.
  - **Finish:** Primed ready for site finish.
  - **Installation fasteners:** Manufacturer's standard.
  - **Frame accessories:** Manufacturer's standard as required to complete the installation.
- **Door leaf:**
  - **Thickness:** 44 mm. minimum, or as required to achieve the fire or acoustic performance.
  - **Core:** Solid Core.
  - **Appearance class:** J10.
  - **Panel details:** Refer to Door Drawings and Schedule.

- **Facings:** Hardwood veneer for painted finish. Timber wood panelling system IWS-300 to be fixed securely and neatly to pull side of door. Fixings to be concealed. The application of the reeded glass panel shall not compromise the performance requirements of the door. Manufacturer to provide certification for compliance with fire requirements.
- **Species:** Submit proposals.
- **Cut:** Crown cut veneer.
- **Lippings:** Concealed lippings to all edges.
- **Perimeter seals:** Acoustic seals and Fire and smoke seals.
- **Finish:** Primed ready for site finish.
- **Door accessories:** All accessories necessary to complete the installation.
- **Hardware:** Allgood Sembla Range for Front of House ironmongery. Allgood Modric range for Back of House ironmongery. Refer to Door Schedule for Ironmongery Sets.
- **Accessories:** All accessories necessary to complete the installation.
- **Execution:** 45-25-28/605 Moisture content of wood products;  
45-25-28/630 Installing hardware;  
and 45-25-28/640 Workmanship in joinery.

## Execution

### 25-50-20/605 Installation control samples

- **Samples:** Refer to 25-50-20/305 Product samples.
- **Purpose:** For use as an installation reference sample.
- **Locations:** Submit proposals.
- **Features to be included:** To include edges, framing, glazing, hardware and small accessories.
- **Timing:** Construct during preliminary installation in an approved location. First doorset of each type installed and accepted by the Employer's Agent. This will act as a benchmark for all other doorset installations for each type.

### 25-50-20/610 Preconstruction survey type A

- **Procedure:** Before starting work on designated items, take the site dimensions, record them on shop drawings and use them to ensure accurate fabrication.
- **Designated items:** All door openings
- **Primary support structure:** Survey sufficiently to verify that the required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### 25-50-20/620 Priming and sealing

- **Application:** Prepare and prime.
- **Wood surfaces inaccessible after installation:** Prime or seal before fixing components.

### 25-50-20/640 Fixing of wood frames

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

### 25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors

- **Standard:** In accordance with BS EN 16034.
- **Installer:** A firm currently registered under a third party accredited fire door installer scheme.

- **Installation:** In accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.
- **Gaps between frames and supporting construction:** The gap between the door and frame must be suitable for the intumescent seal. It should not exceed 3 mm along the two long edges and along the top of the of the door leaf (tolerance of  $\pm 1$  mm).
- **Labelling:** To include manufacturer's name, fire rating and traceable serial number

#### 25-50-20/655 Fixing hardware

- **Holes for components:** No larger than required for satisfactory fit and operation.
- **Adjacent surfaces:** Do not damage.
- **Integrity of the assembly, as established by testing:** Do not compromise.
- **Cutting:** Cut accurately.

#### 25-50-20/680 Frame sealant joints type A

- **Application:** Prepare joints. Form triangular fillets finished to a flat or slightly convex profile.

#### 25-50-20/685 Timing of fixing of doorsets

- **Timing:** After rooms served have been made weathertight and the work of wet trades locally is finished and dried out.

#### 25-50-20/690 Building-in permissions

- **General:** Not permitted unless indicated on drawings.
- **Where permitted:**
  - **Preparation:** Remove horns and provide support.
  - **Fixing cramps:** Fully bed in mortar or affix to subframe or reveal structure.

#### 25-50-20/695 Protection of components

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

#### 45-25-28/605 Moisture content of wood products

- **Standard:** To BS EN 942.
- **Moisture content on delivery:** 9–13% for buildings with heating providing room temperatures in the range 12–21°C.

#### 45-25-28/630 Installing hardware

- **Standard:** In accordance with door, door assembly or doorset and hardware manufacturers' recommendations.
- **Submissions:** Evidence of compliance with certification.

#### 45-25-28/640 Workmanship in joinery

- **Standard:** To BS 1186-2.

## System completion

### 25-50-20/810 Documentation relating to doors, door assemblies and doorsets

- **Fire safety information:** Location of every fire door in the building, the fire door certificate relevant to the installed door, fire safety strategy, maintenance information for each component, frequency of inspection and maintenance depending on expected usage of the door.
- **Fire performance evidence:** Provide third party certification of product conformity with the specified fire performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located.
- **Smoke performance:** Provide third party certification of product conformity with the specified smoke performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located. Test evidence must be in the name of the door or doorset manufacturer.
- **Acoustic performance evidence:** Provide third party certification of product conformity for specified acoustic performance for sound attenuating door or doorset supplied.
- **Submittals:**
  - **Manufacturer's operation and maintenance instructions for the following products:**  
All products used throughout this system.
  - **Record layout drawings indicating:** General arrangement drawings showing the location of doors, shutters or hatches. Drawings may be cross-referenced to schedule.
  - **Drawing and schedule format:** Electronic.
  - **Number of copies:** Two.

### 25-50-20/895 Verification of performance

- **Requirements:** Third party test certificates to confirm performance
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Prior to Practical Completion.

## System facility management

### 25-50-20/905 Fire door inspection and maintenance

- **Requirements:** Fire door register to include door identification number, door location, fire rating, installation date and name of installer. Check condition of components against the Fire Certificate data. Replace if worn or damaged
- **Frequency of inspection:** At least once every six months.

Ω End of system

## 25-50-20/120 DRS-200 Doorset system - type E

### System outline

#### 25-50-20/120 DRS-200 Doorset system type E

- **Description:** UKPN substation metal door, 4 hour fire-rated, solid panels.
- **System performance:** 25-50-20/205 Design submittals;  
All performance to UKPN requirements.
- **System manufacturer:** Submit proposals.
- **Doorset:**
  - **Type:** To UKPN requirements
  - **Fasteners:** Submit proposals.
- **Hardware:** Refer to Door Schedule.
- **Filler between frame and reveal:** Submit proposals.
- **System accessories:** All accessories required by UKPN necessary to complete the installation.
- **Execution:** Installation of the doorsets to comply with UKPN requirements.  
25-50-20/610 Preconstruction survey type A;  
25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors;  
25-50-20/655 Fixing hardware;  
25-50-20/685 Timing of fixing of doorsets;  
25-50-20/690 Building-in permissions;  
and 25-50-20/695 Protection of components.
- **System completion:** 25-50-20/810 Documentation relating to doors, door assemblies and doorsets and 25-50-20/895 Verification of performance.
- **System facility management:** 25-50-20/905 Fire door inspection and maintenance.

### System performance

#### 25-50-20/205 Design submittals

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Design submittals:** Typical plan, elevational and section drawings at suitable scales.
- **Validation submittals:** Test certification for doors/ assemblies to show proposals for meeting performance requirements.
- **Timing:** Submit during construction stage before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

### Products

#### 25-50-20/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** 1/2 size doorset with associated ironmongery, fire and smoke seals, acoustic seals, and any glazing if relevant.



- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to procurement.

## Execution

### 25-50-20/610 Preconstruction survey type A

- **Procedure:** Before starting work on designated items, take the site dimensions, record them on shop drawings and use them to ensure accurate fabrication.
- **Designated items:** All door openings
- **Primary support structure:** Survey sufficiently to verify that the required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### 25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors

- **Standard:** In accordance with BS EN 16034.
- **Installer:** A firm currently registered under a third party accredited fire door installer scheme.
- **Installation:** In accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.
- **Gaps between frames and supporting construction:** The gap between the door and frame must be suitable for the intumescent seal. It should not exceed 3 mm along the two long edges and along the top of the of the door leaf (tolerance of +1 mm).
- **Labelling:** To include manufacturer's name, fire rating and traceable serial number

### 25-50-20/655 Fixing hardware

- **Holes for components:** No larger than required for satisfactory fit and operation.
- **Adjacent surfaces:** Do not damage.
- **Integrity of the assembly, as established by testing:** Do not compromise.
- **Cutting:** Cut accurately.

### 25-50-20/685 Timing of fixing of doorsets

- **Timing:** After rooms served have been made weathertight and the work of wet trades locally is finished and dried out.

### 25-50-20/690 Building-in permissions

- **General:** Not permitted unless indicated on drawings.
- **Where permitted:**
  - **Preparation:** Remove horns and provide support.
  - **Fixing cramps:** Fully bed in mortar or affix to subframe or reveal structure.

### 25-50-20/695 Protection of components

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

## System completion

### 25-50-20/810 Documentation relating to doors, door assemblies and doorsets

- **Fire safety information:** Location of every fire door in the building, the fire door certificate relevant to the installed door, fire safety strategy, maintenance information for each component, frequency of inspection and maintenance depending on expected usage of the door.
- **Fire performance evidence:** Provide third party certification of product conformity with the specified fire performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located.
- **Smoke performance:** Provide third party certification of product conformity with the specified smoke performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located. Test evidence must be in the name of the door or doorset manufacturer.
- **Acoustic performance evidence:** Provide third party certification of product conformity for specified acoustic performance for sound attenuating door or doorset supplied.
- **Submittals:**
  - **Manufacturer's operation and maintenance instructions for the following products:**  
All products used throughout this system.
  - **Record layout drawings indicating:** General arrangement drawings showing the location of doors, shutters or hatches. Drawings may be cross-referenced to schedule.
  - **Drawing and schedule format:** Electronic.
  - **Number of copies:** Two.

### 25-50-20/895 Verification of performance

- **Requirements:** Third party test certificates to confirm performance
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Prior to Practical Completion.

## System facility management

### 25-50-20/905 Fire door inspection and maintenance

- **Requirements:** Fire door register to include door identification number, door location, fire rating, installation date and name of installer. Check condition of components against the Fire Certificate data. Replace if worn or damaged
- **Frequency of inspection:** At least once every six months.

Ω End of system

## 25-50-20/125 DRS-301 Frame and door leaf system - type Reeded glass

### System outline

#### 25-50-20/125 DRS-301 Frame and door leaf system type Reeded glass

- **Description:** Fire-rated glazed door system, with reeded glass panels and bronze frames/hardware.
- **System performance:** 25-50-20/205 Design submittals;  
25-50-20/218 Fire performance requirements to BS EN 13501 type A;  
25-50-20/240 Acoustic performance;  
25-50-20/250 Mechanical strength requirements to BS EN 1192;  
25-50-20/265 Inclusive design;  
and 25-50-20/290 Compliance with performance requirements.
- **System manufacturer:** Submit proposals.
- **Door frame:**
  - **Material:** Anodised aluminium frames with bronze brushed finish. RAL colour TBC. Refer to (32) series drawings.
  - **Fasteners:** Manufacturers standard to meet performance.
  - **Seals or inserts:** Manufacturers standard to meet performance.
- **Door leaf:**
  - **Type:** Fully glazed independently operated leaves with cold smoke seal.
  - **Glazing:** Fire rated reeded glass of the required thickness to achieve fire performance. Linit UK 'Prismasolar' profiled glass or agreed alternative, with performance layer bonded to glass to achieve fire rating by Vetrotech, or agreed alternative.
  - **Perimeter seals or inserts:** To meet performance.
- **Hardware:** Allgood Sembla Range for Front of House doors. Allgood Modric range for Back of House doors. Refer to Door Schedule for Ironmongery Sets. Brushed bronze finish.
- **Filler between frame and reveal:** To meet performance.
- **System accessories:** As required to complete installation.
- **Samples required:** 25-50-20/305 Product samples.
- **Execution:** 25-50-20/605 Installation control samples;  
25-50-20/610 Preconstruction survey type A;  
25-50-20/670 Positioning of hardware to glass doors;  
and 25-50-20/680 Frame sealant joints type B.
- **System completion:** 25-50-20/810 Documentation relating to doors, door assemblies and doorsets and 25-50-20/895 Verification of performance.
- **System facility management:** 25-50-20/905 Fire door inspection and maintenance.

### System performance

#### 25-50-20/205 Design submittals

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.

- **Design submittals:** Typical plan, elevational and section drawings at suitable scales.
- **Validation submittals:** Test certification for doors/ assemblies to show proposals for meeting performance requirements.
- **Timing:** Submit during construction stage before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

#### 25-50-20/218 Fire performance requirements to BS EN 13501 type A

- **Fire resistance:**
  - **Standard:** To BS EN 1634-1; classification to BS EN 13501-2.
  - **Integrity:** Refer to Door Schedule.
- **Smoke leakage:**
  - **Ambient temperature smoke:** To BS EN 13501-2, Class S<sub>a</sub>.
  - **Medium temperature smoke:** To BS EN 13501-2, Class S<sub>m</sub>.
- **Reaction to fire:** To BS EN 13501-1, class B-s3, d2 or better.

#### 25-50-20/240 Acoustic performance

- **Sound insulation rating:** Refer to Door Schedule.

#### 25-50-20/250 Mechanical strength requirements to BS EN 1192

- **Standard:** To BS EN 1192.
- **Category of duty:** Class 3.  
Glass to be impact load resistant.

#### 25-50-20/265 Inclusive design

- **Design standards:** Building Regulations –England Approved Document M1M2 and BS 8300-2.
- **Design considerations:**
  - **Occupancy:** Retail at Ground and Basement, Office all levels, Hotel all levels.
  - **Planning Permission use class:** A1, B1 & C1.
  - **Additional requirements:** The opening force shall meet the requirements of Approved Document M2 Clause 3.10 a.
- **Inclusive design:** Complete design in accordance with recommendations in Building Regulations Eng Approved Document M1M2 and Submit proposals.
- **Best practice design:**
  - **Visual contrast:** As Building Regulations.
  - **Door furniture:**
    - Operability:** Knobs not permitted. Operable with clenched fist.
    - Projection:** 70 mm maximum.
    - Maximum torque:** Oval cross-section handle: 8 N m to depress and 5.5 N to lift.

#### 25-50-20/290 Compliance with performance requirements

- **Purpose:** To demonstrate that the products installed on site comply with the performance requirements of this specification.
- **General requirements:** Test Certification to be provided.
- **Method:**
  - **Previous test results:** For fire and acoustic performance.
- **Testing authority:** UKAS-accredited (or European equivalent)

- **Submissions:**
  - **Format:** Declarations of Performance for all CE marked doorsets. Test Certificates for all fire and acoustic doors.
  - **Timing:** During construction stage before manufacture.

## Products

### 25-50-20/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** 1/2 size doorset with associated ironmongery, fire and smoke seals, acoustic seals, and any glazing if relevant.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to procurement.

## Execution

### 25-50-20/605 Installation control samples

- **Samples:** Refer to 25-50-20/305 Product samples.
- **Purpose:** For use as an installation reference sample.
- **Locations:** Submit proposals.
- **Features to be included:** To include edges, framing, glazing, hardware and small accessories.
- **Timing:** Construct during preliminary installation in an approved location. First doorset of each type installed and accepted by the Employer's Agent. This will act as a benchmark for all other doorset installations for each type.

### 25-50-20/610 Preconstruction survey type A

- **Procedure:** Before starting work on designated items, take the site dimensions, record them on shop drawings and use them to ensure accurate fabrication.
- **Designated items:** All door openings
- **Primary support structure:** Survey sufficiently to verify that the required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### 25-50-20/670 Positioning of hardware to glass doors

- **Diameter of fixing holes (minimum):** Glass thickness.
- **Distance from the edge of fixing hole to the door edge (minimum):** 1.5 times glass thickness.
- **Distance from the edge of fixing hole to a corner (minimum):** 4 times glass thickness.
- **Distance from edge of adjacent fixing holes (minimum):** 4 times glass thickness.

### 25-50-20/680 Frame sealant joints type B

- **Application:** Prepare joints. Form triangular fillets finished to a flat or slightly convex profile.

## System completion

### 25-50-20/810 Documentation relating to doors, door assemblies and doorsets

- **Fire safety information:** Location of every fire door in the building, the fire door certificate relevant to the installed door, fire safety strategy, maintenance information for each component, frequency of inspection and maintenance depending on expected usage of the door.
- **Fire performance evidence:** Provide third party certification of product conformity with the specified fire performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located.
- **Smoke performance:** Provide third party certification of product conformity with the specified smoke performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located. Test evidence must be in the name of the door or doorset manufacturer.
- **Acoustic performance evidence:** Provide third party certification of product conformity for specified acoustic performance for sound attenuating door or doorset supplied.
- **Submittals:**
  - **Manufacturer's operation and maintenance instructions for the following products:**  
All products used throughout this system.
  - **Record layout drawings indicating:** General arrangement drawings showing the location of doors, shutters or hatches. Drawings may be cross-referenced to schedule.
  - **Drawing and schedule format:** Electronic.
  - **Number of copies:** Two.

### 25-50-20/895 Verification of performance

- **Requirements:** Third party test certificates to confirm performance
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Prior to Practical Completion.

## System facility management

### 25-50-20/905 Fire door inspection and maintenance

- **Requirements:** Fire door register to include door identification number, door location, fire rating, installation date and name of installer. Check condition of components against the Fire Certificate data. Replace if worn or damaged
- **Frequency of inspection:** At least once every six months.

Ω End of system

# 25-50-20/125 DRS-300 Frame and door leaf system - type Smooth glass

## System outline

### 25-50-20/125 DRS-300 Frame and door leaf system type Smooth glass

- **Description:** Fire-rated glazed door system.
- **System performance:** 25-50-20/205 Design submittals;  
25-50-20/218 Fire performance requirements to BS EN 13501 type A;  
25-50-20/240 Acoustic performance;  
25-50-20/250 Mechanical strength requirements to BS EN 1192;  
25-50-20/265 Inclusive design;  
and 25-50-20/290 Compliance with performance requirements.
- **System manufacturer:** Submit proposals.
- **Door frame:**
  - **Material:** Anodised aluminium frames with bronze brushed finish. RAL colour TBC. Refer to (32) series drawings.
  - **Fasteners:** Manufacturers standard to meet performance.
  - **Seals or inserts:** Manufacturers standard to meet performance.
- **Door leaf:**
  - **Type:** Fully glazed independently operated leaves with cold smoke seal.
  - **Glazing:** 25mm Fireglass, or as required to meet fire performance.
  - **Perimeter seals or inserts:** To meet performance.
- **Hardware:** Allgood Sembla Range for Front of House doors. Allgood Modric range for Back of House doors. Refer to Door Schedule for Ironmongery Sets. Brushed bronze finish.
- **Filler between frame and reveal:** To meet performance.
- **System accessories:** As required to complete installation.
- **Samples required:** 25-50-20/305 Product samples.
- **Execution:** 25-50-20/605 Installation control samples;  
25-50-20/610 Preconstruction survey type A;  
25-50-20/670 Positioning of hardware to glass doors;  
and 25-50-20/680 Frame sealant joints type B.
- **System completion:** 25-50-20/810 Documentation relating to doors, door assemblies and doorsets and 25-50-20/895 Verification of performance.
- **System facility management:** 25-50-20/905 Fire door inspection and maintenance.

## System performance

### 25-50-20/205 Design submittals

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Design submittals:** Typical plan, elevational and section drawings at suitable scales.
- **Validation submittals:** Test certification for doors/ assemblies to show proposals for meeting performance requirements.

- **Timing:** Submit during construction stage before manufacture.
- **Format:** Drawings and specification in BIM compliant format.

#### 25-50-20/218 Fire performance requirements to BS EN 13501 type A

- **Fire resistance:**
  - **Standard:** To BS EN 1634-1; classification to BS EN 13501-2.
  - **Integrity:** Refer to Door Schedule.
- **Smoke leakage:**
  - **Ambient temperature smoke:** To BS EN 13501-2, Class S<sub>a</sub>.
  - **Medium temperature smoke:** To BS EN 13501-2, Class S<sub>m</sub>.
- **Reaction to fire:** To BS EN 13501-1, class B-s3, d2 or better.

#### 25-50-20/240 Acoustic performance

- **Sound insulation rating:** Refer to Door Schedule.

#### 25-50-20/250 Mechanical strength requirements to BS EN 1192

- **Standard:** To BS EN 1192.
- **Category of duty:** Class 3.  
Glass to be impact load resistant.

#### 25-50-20/265 Inclusive design

- **Design standards:** Building Regulations –England Approved Document M1M2 and BS 8300-2.
- **Design considerations:**
  - **Occupancy:** Retail at Ground and Basement, Office all levels, Hotel all levels.
  - **Planning Permission use class:** A1, B1 & C1.
  - **Additional requirements:** The opening force shall meet the requirements of Approved Document M2 Clause 3.10 a.
- **Inclusive design:** Complete design in accordance with recommendations in Building Regulations Eng Approved Document M1M2 and Submit proposals.
- **Best practice design:**
  - **Visual contrast:** As Building Regulations.
  - **Door furniture:**
    - Operability:** Knobs not permitted. Operable with clenched fist.
    - Projection:** 70 mm maximum.
    - Maximum torque:** Oval cross-section handle: 8 N m to depress and 5.5 N to lift.

#### 25-50-20/290 Compliance with performance requirements

- **Purpose:** To demonstrate that the products installed on site comply with the performance requirements of this specification.
- **General requirements:** Test Certification to be provided.
- **Method:**
  - **Previous test results:** For fire and acoustic performance.
- **Testing authority:** UKAS-accredited (or European equivalent)
- **Submissions:**
  - **Format:** Declarations of Performance for all CE marked doorsets. Test Certificates for all fire and acoustic doors.



- **Timing:** During construction stage before manufacture.

## Products

### 25-50-20/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** 1/2 size doorset with associated ironmongery, fire and smoke seals, acoustic seals, and any glazing if relevant.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to procurement.

## Execution

### 25-50-20/605 Installation control samples

- **Samples:** Refer to 25-50-20/305 Product samples.
- **Purpose:** For use as an installation reference sample.
- **Locations:** Submit proposals.
- **Features to be included:** To include edges, framing, glazing, hardware and small accessories.
- **Timing:** Construct during preliminary installation in an approved location. First doorset of each type installed and accepted by the Employer's Agent. This will act as a benchmark for all other doorset installations for each type.

### 25-50-20/610 Preconstruction survey type A

- **Procedure:** Before starting work on designated items, take the site dimensions, record them on shop drawings and use them to ensure accurate fabrication.
- **Designated items:** All door openings
- **Primary support structure:** Survey sufficiently to verify that the required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### 25-50-20/670 Positioning of hardware to glass doors

- **Diameter of fixing holes (minimum):** Glass thickness.
- **Distance from the edge of fixing hole to the door edge (minimum):** 1.5 times glass thickness.
- **Distance from the edge of fixing hole to a corner (minimum):** 4 times glass thickness.
- **Distance from edge of adjacent fixing holes (minimum):** 4 times glass thickness.

### 25-50-20/680 Frame sealant joints type B

- **Application:** Prepare joints. Form triangular fillets finished to a flat or slightly convex profile.

## System completion

### 25-50-20/810 Documentation relating to doors, door assemblies and doorsets

- **Fire safety information:** Location of every fire door in the building, the fire door certificate relevant to the installed door, fire safety strategy, maintenance information for each component, frequency of inspection and maintenance depending on expected usage of the door.
- **Fire performance evidence:** Provide third party certification of product conformity with the specified fire performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located.
- **Smoke performance:** Provide third party certification of product conformity with the specified smoke performance for each door or doorset supplied. Include identifier schedule or similar to allow individual doors to be located. Test evidence must be in the name of the door or doorset manufacturer.
- **Acoustic performance evidence:** Provide third party certification of product conformity for specified acoustic performance for sound attenuating door or doorset supplied.
- **Submittals:**
  - **Manufacturer's operation and maintenance instructions for the following products:**  
All products used throughout this system.
  - **Record layout drawings indicating:** General arrangement drawings showing the location of doors, shutters or hatches. Drawings may be cross-referenced to schedule.
  - **Drawing and schedule format:** Electronic.
  - **Number of copies:** Two.

### 25-50-20/895 Verification of performance

- **Requirements:** Third party test certificates to confirm performance
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Prior to Practical Completion.

## System facility management

### 25-50-20/905 Fire door inspection and maintenance

- **Requirements:** Fire door register to include door identification number, door location, fire rating, installation date and name of installer. Check condition of components against the Fire Certificate data. Replace if worn or damaged
- **Frequency of inspection:** At least once every six months.

Ω End of system

## 25-50-20/135 DRS-400 Hatch system - type A

### System outline

#### 25-50-20/135 DRS-400 Hatch system type A

- **Type:** A
- **Description:** Fire rated recessed floor hatch for plant replacement.
- **System performance:** 25-50-20/218 Fire performance requirements to BS EN 13501 type B.
- **System manufacturer:** Surespan or similar approved.
- **Hatch:** 45-45-00/320 Fire rated recessed floor hatch type B
- **Execution:** 25-50-20/610 Preconstruction survey type A;  
25-50-20/655 Fixing hardware;  
and 25-50-20/695 Protection of components.
- **System completion:** 25-50-20/895 Verification of performance.
- **System facility management:** 25-50-20/905 Fire door inspection and maintenance.

### System performance

#### 25-50-20/218 Fire performance requirements to BS EN 13501 type B

- **Fire resistance:**
  - **Standard:** To BS EN 1634-1; classification to BS EN 13501-2.
  - **Integrity:** 2 hours.
- **Smoke leakage:**
  - **Ambient temperature smoke:** To BS EN 13501-2, Class S<sub>a</sub>.
  - **Medium temperature smoke:** To BS EN 13501-2, Class S<sub>m</sub>.
- **Reaction to fire:** To BS EN 13501-1, class B-s3, d2 or better.

### Products

#### 45-45-00/320 Fire rated recessed floor hatch type B

- **Manufacturer:** Surespan Ltd
- **Product reference:** HIAC
- **Size:** Special order. As required to achieve clear opening of 1500 x 3000 mm.
- **Material:** Stainless steel.
- **Infill depth:** 50mm. Finish applied to the top of the fill flush with surrounding floor. Tolerance of lipping with adjacent floor finish (+/- 2mm etc)
- **Loading class:** FACTA Class AA.
- **Fire rating:** Two hours.
- **Sound reduction:** 25 dB.
- **Operation:** Hydraulic.
- **Locking:** ELB Electronic locking box linked to a BMS system.

- **Accessories:** Retractable safety grid.

## Execution

### 25-50-20/610 Preconstruction survey type A

- **Procedure:** Before starting work on designated items, take the site dimensions, record them on shop drawings and use them to ensure accurate fabrication.
- **Designated items:** All door openings
- **Primary support structure:** Survey sufficiently to verify that the required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### 25-50-20/655 Fixing hardware

- **Holes for components:** No larger than required for satisfactory fit and operation.
- **Adjacent surfaces:** Do not damage.
- **Integrity of the assembly, as established by testing:** Do not compromise.
- **Cutting:** Cut accurately.

### 25-50-20/695 Protection of components

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

## System completion

### 25-50-20/895 Verification of performance

- **Requirements:** Third party test certificates to confirm performance
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Prior to Practical Completion.

## System facility management

### 25-50-20/905 Fire door inspection and maintenance

- **Requirements:** Fire door register to include door identification number, door location, fire rating, installation date and name of installer. Check condition of components against the Fire Certificate data. Replace if worn or damaged
- **Frequency of inspection:** At least once every six months.

Ω End of system

## 25-50-20/135 DRS-401 Hatch system - type B

### System outline

#### 25-50-20/135 DRS-401 Hatch system type B

- **Description:** Top access floor access hatch to Annex plant
- **System performance:** Min. U value 1.5 W/m<sup>2</sup>K
- **System manufacturer:** Staka, Staka Bouwproducten B.V.  
Warwick Enterprise Park  
Wellesbourne  
Warwick CV35 9EF  
Tel: 01789 330558  
Email: uksales@staka.com
- **Hatch:** 45-25-28/422 Roof hatches.
- **Filler between frame and reveal:** Insulation material fitted with glass fibre protective layer.
- **System accessories:** 45-25-28/422 Roof hatches
- **Watertightness:** 2400 Pa in accordance with EN 12211
- **Impact load:** 950N/m<sup>2</sup> in accordance with EN 12155
- **Samples required:** Internal finish face material sample.
- **Execution:** 25-50-20/610 Preconstruction survey type B.
- **System completion:** Cleaning of the installed system.  
Testing the installed system.  
Submittals of operation and maintenance manuals.  
Spares.  
Training and maintenance by the Contractor during the defects liability period.

### Products

#### 45-25-28/422 Roof hatches

- **Manufacturer:** Staka, Staka Bouwproducten B.V.  
Warwick Enterprise Park  
Wellesbourne  
Warwick CV35 9EF  
Tel: 01789 330558  
Email: uksales@staka.com
- **Third party accreditation:** TUV certified.
- **Format:** External
- **Fire performance:** To BS 476-22, 90 minutes.
- **Door:**
  - **Orientation:** Horizontal
  - **Position:** Recessed
  - **Material:** Stainless Steel. AISI 304
- **Operation:**
  - **Mode:** Manual. Powerful gas pressure springs ensure that the cover can be easily opened and closed. Automatic locking in open position.

- **Accessories:** 2 Part Extension ladder 2 x 12 rungs max. length 6.10m.  
Complies with EN131  
High quality lightweight aluminium.
- **Execution:** As per manufacturer's standard.

## Execution

### 25-50-20/610 Preconstruction survey type B

- **Procedure:** Before starting work on designated items, take the site dimensions, record them on shop drawings and use them to ensure accurate fabrication.
- **Primary support structure:** Survey sufficiently to verify that the required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

Ω End of system

## 25-55-30/130 Fire curtain barrier systems

### System outline

#### 25-55-30/130 Fire curtain barrier systems

- **Description:** Automatic fire and smoke curtain recessed into ceiling void.
- **System performance:** 25-55-30/205 Design submittals and 25-55-30/218 Fire performance requirements.
- **System manufacturer:** Coopers Fire Ltd.
- **Fire barriers:** 90-45-80/390 Automatic fire and smoke curtain.
- **Head supports:** Face fixed to underside of structure.
- **System accessories:** All accessories necessary to complete the installation, including gravity fail safe system.  
Housing colour to match ceiling. White RAL TBC.
- **Fire Rating:** Varies refer (68) series.
- **Execution:** 90-45-80/630 Installing active fire curtain barrier assemblies.
- **System completion:** 25-55-30/895 Verification of performance.
- **System facility management:** 25-55-30/905 Fire curtain inspection and maintenance.

### System performance

#### 25-55-30/205 Design submittals

- **Purpose:** To demonstrate compliance with performance requirements.
- **Design submittals:** Typical plan, elevational and section drawings at suitable scales.
- **Validation submittals:** Test certification for fire curtain assemblies to show proposals for meeting performance requirements.
- **Timing:** Submit during detailed design stage.
- **Format:** Drawings and specification in BIM compliant format.

#### 25-55-30/218 Fire performance requirements

- **Fire resistance:**
  - **Standard:** To BS EN 13501-2 and To BS EN 16034;.
  - **Fire resistance rating:** Refer to (68) drawing series.
- **Smoke leakage:**
  - **Ambient temperature smoke:** To BS EN 13501-2, Class Sa.
  - **Medium temperature smoke:** To BS EN 13501-2, Class Sm.
- **Reaction to fire:** To BS EN 13501-1, class B-s3, d2 or better.

### Products

#### 90-45-80/390 Automatic fire and smoke curtain

- **Manufacturer:** Coopers Fire Ltd.

- **Standards:** To BS 8542 and third party accredited.
  - **Barrier assemblies:** To BS 8524-1.
  - **Test standards:** Vertical, horizontal and angled to BS EN 1634-1.
- **Third party certification:** Third-party certification in accordance with UKAS requirements to be provided for product.
- **Size:**
  - **Generally:** All sizes to be confirmed on site prior to procurement. Curtains within hotel demise to be confirmed with hotel architect prior to procurement.
  - **Dover Yard North Facade:** Level 1: 3050mm (H) x 3000mm (W)  
 Level 3: 3050mm (H) x 3000mm (W)  
 Level 4: 2975mm (H) x 3000mm (W)  
 Level 5: 2700mm (H) x 3000mm (W)  
 Level 6: 2725mm (H) x 5000mm (W)  
 Level 7: 1 x 3075mm (H) x 5000mm (W), 1 x 3075mm (H) x 3000mm (W)  
 Level 8: 1 x 3100mm (H) x 5000mm (W), 1 x 3100mm (H) x 3000mm (W)
  - **Basement Retail Unit 4:** Curtain to enclose stair on all four sides measuring:  
 2 x 3850 (H) x 4600 (W)  
 2 x 3850 (H) x 3200 (W)
  - **Ground Floor Hotel Lobby (hotel demise):** Curtain to enclose stair on all four sides measuring:  
 2 x 4400 (H) x 4600 (W)  
 2 x 4400 (H) x 4100 (W)
  - **Ground Floor Hotel Lobby/ Office Reception (hotel demise):** 4400 (H) x 2250 (W)
- **Performance:**
  - **Pressure and impact:** Manufacturer's standard.
  - **Durability class:** C2
  - **Smoke containment:** To BS 8524-1.
  - **Fire resistance:** Integrity and insulation (EI)60.
  - **Reaction to fire:** To BS EN 13501-1, A1
- **Opening Size:**
- **Barrier units:** Manufacturer's standard.
- **Deployment:** Full.
- **Activation:** Fire alarm signal and Signal from local smoke or heat detector.
- **Accessories:** All accessories required for the installation and fixing of fire curtain barriers.

## Execution

### 90-45-80/630 Installing active fire curtain barrier assemblies

- **Standard:** In accordance with BS 8524-2.
- **Installer:** A firm currently registered under a third party accredited fire door installer scheme.
- **Installation:** In accordance with instructions supplied with the product conformity certificate, test report or engineering assessment. All systems to be concealed within bulkhead/ suspended ceiling.
- **Gaps between frames and supporting construction:** Submit proposals.
- **Labelling:** In accordance with third party certification scheme.



## System completion

### 25-55-30/895 Verification of performance

- **Requirements:** Third party test certificates to confirm performance.
- **Submissions:**
  - **Format:** Hard copy and electronic.
  - **Timing:** Prior to Practical Completion.

## System facility management

### 25-55-30/905 Fire curtain inspection and maintenance

- **Requirements:** Check condition of components against the Fire Certificate data. Replace if worn or damaged.
- **Frequency of inspection:** Once every six months.

Ω End of system

# 25-55-45/170 LVR-101 Panellized louvre screen system - type A

## System outline

### 25-55-45/170 LVR-101 Panellized louvre screen system type A

- **Description:** Acoustic Louvre Screen
- **System performance:** Refer to Hann Tucker (acoustic consultant) Stage 3 report.
- **System manufacturer:** Caice CS600
- **Screen framing:** 45-25-50/330 Screening and ventilation louvre support frames.
- **Louvre panels:**
  - **Type:** Galvanised steel panel units
  - **Operation:** Fixed
- **Installation fasteners:** M8 x 25mm bolts
- **System accessories:** 45-25-50/335 Screening and ventilation louvre access doors; 45-25-50/455 Bird guard mesh; Single Gusset Bracket. FB04 Brackets. FB04 Hooks. Nutsert fixing plate.
- **Samples required:** 25-55-45/305 Product samples.
- **Execution:** 25-55-45/620 Preconstruction survey.
- **System completion:** Cleaning of the installed system; Testing the installed system; Submittals (operation and maintenance manuals)

## Products

### 25-55-45/305 Product samples

- **Manufacturer:** Caice
- **Submittals:** Manufacturer's standard.
- **Purpose:** For aesthetic evaluation. For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project

### 45-25-50/330 Screening and ventilation louvre support frames

- **Manufacturer:** Caice
- **Overall dimensions:** Manufacturer's standard.
- **Components:** Manufacturer's standard.
- **Materials:** Galvanised Steel
- **Finish:** Polyester Powder Coating
- **Colour:** To be confirmed by Architect
- **Texture:** 30% Gloss
- **Fasteners:** Manufacturer's standard.

#### 45-25-50/335 Screening and ventilation louvre access doors

- **Manufacturer:** Caice
- **Size:** 1150mm and 750mm
- **Format:** Single leaf
- **Material:** Gavanised Steel
- **Finish:** Powder Coating
- **Colour:** RAL to be confirmed by Architect
- **Texture:** 30% gloss

#### 45-25-50/455 Bird guard mesh

- **Manufacturer:** Contractor's choice.
- **Material:** Manufacturer's standard.
- **Finish:** Submit proposals.
- **Size:** Manufacturer's standard.
- **Configuration:** 12 mm diamond.

### Execution

#### 25-55-45/620 Preconstruction survey

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

Ω End of system

# 25-55-45/170 LVR-102 Panellized louvre screen system - type B

## System outline

### 25-55-45/170 LVR-102 Panellized louvre screen system type B

- **Description:** Acoustic Louvre Screen
- **System performance:** Refer to Hann Tucker (acoustic consultant) Stage 3 report.
- **System manufacturer:** Caice SS300
- **Screen framing:** 45-25-50/330 Screening and ventilation louvre support frames.
- **Louvre panels:**
  - **Type:** Galvanised steel panel units
  - **Operation:** Fixed
- **Installation fasteners:** M8 x 25mm bolts
- **System accessories:** 45-25-50/335 Screening and ventilation louvre access doors; and 45-25-50/455 Bird guard mesh. Single Gusset Bracket. FB04 Brackets. FB04 Hooks. Nutsert fixing plate.
- **Samples required:** 25-55-45/305 Product samples.
- **Execution:** 25-55-45/620 Preconstruction survey.
- **System completion:** Cleaning of the installed system; Testing the installed system; Submittals (operation and maintenance manuals)

## Products

### 25-55-45/305 Product samples

- **Manufacturer:** Caice
- **Submittals:** Manufacturer's standard.
- **Purpose:** For aesthetic evaluation. For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project

### 45-25-50/330 Screening and ventilation louvre support frames

- **Manufacturer:** Caice
- **Overall dimensions:** Manufacturer's standard.
- **Components:** Manufacturer's standard.
- **Materials:** Galvanised Steel
- **Finish:** Polyester Powder Coating
- **Colour:** To be confirmed by Architect
- **Texture:** 30% Gloss
- **Fasteners:** Manufacturer's standard.

#### 45-25-50/335 Screening and ventilation louvre access doors

- **Manufacturer:** Caice
- **Size:** 1150mm and 750mm
- **Format:** Single leaf
- **Material:** Gavanised Steel
- **Finish:** Powder Coating
- **Colour:** RAL to be confirmed by Architect
- **Texture:** 30% gloss

#### 45-25-50/455 Bird guard mesh

- **Manufacturer:** Contractor's choice.
- **Material:** Manufacturer's standard.
- **Finish:** Submit proposals.
- **Size:** Manufacturer's standard.
- **Configuration:** 12 mm diamond.

### Execution

#### 25-55-45/620 Preconstruction survey

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

Ω End of system

# 25-55-45/170 LVR-103 Panellized louvre screen system - type C

## System outline

### 25-55-45/170 LVR-103 Panellized louvre screen system type C

- **Description:** Acoustic Louvre Screen
- **System performance:** Refer to Hann Tucker (acoustic consultant) Stage 3 report.
- **System manufacturer:** Caice SS150
- **Screen framing:** 45-25-50/330 Screening and ventilation louvre support frames.
- **Louvre panels:**
  - **Type:** Galvanised steel panel units
  - **Operation:** Fixed
- **Installation fasteners:** M8 x 25mm bolts
- **System accessories:** 45-25-50/335 Screening and ventilation louvre access doors; and 45-25-50/455 Bird guard mesh. Single Gusset Bracket. FB04 Brackets. FB04 Hooks. Nutsert fixing plate.
- **Samples required:** 25-55-45/305 Product samples.
- **Execution:** 25-55-45/620 Preconstruction survey.
- **System completion:** Cleaning of the installed system; Testing the installed system; Submittals (operation and maintenance manuals)

## Products

### 25-55-45/305 Product samples

- **Manufacturer:** Caice
- **Submittals:** Manufacturer's standard.
- **Purpose:** For aesthetic evaluation. For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project

### 45-25-50/330 Screening and ventilation louvre support frames

- **Manufacturer:** Caice
- **Overall dimensions:** Manufacturer's standard.
- **Components:** Manufacturer's standard.
- **Materials:** Galvanised Steel
- **Finish:** Polyester Powder Coating
- **Colour:** To be confirmed by Architect
- **Texture:** 30% Gloss
- **Fasteners:** Manufacturer's standard.

#### 45-25-50/335 Screening and ventilation louvre access doors

- **Manufacturer:** Caice
- **Size:** 1150mm and 750mm
- **Format:** Single leaf
- **Material:** Gavanised Steel
- **Finish:** Powder Coating
- **Colour:** RAL to be confirmed by Architect
- **Texture:** 30% gloss

#### 45-25-50/455 Bird guard mesh

- **Manufacturer:** Contractor's choice.
- **Material:** Manufacturer's standard.
- **Finish:** Submit proposals.
- **Size:** Manufacturer's standard.
- **Configuration:** 12 mm diamond.

### Execution

#### 25-55-45/620 Preconstruction survey

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

Ω End of system

# 25-85-45/140 IWS-110 Gypsum board wall lining system - type A

## System outline

### 25-85-45/140 IWS-110 Gypsum board wall lining system type A

- **Description:** 12.5mm Fire Resistant Plasterboard Lining.  
Submit proposals for corrosion resistant studs or metal furring channels or top hats in the required size and gauge to BS EN 14195 and board type to meet the performance and environmental requirements in accordance with BS EN 520 and BS EN 15238. Provide thickness and number of layers to meet the fire load bearing capacity, integrity and insulation performance requirements.
- **System performance:** 25-85-45/225 Fire performance of wall lining system to BS EN 13501.
- **System manufacturer:** British Gypsum or equivalent.
- **System reference:** Gyproc FireLine or equivalent.
- **Linings:**
  - **Fasteners:** 45-50-00/335 Gypsum-based adhesives.
- **Joint treatment:** 45-35-62/435 Gypsum-based bedding compounds or equivalent.
- **Finish:** 45-35-64/325 Primers for plasterboard or equivalent.
- **Execution:** 25-85-45/607 Installing gypsum board linings generally and 25-85-45/610 Preparation of substrates to receive wall linings.

## System performance

### 25-85-45/225 Fire performance of wall lining system to BS EN 13501

- **Fire resistance:** Refer to the fire report & (68) series fire drawings.
- **Reaction to fire:** Refer to the fire report & (68) series fire drawings.
- **Fire performance wall lining Identification:** Submit proposals.

## Products

### 45-50-00/335 Gypsum-based adhesives

- **Manufacturer:** Safeguard Europe Ltd or equivalent.
- **Product reference:** Drygrip Adhesive or equivalent.
- **Execution:** 45-50-00/610 Applying adhesives generally.

## Execution

### 25-85-45/607 Installing gypsum board linings generally

- **Standard:** In accordance with BS 8000-0
- **Deviations and tolerances:**



- **Vertical deviation (maximum):**  $\pm 5$  mm measured above or below the setting out position, in accordance with BS 8212 clause 3.3.2.
- **Horizontal deviation (maximum):**  $\pm 3$  mm measured at the setting out level (ceiling or floor), in accordance with BS 8212 clause 3.3.2.
- **Finished surfaces:** Maximum deviation band of 10 mm in accordance with BS 8212 clause 3.3.3.

#### 25-85-45/610 Preparation of substrates to receive wall linings

- **Suitability of substrates:** Suitable to receive lining system. Remove redundant fixtures and services. Complete cutting, chasing and making good.
- **Sealing:** Seal all holes, gaps, service penetrations, perimeter junctions and around openings.
- **Adhesive fixings:** Prepare substrate to achieve effective bonding.
- **Contaminants:** Remove loose material, dirt, grease, oil, paper, etc.
- **Absorption:** Control by dampening, priming or applying bonding agents as necessary.

#### 45-50-00/610 Applying adhesives generally

- **Surface preparation:** Dry, clean, free from oil, grease and other contaminants. Commencement of the works shall be deemed that the Contractor is satisfied with its suitability.
- **Temporary support and clamping:** Do not disturb components. Do not mark surfaces.
- **Finished joints:** Fully bonded and free of surplus adhesive.

Ω End of system

## 25-85-45/140 IWS-111 Gypsum board wall lining system - type B

### System outline

#### 25-85-45/140 IWS-111 Gypsum board wall lining system type B

- **Description:** 12.5mm Moisture Resistant Plasterboard Lining
- **System performance:** 25-85-45/245 Hygrothermal performance of wall lining system.
- **System manufacturer:** British Gypsum or equivalent.
- **System reference:** Gyproc Moisture Resistant or equivalent.
- **Linings:**
  - **Fasteners:** 45-50-00/335 Gypsum-based adhesives or equivalent.
- **Joint treatment:** 45-35-62/435 Gypsum-based bedding compounds or equivalent.
- **Finish:** 45-35-64/325 Primers for plasterboard or equivalent.
- **Execution:** 25-85-45/607 Installing gypsum board linings generally and 25-85-45/610 Preparation of substrates to receive wall linings.

### System performance

#### 25-85-45/245 Hygrothermal performance of wall lining system

- **Moisture vapour resistance (minimum):** To meet the performance requirements, refer to (22) drawing series.

### Products

#### 45-50-00/335 Gypsum-based adhesives

- **Manufacturer:** Safeguard Europe Ltd or equivalent.
- **Product reference:** Drygrip Adhesive or equivalent.
- **Execution:** 45-50-00/610 Applying adhesives generally.

### Execution

#### 25-85-45/607 Installing gypsum board linings generally

- **Standard:** In accordance with BS 8000-0
- **Deviations and tolerances:**
  - **Vertical deviation (maximum):**  $\pm 5$  mm measured above or below the setting out position, in accordance with BS 8212 clause 3.3.2.
  - **Horizontal deviation (maximum):**  $\pm 3$  mm measured at the setting out level (ceiling or floor), in accordance with BS 8212 clause 3.3.2.
  - **Finished surfaces:** Maximum deviation band of 10 mm in accordance with BS 8212 clause 3.3.3.

#### 25-85-45/610 Preparation of substrates to receive wall linings

- **Suitability of substrates:** Suitable to receive lining system. Remove redundant fixtures and services. Complete cutting, chasing and making good.
- **Sealing:** Seal all holes, gaps, service penetrations, perimeter junctions and around openings.
- **Adhesive fixings:** Prepare substrate to achieve effective bonding.
- **Contaminants:** Remove loose material, dirt, grease, oil, paper, etc.
- **Absorption:** Control by dampening, priming or applying bonding agents as necessary.

#### 45-50-00/610 Applying adhesives generally

- **Surface preparation:** Dry, clean, free from oil, grease and other contaminants. Commencement of the works shall be deemed that the Contractor is satisfied with its suitability.
- **Temporary support and clamping:** Do not disturb components. Do not mark surfaces.
- **Finished joints:** Fully bonded and free of surplus adhesive.

Ω End of system

# 25-85-45/140 IWS-112 Gypsum board wall lining system - type C

## System outline

### 25-85-45/140 IWS-112 Gypsum board wall lining system type C

- **Description:** 12.5mm Plasterboard Lining
- **System performance:** .
- **System manufacturer:** British Gypsum or equivalent.
- **System reference:** Glasroc F MultiBoard or equivalent.
- **Linings:**
  - **Fasteners:** 45-50-00/335 Gypsum-based adhesives or equivalent.
- **Joint treatment:** 45-35-62/435 Gypsum-based bedding compounds or equivalent.
- **Finish:** 45-35-64/325 Primers for plasterboard or equivalent.
- **Execution:** 25-85-45/607 Installing gypsum board linings generally and 25-85-45/610 Preparation of substrates to receive wall linings.

## Products

### 45-50-00/335 Gypsum-based adhesives

- **Manufacturer:** Safeguard Europe Ltd or equivalent.
- **Product reference:** Drygrip Adhesive or equivalent.
- **Execution:** 45-50-00/610 Applying adhesives generally.

## Execution

### 25-85-45/607 Installing gypsum board linings generally

- **Standard:** In accordance with BS 8000-0
- **Deviations and tolerances:**
  - **Vertical deviation (maximum):**  $\pm 5$  mm measured above or below the setting out position, in accordance with BS 8212 clause 3.3.2.
  - **Horizontal deviation (maximum):**  $\pm 3$  mm measured at the setting out level (ceiling or floor), in accordance with BS 8212 clause 3.3.2.
  - **Finished surfaces:** Maximum deviation band of 10 mm in accordance with BS 8212 clause 3.3.3.

### 25-85-45/610 Preparation of substrates to receive wall linings

- **Suitability of substrates:** Suitable to receive lining system. Remove redundant fixtures and services. Complete cutting, chasing and making good.
- **Sealing:** Seal all holes, gaps, service penetrations, perimeter junctions and around openings.
- **Adhesive fixings:** Prepare substrate to achieve effective bonding.
- **Contaminants:** Remove loose material, dirt, grease, oil, paper, etc.

- **Absorption:** Control by dampening, priming or applying bonding agents as necessary.

**45-50-00/610 Applying adhesives generally**

- **Surface preparation:** Dry, clean, free from oil, grease and other contaminants. Commencement of the works shall be deemed that the Contractor is satisfied with its suitability.
- **Temporary support and clamping:** Do not disturb components. Do not mark surfaces.
- **Finished joints:** Fully bonded and free of surplus adhesive.

Ω End of system

## 25-85-45/150 IWS-100 Metal framed specialist wall lining system - type A

### System outline

#### 25-85-45/150 IWS-100 Metal framed specialist wall lining system type A

- **Type:** A
- **Description:** Metal framed specialist lining system, nominal 92mm, with 2 x layers of fire resistant board and 1 x layer of sound resistant board to one side. Refer to (22) Series drawings for configuration, indicative design and heights.
- **System performance:** 25-85-45/225 Fire performance of wall lining system to BS EN 13501; 25-85-45/245 Hygrothermal performance of wall lining system; 25-85-45/255 Acoustic performance of wall lining systems; and 25-85-45/290 Compliance with performance requirements.
- **System manufacturer:** British Gypsum or equivalent.
- **System reference:** ShaftWall or equivalent.
- **Head condition:**
- **Insulation:** Isover APR 1200 or equivalent in a suitable thickness to meet the performance requirements, British Board of Agrément (BBA) certified.
- **Finishing:**
  - **Type:** Taped seamless finish unless otherwise indicated, to BS EN 13963, Type 1.
  - **Primer/ Sealer:** One coat of Gyproc Drywall Prime or acceptable equivalent.  
For use where vapour control is a consideration: Two coats of Gyproc Drywall Sealer.
- **Accessories:** Rigid beads/ stops.  
Control Joint.  
Drywall Archbead.  
Drywall Metal Angle Bead.  
Drywall Metal Edge Bead.  
Drywall Plastic Edge Bead.  
Jack-Point Screws (for metal to metal): Corrosion-resistant self-drilling zinc plated steel screws with countersunk cross head.  
Drywall screws: Corrosion resistant self tapping steel screws with countersunk cross head.  
Corner bead;  
Shadow gap trims;  
Pattressing and noggings;  
Provide accessories where required.
- **Other requirements:** As recommended by the system manufacturer.
- **Execution:** 25-85-45/620 Installing framing generally;  
25-85-45/607 Installing gypsum board linings generally;  
25-85-45/630 Installing gypsum-based boards to metal framing;  
25-85-45/610 Preparation of substrates to receive wall linings;  
and 25-85-45/655 Sealing gaps and air paths around linings and casings.
- **System completion:** 25-85-45/895 Verification of performance.

## System performance

### 25-85-45/225 Fire performance of wall lining system to BS EN 13501

- **Fire resistance:** Refer to the fire report & (68) series fire drawings.
- **Reaction to fire:** Refer to the fire report & (68) series fire drawings.
- **Fire performance wall lining Identification:** Submit proposals.

### 25-85-45/245 Hygrothermal performance of wall lining system

- **Moisture vapour resistance (minimum):** To meet the performance requirements, refer to (22) drawing series.

### 25-85-45/255 Acoustic performance of wall lining systems

- **Sound attenuation:**
  - **Standards:** Laboratory tested in accordance with BS EN ISO 10848-2 and rated in accordance with BS EN ISO 717-1.
- **Sound absorption:**
  - **Standards:** Measured in accordance with BS EN ISO 354 and rated in accordance with BS EN ISO 11654.
  - **Sound absorption class:** Refer to the acoustic report & (22) series acoustic drawings.

### 25-85-45/290 Compliance with performance requirements

- **Purpose:** Proof of compliance with specified performance
- **General requirements:** Include details of performance related to the particular elements of construction.
- **Submissions:**
  - **Format:** Declaration of Performance.

## Execution

### 25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors

- **Standard:** In accordance with BS EN 16034.
- **Installer:** A firm currently registered under a third party accredited fire door installer scheme.
- **Installation:** In accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.
- **Gaps between frames and supporting construction:** The gap between the door and frame must be suitable for the intumescent seal. It should not exceed 3 mm along the two long edges and along the top of the of the door leaf (tolerance of +-1 mm).
- **Labelling:** To include manufacturer's name, fire rating and traceable serial number

### 25-85-45/605 Preliminary installation

- **Installation requirements:** Complete an area of partition in an agreed location.
- **Purpose:** For use as an installation reference sample.
- **Position:** As per (22) series information.

- **Features:** 25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors
- **Timing:** Construct and obtain approval of appearance before proceeding with general installation. Retain undisturbed until completion of demountable suspended ceiling installation.

#### 25-85-45/607 Installing gypsum board linings generally

- **Standard:** In accordance with BS 8000-0
- **Deviations and tolerances:**
  - **Vertical deviation (maximum):**  $\pm 5$  mm measured above or below the setting out position, in accordance with BS 8212 clause 3.3.2.
  - **Horizontal deviation (maximum):**  $\pm 3$  mm measured at the setting out level (ceiling or floor), in accordance with BS 8212 clause 3.3.2.
  - **Finished surfaces:** Maximum deviation band of 10 mm in accordance with BS 8212 clause 3.3.3.

#### 25-85-45/610 Preparation of substrates to receive wall linings

- **Suitability of substrates:** Suitable to receive lining system. Remove redundant fixtures and services. Complete cutting, chasing and making good.
- **Sealing:** Seal all holes, gaps, service penetrations, perimeter junctions and around openings.
- **Adhesive fixings:** Prepare substrate to achieve effective bonding.
- **Contaminants:** Remove loose material, dirt, grease, oil, paper, etc.
- **Absorption:** Control by dampening, priming or applying bonding agents as necessary.

#### 45-45-50/605 Installing gypsum based board

- **General:** Use fixing, jointing, sealing and finishing installation methods recommended by board manufacturer.
- **Cutting plasterboard:** Neat and accurate. Do not damage core or tear paper facing.
- **Cut edges:** Minimize. Position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.
- **Fixing boards:** Securely, to suitably prepared and accurately levelled backgrounds.
- **Finishing:** Neat. Provide flush, smooth, flat surfaces free from bowing and abrupt changes of level.

#### 45-55-75/620 Joint preparation for sealant application

- **Surfaces to which sealant must adhere:** Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond. Install in accordance with the manufacturers written instructions.
- **Cleaning:** Use materials and methods recommended by sealant manufacturer.
- **Vulnerable surfaces adjacent to joints:** Do not stain or smear with primer or sealant. Install in accordance with manufactures installation instructions.
- **Installation:** Install in accordance with the manufacturers written instructions.

#### 45-55-75/630 Applying joint sealants

- **Substrate:** Refer to drawings.
- **Environmental conditions:** Do not dry or raise temperature of joints by heating.
- **Sealant application:** Completely and neatly fill joints. Provide firm adhesion to substrates.
- **Sealant profiles:**
  - **Butt and lap joints:** In accordance with manufactures installation instructions.



- **Fillet joints:** In accordance with manufactures installation instructions.
- **Protection:** Do not contaminate or damage finished joints.
- **Installation:** Install in accordance with the manufacturers written instructions.

## System completion

### 25-85-45/895 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 25-85-45/150 IWS-101 Metal framed specialist wall lining system - type B

### System outline

#### 25-85-45/150 IWS-101 Metal framed specialist wall lining system type B

- **Description:** Metal framed specialist lining system, nominal 107mm, with 3 x layers of fire resistant board to one side. Refer to (22) Series drawings for configuration, indicative design and heights.
- **System performance:** 25-85-45/225 Fire performance of wall lining system to BS EN 13501; 25-85-45/245 Hygrothermal performance of wall lining system; 25-85-45/255 Acoustic performance of wall lining systems; and 25-85-45/290 Compliance with performance requirements.
- **System manufacturer:** British Gypsum or equivalent.
- **System reference:** ShaftWall or equivalent.
- **Insulation:** Isover APR 1200 or equivalent in a suitable thickness to meet the performance requirements, British Board of Agrément (BBA) certified.
- **Finishing:**
  - **Type:** Taped seamless finish unless otherwise indicated, to BS EN 13963, Type 1.
  - **Primer/ Sealer:** One coat of Gyproc Drywall Prime or acceptable equivalent.  
For use where vapour control is a consideration: Two coats of Gyproc Drywall Sealer.
- **Accessories:** Rigid beads/ stops.  
Control Joint.  
Drywall Archbead.  
Drywall Metal Angle Bead.  
Drywall Metal Edge Bead.  
Drywall Plastic Edge Bead.  
Jack-Point Screws (for metal to metal): Corrosion-resistant self-drilling zinc plated steel screws with countersunk cross head.  
Drywall screws: Corrosion resistant self tapping steel screws with countersunk cross head.  
Corner bead;  
Shadow gap trims;  
Pattressing and noggings;  
Provide accessories where required.
- **Other requirements:** As recommended by the system manufacturer.
- **Execution:** 25-85-45/620 Installing framing generally;  
25-85-45/607 Installing gypsum board linings generally;  
25-85-45/630 Installing gypsum-based boards to metal framing;  
25-85-45/610 Preparation of substrates to receive wall linings;  
and 25-85-45/655 Sealing gaps and air paths around linings and casings.
- **System completion:** 25-85-45/895 Verification of performance.

### System performance

#### 25-85-45/225 Fire performance of wall lining system to BS EN 13501

- **Fire resistance:** Refer to the fire report & (68) series fire drawings.

- **Reaction to fire:** Refer to the fire report & (68) series fire drawings.
- **Fire performance wall lining Identification:** Submit proposals.

#### 25-85-45/245 Hygrothermal performance of wall lining system

- **Moisture vapour resistance (minimum):** To meet the performance requirements, refer to (22) drawing series.

#### 25-85-45/255 Acoustic performance of wall lining systems

- **Sound attenuation:**
  - **Standards:** Laboratory tested in accordance with BS EN ISO 10848-2 and rated in accordance with BS EN ISO 717-1.
- **Sound absorption:**
  - **Standards:** Measured in accordance with BS EN ISO 354 and rated in accordance with BS EN ISO 11654.
  - **Sound absorption class:** Refer to the acoustic report & (22) series acoustic drawings.

#### 25-85-45/290 Compliance with performance requirements

- **Purpose:** Proof of compliance with specified performance
- **General requirements:** Include details of performance related to the particular elements of construction.
- **Submissions:**
  - **Format:** Declaration of Performance.

### Execution

#### 25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors

- **Standard:** In accordance with BS EN 16034.
- **Installer:** A firm currently registered under a third party accredited fire door installer scheme.
- **Installation:** In accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.
- **Gaps between frames and supporting construction:** The gap between the door and frame must be suitable for the intumescent seal. It should not exceed 3 mm along the two long edges and along the top of the of the door leaf (tolerance of  $\pm 1$  mm).
- **Labelling:** To include manufacturer's name, fire rating and traceable serial number

#### 25-85-45/605 Preliminary installation

- **Installation requirements:** Complete an area of partition in an agreed location.
- **Purpose:** For use as an installation reference sample.
- **Position:** As per (22) series information.
- **Features:** 25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors
- **Timing:** Construct and obtain approval of appearance before proceeding with general installation. Retain undisturbed until completion of demountable suspended ceiling installation.

#### 25-85-45/607 Installing gypsum board linings generally

- **Standard:** In accordance with BS 8000-0

- **Deviations and tolerances:**
  - **Vertical deviation (maximum):**  $\pm 5$  mm measured above or below the setting out position, in accordance with BS 8212 clause 3.3.2.
  - **Horizontal deviation (maximum):**  $\pm 3$  mm measured at the setting out level (ceiling or floor), in accordance with BS 8212 clause 3.3.2.
  - **Finished surfaces:** Maximum deviation band of 10 mm in accordance with BS 8212 clause 3.3.3.

#### 25-85-45/610 Preparation of substrates to receive wall linings

- **Suitability of substrates:** Suitable to receive lining system. Remove redundant fixtures and services. Complete cutting, chasing and making good.
- **Sealing:** Seal all holes, gaps, service penetrations, perimeter junctions and around openings.
- **Adhesive fixings:** Prepare substrate to achieve effective bonding.
- **Contaminants:** Remove loose material, dirt, grease, oil, paper, etc.
- **Absorption:** Control by dampening, priming or applying bonding agents as necessary.

#### 45-45-50/605 Installing gypsum based board

- **General:** Use fixing, jointing, sealing and finishing installation methods recommended by board manufacturer.
- **Cutting plasterboard:** Neat and accurate. Do not damage core or tear paper facing.
- **Cut edges:** Minimize. Position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.
- **Fixing boards:** Securely, to suitably prepared and accurately levelled backgrounds.
- **Finishing:** Neat. Provide flush, smooth, flat surfaces free from bowing and abrupt changes of level.

#### 45-55-75/620 Joint preparation for sealant application

- **Surfaces to which sealant must adhere:** Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond. Install in accordance with the manufacturers written instructions.
- **Cleaning:** Use materials and methods recommended by sealant manufacturer.
- **Vulnerable surfaces adjacent to joints:** Do not stain or smear with primer or sealant. Install in accordance with manufactures installation instructions.
- **Installation:** Install in accordance with the manufacturers written instructions.

#### 45-55-75/630 Applying joint sealants

- **Substrate:** Refer to drawings.
- **Environmental conditions:** Do not dry or raise temperature of joints by heating.
- **Sealant application:** Completely and neatly fill joints. Provide firm adhesion to substrates.
- **Sealant profiles:**
  - **Butt and lap joints:** In accordance with manufactures installation instructions.
  - **Fillet joints:** In accordance with manufactures installation instructions.
- **Protection:** Do not contaminate or damage finished joints.
- **Installation:** Install in accordance with the manufacturers written instructions.

## System completion

### 25-85-45/895 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

# 25-85-75/130 IWS-300 Framed wood panel lining system - type A

## System outline

### 25-85-75/130 IWS-300 Framed wood panel lining system type A

- **Description:** Timber grid lining system, with concealed door panels.
- **System performance:** 25-85-75/205 Design submittals type A;  
25-85-75/210 Design of fine linings and panelling type A;  
25-85-75/220 Fine linings and panelling tolerances type A;  
25-85-75/230 Accuracy of fine linings and panelling type A;  
25-85-75/250 Structural performance type A;  
and 25-85-75/290 Compliance with performance requirements type A.
- **System manufacturer:** Submit proposals.
- **Battens:** Elm vertical and horizontal battens. Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
- **Framing:** Elm framing. Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
- **Bonding and jointing adhesive:** Submit proposals.
- **Fasteners:** Submit proposals.
- **Panels:** Plywood panels finished with elm veneer.
- **Finish:** Clear varnish.
- **Doors:** 45-25-28/348 Wood doorsets type inset in wall lining
- **Samples required:** 25-85-75/505 Prototypes or mock-ups
- **System accessories:** All accessories required to complete the installation and achieve compliance.
- **Execution:** 25-85-75/620 Installing linings and panelling type A;  
25-85-75/640 Preparing clear finished wood panels;  
and 25-85-75/630 Moisture content of fine linings and panelling type A.
- **System completion:** 25-85-75/805 Removal of samples and 25-85-75/895 Verification of performance.

## System performance

### 25-85-75/205 Design submittals type A

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Typical plan, elevation and section drawings at suitable scales.
- **Timing:** Before manufacture.
- **Format:** Drawings and specification in BIM-compliant format.

### 25-85-75/210 Design of fine linings and panelling type A

- **Standard:** To BS 1186-2.
- **Included features:** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.

#### 25-85-75/220 Fine linings and panelling tolerances type A

- **Standard:** To BS 1186-2.
- **Sections:** Accurate in profile and length. Free from twist and bowing. Form out of solid wood.
- **Machined surfaces:** Smooth and free from tearing, wooliness, chip bruising and other machining defects.
- **Joints:** Tight and close fitting.
- **Assembled components:** Rigid and free from distortion.
- **Screw fixing hardwood:** Provide pilot and clearance holes of 8 gauge or larger.
- **Dimensions:** Finished sizes.
- **Maximum permitted deviations from finished sizes:**
  - **Softwood sections:** To BS EN 1313-1.
  - **Hardwood sections:** To BS EN 1313-2.

#### 25-85-75/230 Accuracy of fine linings and panelling type A

- **Site dimensions:**
  - **General requirements:** Take as necessary before starting fabrication.
  - **Discrepancies with drawings:** Report without delay and obtain instructions before proceeding.
- **Permissible deviations for panels:**
  - **Length:**  $\pm 1.5$  mm.
  - **Width:**  $\pm 1.5$  mm.
  - **Squareness:**  $\pm 1.5$  mm in 1 m.
  - **Flatness:**  $\pm 1$  mm under a 600 mm straight edge.

#### 25-85-75/250 Structural performance type A

- **Strength grade:** To BS 5234-2, medium grade.
- **Other requirements:** System should allow the opening of the concealed doors to happen smoothly.
- **Wall lining height (maximum):** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
- **Testing and assessment reports:**
  - **Requirement:** Submit evidence of successful testing by a UKAS accredited laboratory.
  - **Timing:** Before manufacture.

#### 25-85-75/290 Compliance with performance requirements type A

- **Purpose:** Proof of compliance with specified performance.
- **General requirements:** Include details of performance related to the particular elements of construction.
- **Method:**
  - **Previous test results:** For structural, fire and acoustic performance.
- **Testing authority:** UKAS accredited or European equivalent.
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Before commencing installation.

## Products

### 45-25-28/348 Wood doorsets type inset in wall lining

- **Manufacturer:** Submit proposals.
- **Wood in joinery standard:** To BS EN 942.
- **Configuration:** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
- **Doorset size:** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
- **Frame:**
  - **Material:** Timber. Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
  - **Species:** Elm.
  - **Appearance class:** J10.
  - **Finish:** Clear varnish.
  - **Frame accessories:** Manufacturer's standard to complete the installation.
- **Door leaf:**
  - **Panel details:** To match wall lining.
  - **Lippings:** Crown cut veneer.
- **Hardware:** Parliament hinges to be concealed within wall lining vertical battens.
- **Execution:** 45-25-28/605 Moisture content of wood products;  
45-25-28/630 Installing hardware;  
and 45-25-28/640 Workmanship in joinery.

## Custom made products

### 25-85-75/505 Prototypes or mock-ups

- **Requirement:** Mock-up to include concealed door panel.
- **Purpose:** For use as a reference sample.
- **Timing:** Before ordering for project.

## Execution

### 25-85-75/620 Installing linings and panelling type A

- **Setting out:** Accurate, true to line and level, free from undulations and lipping.
- **Movement allowance:** Adequate for future moisture and temperature movement of boards.
- **Fixing of panels:**
  - **General:** Secure, to prevent pulling away, bowing, or other movement during use.
  - **Fixings:** Fixings should be concealed.
- **Lines and joints:**
  - **General:** Align, install straight and parallel.
  - **Joint treatment:** Submit proposals.
  - **Joint width:** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
  - **Difference between greatest width and least width (maximum):** 3mm



- **Variations in width:** Evenly distribute with no sudden changes. Measure joints with bevelled edges to face arrises.
- **Trims:**
  - **General requirements:** Wherever possible, provide unjointed lengths between angles and between ends of runs.
  - **Running joints:** Where unavoidable, Submit proposals for location and method of jointing.
  - **Angle joints:**
- **Adhesives:** Compatible with wood preservatives applied and end use of timber.

#### 25-85-75/630 Moisture content of fine linings and panelling type A

- **Moisture content at time of fixing:** 9–13% for buildings with heating providing room temperatures of 12–21°C.

#### 25-85-75/640 Preparing clear finished wood panels

- **Fixings:** Fixings to be concealed. Submit proposals.
- **Prepared surfaces:** Smooth, closed and free from sanding marks.

#### 45-25-28/605 Moisture content of wood products

- **Standard:** To BS EN 942.
- **Moisture content on delivery:** 9–13% for buildings with heating providing room temperatures in the range 12–21°C.

#### 45-25-28/630 Installing hardware

- **Standard:** In accordance with door, door assembly or doorset and hardware manufacturers' recommendations.
- **Submissions:** Evidence of compliance with certification.

#### 45-25-28/640 Workmanship in joinery

- **Standard:** To BS 1186-2.

### System completion

#### 25-85-75/805 Removal of samples

- **Items to be removed:** Any prototypes or mock-ups.
- **Timing:** At completion of work in this section.

#### 25-85-75/895 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

# 25-85-75/130 IWS-301 Framed wood panel lining system - type B

## System outline

### 25-85-75/130 IWS-301 Framed wood panel lining system type B

- **Description:** Timber lining system, wrapping around reception columns with recessed bronze skirting
- **System performance:** 25-85-75/205 Design submittals type A;  
25-85-75/210 Design of fine linings and panelling type A;  
25-85-75/220 Fine linings and panelling tolerances type A;  
25-85-75/230 Accuracy of fine linings and panelling type A;  
25-85-75/250 Structural performance type A;  
25-85-75/270 Fire performance to BS EN 13501;  
and 25-85-75/290 Compliance with performance requirements type A.
- **System manufacturer:** Submit proposals.
- **Battens:** Elm Veritcal, Refer to drawings (00)\_140, (00)\_240, (00)\_243
- **Framing:** Elm framing, Refer to drawings (00)\_140, (00)\_240, (00)\_243
- **Fasteners:** Submit proposals.
- **Finish:** Clear varnish.
- **Samples required:** 25-85-75/525 Recessed Skirting
- **System accessories:** All accessories required to complete the installation and achieve compliance.
- **Execution:** 25-85-75/610 Building environmental conditions prior to and during installation;  
25-85-75/620 Installing linings and panelling type A;
- **System completion:** 25-85-75/895 Verification of performance.

## System performance

### 25-85-75/205 Design submittals type A

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Typical plan, elevation and section drawings at suitable scales.
- **Timing:** Before manufacture.
- **Format:** Drawings and specification in BIM-compliant format.

### 25-85-75/210 Design of fine linings and panelling type A

- **Standard:** To BS 1186-2.
- **Included features:** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.

### 25-85-75/220 Fine linings and panelling tolerances type A

- **Standard:** To BS 1186-2.
- **Sections:** Accurate in profile and length. Free from twist and bowing. Form out of solid wood.

- **Machined surfaces:** Smooth and free from tearing, wooliness, chip bruising and other machining defects.
- **Joints:** Tight and close fitting.
- **Assembled components:** Rigid and free from distortion.
- **Screw fixing hardwood:** Provide pilot and clearance holes of 8 gauge or larger.
- **Dimensions:** Finished sizes.
- **Maximum permitted deviations from finished sizes:**
  - **Softwood sections:** To BS EN 1313-1.
  - **Hardwood sections:** To BS EN 1313-2.

#### 25-85-75/230 Accuracy of fine linings and panelling type A

- **Site dimensions:**
  - **General requirements:** Take as necessary before starting fabrication.
  - **Discrepancies with drawings:** Report without delay and obtain instructions before proceeding.
- **Permissible deviations for panels:**
  - **Length:**  $\pm 1.5$  mm.
  - **Width:**  $\pm 1.5$  mm.
  - **Squareness:**  $\pm 1.5$  mm in 1 m.
  - **Flatness:**  $\pm 1$  mm under a 600 mm straight edge.

#### 25-85-75/250 Structural performance type A

- **Strength grade:** To BS 5234-2, medium grade.
- **Other requirements:** System should allow the opening of the concealed doors to happen smoothly.
- **Wall lining height (maximum):** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
- **Testing and assessment reports:**
  - **Requirement:** Submit evidence of successful testing by a UKAS accredited laboratory.
  - **Timing:** Before manufacture.

#### 25-85-75/270 Fire performance to BS EN 13501

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

#### 25-85-75/290 Compliance with performance requirements type A

- **Purpose:** Proof of compliance with specified performance.
- **General requirements:** Include details of performance related to the particular elements of construction.
- **Method:**
  - **Previous test results:** For structural, fire and acoustic performance.
- **Testing authority:** UKAS accredited or European equivalent.
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Before commencing installation.

## Custom made products

### 25-85-75/525 Recessed Skirting

- **Manufacturer:** Submit proposals.
- **Material:** Bronze panel. 3mm thick. Colour to match external facade.

## Execution

### 25-85-75/610 Building environmental conditions prior to and during installation

- **General requirements before starting work specified in this section:**
- **Temperature and humidity before, during and after fixing lining and panelling:**
- **Operation of environmental systems:**

### 25-85-75/620 Installing linings and panelling type A

- **Setting out:** Accurate, true to line and level, free from undulations and lipping.
- **Movement allowance:** Adequate for future moisture and temperature movement of boards.
- **Fixing of panels:**
  - **General:** Secure, to prevent pulling away, bowing, or other movement during use.
  - **Fixings:** Fixings should be concealed.
- **Lines and joints:**
  - **General:** Align, install straight and parallel.
  - **Joint treatment:** Submit proposals.
  - **Joint width:** Refer to drawings (00)\_140, (00)\_240, (00)\_241, (00)\_143, (00)\_243.
  - **Difference between greatest width and least width (maximum):** 3mm
  - **Variations in width:** Evenly distribute with no sudden changes. Measure joints with bevelled edges to face arrises.
- **Trims:**
  - **General requirements:** Wherever possible, provide unjointed lengths between angles and between ends of runs.
  - **Running joints:** Where unavoidable, Submit proposals for location and method of jointing.
  - **Angle joints:**
- **Adhesives:** Compatible with wood preservatives applied and end use of timber.

## System completion

### 25-85-75/895 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.

- **Timing:** At completion of installation.

Ω End of system

# 25-85-75/175 IWS-302 Specialist faced panel lining system

## System outline

### 25-85-75/175 IWS-302 Specialist faced panel lining system

- **Description:** Fluted high glass metal panelling - Office reception
- **System performance:** 25-85-75/205 Design submittals type B;  
25-85-75/210 Design of fine linings and panelling type B;  
25-85-75/220 Fine linings and panelling tolerances type B;  
25-85-75/230 Accuracy of fine linings and panelling type B;  
25-85-75/250 Structural performance type B;  
25-85-75/270 Fire performance to BS EN 13501;  
and 25-85-75/290 Compliance with performance requirements type B.
- **System manufacturer:** Submit proposals.
- **Panels:** Custom made fluted metal panel with high gloss finish. Colour TBC with architect.
- **Fasteners:** Submit proposals.
- **Included features:** Submit proposals.
- **Samples required:** 25-85-75/505 Prototypes or mock-ups.
- **System accessories:** All accessories required to complete the installation and achieve compliance.
- **Execution:** 25-85-75/620 Installing linings and panelling type B and 25-85-75/601 Preparing high gloss finish of the fluted metal panel
- **System completion:** 25-85-75/805 Removal of samples and 25-85-75/895 Verification of performance.

## System performance

### 25-85-75/205 Design submittals type B

- **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Typical plan, elevation and section drawings at suitable scales.
- **Timing:** Before manufacture.
- **Format:** Drawings and specification in BIM-compliant format.

### 25-85-75/210 Design of fine linings and panelling type B

- **Standard:** To BS 1186-2.
- **Included features:** Refer to drawings (00)\_140, (00)\_240, (00)\_241

### 25-85-75/220 Fine linings and panelling tolerances type B

- **Standard:** To BS 1186-2.
- **Sections:** Accurate in profile and length. Free from twist and bowing. Form out of solid wood.
- **Machined surfaces:** Smooth and free from tearing, wooliness, chip bruising and other machining defects.

- **Joints:** Tight and close fitting.
- **Assembled components:** Rigid and free from distortion.
- **Screw fixing hardwood:** Provide pilot and clearance holes of 8 gauge or larger.
- **Dimensions:** Finished sizes.
- **Maximum permitted deviations from finished sizes:**
  - **Softwood sections:** To BS EN 1313-1.
  - **Hardwood sections:** To BS EN 1313-2.

#### 25-85-75/230 Accuracy of fine linings and panelling type B

- **Site dimensions:**
  - **General requirements:** Take as necessary before starting fabrication.
  - **Discrepancies with drawings:** Report without delay and obtain instructions before proceeding.
- **Permissible deviations for panels:**
  - **Length:**  $\pm 1.5$  mm.
  - **Width:**  $\pm 1.5$  mm.
  - **Squareness:**  $\pm 1.5$  mm in 1 m.
  - **Flatness:**  $\pm 1$  mm under a 600 mm straightedge.

#### 25-85-75/250 Structural performance type B

- **Strength grade:** To BS 5234-2, heavy grade.
- **Other requirements:** Allow for weight of the metal panel itself.
- **Wall lining height (maximum):** Refer to drawings (00)\_140, (00)\_240, (00)\_241
- **Testing and assessment reports:**
  - **Requirement:** Submit evidence of successful testing by a UKAS accredited laboratory.
  - **Timing:** Before manufacture.

#### 25-85-75/270 Fire performance to BS EN 13501

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

#### 25-85-75/290 Compliance with performance requirements type B

- **Purpose:** Proof of compliance with specified performance.
- **General requirements:** Include details of performance related to the particular elements of construction.
- **Method:**
  - **Previous test results:** For structural, fire and acoustic performance.
- **Testing authority:** UKAS accredited or European equivalent.
- **Submissions:**
  - **Format:** Hard copy and electronic
  - **Timing:** Before commencing installation.

## Custom made products

### 25-85-75/505 Prototypes or mock-ups

- **Requirement:** Mock-up to include concealed door panel.
- **Purpose:** For use as a reference sample.
- **Timing:** Before ordering for project.

## Execution

### 25-85-75/601 Preparing high gloss finish of the fluted metal panel

- **Prepared surfaces:** High gloss, smooth and free from sanding and scratch mark. Colour TBC with architect.

### 25-85-75/620 Installing linings and panelling type B

- **Setting out:** Accurate, true to line and level, free from undulations and lipping.
- **Movement allowance:** Adequate for future moisture and temperature movement of boards.
- **Fixing of panels:**
  - **General:** Secure, to prevent pulling away, bowing, or other movement during use.
  - **Fixings:**
- **Lines and joints:**
  - **General:** Align, install straight and parallel.
  - **Joint treatment:**
  - **Joint width:**
  - **Difference between greatest width and least width (maximum):**
  - **Variations in width:**
- **Trims:**
  - **General requirements:** Wherever possible, provide unjointed lengths between angles and between ends of runs.
  - **Running joints:** Where unavoidable, Submit proposals for location and method of jointing.
  - **Angle joints:**
- **Adhesives:** Compatible with wood preservatives applied and end use of timber.

## System completion

### 25-85-75/805 Removal of samples

- **Items to be removed:** Any prototypes or mock-ups.
- **Timing:** At completion of work in this section.

### 25-85-75/895 Verification of performance

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**



- **Format:** Description of inspections, remedial works carried out and certification of compliance.
- **Timing:** At completion of installation.

Ω End of system

## 25-85-97/140 IWS-601 Internal wall tiling system

### System outline

#### 25-85-97/140 IWS-601 Internal wall tiling system

- **Description:** WC Wall Tiling - reeded cast glass - in Office WC areas behind vanity units and behind urinals. Toughened, 10mm thickness, Not laminated.
- **System performance:** 25-15-25/201 System Requirements for BREEAM, LEED and CFSH
- **System manufacturer:** Lamberts / Linit UK
- **Substrate preparation:** colour painted wall lining from RAL tone
- **Intermediate substrate:**
  - **Type:** wet-room grade plywood or tile backer panel. Refer to System clauses 25-15-25/135.
- **Joints and seals:** The reeded glass shall not come in contact with the sanitarywares. The sanitarywares shall be fixed through the reeded glass into support brackets behind, without contacting or impacting the reeded glass.
- **Tiles:**
  - **Special tiles:** 45-80-95/301 PrismaSolar reeded glass
- **Movement joints:**
  - **Type:** Sealant.
  - **Fixings:** As per the specialist sub-contractors submitted proposals.
- **System accessories:** 45-75-25/301 Preformed strip joints to tiling. Top and bottom metal restraint profile to tiles.
- **Samples required:** 25-85-97/301 Product samples type reeded glass
- **Execution:** 25-85-97/601 Installation of reeded glass panels;  
25-85-97/620 Suitability of backgrounds (minimum drying times);  
25-85-97/635 Fixing and preparing board backgrounds;  
25-85-97/650 Jointing and sealing intermediate substrates;  
and 25-85-97/785 Forming movement joints generally.
- **System completion:** 25-85-97/805 Cleaning and maintenance of wall tiling systems and 25-85-97/820 Maintenance manual for wall tiling systems.

### Products

#### 25-85-97/301 Product samples type reeded glass

- **Manufacturer:** Linit UK / Lambert Germany
- **Submittals:** A3 size hand samples of glass mounted on substrate with colour
- **Purpose:** For use as reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to fabrication

#### 45-75-25/301 Preformed strip joints to tiling.

- **Manufacturer:** Submit proposals.
- **Form:** As per the specialist sub-contractors submitted proposals.

- **Material:** As per the specialist sub-contractors submitted proposals.
- **Finish or Colour:** As per the specialist sub-contractors submitted proposals. Final colour to be agreed with Architect.
- **Size:** - Length (minimum): Refer to Architects (74 series) Drawings.  
- Depth: Refer to architects (74 series) Drawings.

#### 45-80-95/301 Prismsolar reeded glass

- **Description:** Cast glass in 10mm thickness with profiled linear pattern on one side only
- **Manufacturer:** Linit UK / Lamberts Germany
- **Colour:** To be agreed with the architect
- **Size:** Refer to Architects (74 series) drawings.
- **Execution:** As recommended by the wall tile manufacturer.

### Execution

#### 25-85-97/601 Installation of reeded glass panels

- **Generally:** All glass edges to be abraded. All exposed edges to be polished and chamfered.
- **Bonding:** The adhesive shall be applied to ensure full coverage of bond. No material shall be visible through the glass of completed work.
- **Tolerance:** Level within  $\pm 1.5\text{mm}$ .

#### 25-85-97/620 Suitability of backgrounds (minimum drying times)

- **Generally:** Start tiling work after the minimum drying times specified have expired.
- **Minimum drying times:**
  - **Concrete walls:** Six weeks.
  - **Brick/ block walls:** Six weeks.
  - **Rendering:** Two weeks.
  - **Gypsum plaster:** Four weeks.

#### 25-85-97/635 Fixing and preparing board backgrounds

- **Boards:** Dry, securely fixed and rigid with no protruding fixings.

#### 25-85-97/650 Jointing and sealing intermediate substrates

- **Joints:**
  - **Generally:** Butt.
  - **Treatment:** Seal with waterproof reinforcing tape.
- **Penetrations:** Seal.

#### 25-85-97/785 Forming movement joints generally

- **Installation:**
  - **Generally:** Centre over joints in background. Extend through tiles and bedding to background.
  - **Movement joint locations:** Intermediate: At 3 m centres.
- **Joint width:** As structural movement joint in background.

## System completion

### 25-85-97/805 Cleaning and maintenance of wall tiling systems

- **Standards:** In accordance with the recommendations of BS 5385-1, BS 5385-2, BS 5385-4 and The Tile Association publication The cleaning of ceramic tiles.
- **Cleaning materials and methods:**
  - **Generally:** Avoid the use of chemicals which may attack or damage tiles, grouts, adhesives or bedding.
  - **Glazed tiles:** Use pH neutral, non-abrasive detergents.

### 25-85-97/820 Maintenance manual for wall tiling systems

- **Contents:**
  - **Materials:** Record source locations of all materials and location of spares.
  - **Maintenance:**
  - **Test results:** All test results relevant to the design and maintenance of the system.
- **Timing of submission:** On completion of system.

Ω End of system

16014

# ***30 Stair, ramp, tunnel, shaft and vessel systems***

Issued for Tender

09/04/2020

# 30-05-30/165 AFS-100 Permanently-fixed vertical ladder system

## System outline

### 30-05-30/165 AFS-100 Permanently-fixed vertical ladder system

- **Description:** Permanent vertical ladder, back of house.
- **System performance:** 30-05-30/205 Design submittals; 30-05-30/220 Design of permanently fixed ladder and companion way ladder systems; and 30-05-30/280 Slip resistance of fixed ladder, working platform, walkway and industrial stair systems.
- **System manufacturer:** Submit proposals.
- **Stiles:** Required.
- **Rungs:** Required.
- **Platforms:**
  - **Material:** 45-30-40/330 Carbon steel expanded gratings.
- **Safety cage:** Required.
- **Assembly connectors:** Submit proposals.
- **Superstructure connectors:** Submit proposals.
- **System accessories:** Manufacturer's standard.
- **Execution:** 30-05-30/610 Preconstruction survey and 30-05-30/650 Installing permanent fixed ladder systems.
- **System completion:** 30-05-30/820 Documentation for permanently fixed ladder, working platform, walkways and industrial stair systems.

## System performance

### 30-05-30/205 Design submittals

- **Submittals:** Fully dimensioned general arrangement drawings, plans, elevations and sections. Changes in level. Constructional details of connections to adjacent flooring and building fabric. Details of special features, e.g. subframing, edge details, handrails, integral lighting. Technical information, calculations and manufacturers' literature. Details of paint systems and colour finishes. Shipping sections
- **Additional information:** Assembly and bracing requirements, including temporary members required for installation.
- **Timing:** Before manufacture.
- **Format:** Drawings and specification in BIM-compliant format.

### 30-05-30/220 Design of permanently fixed ladder and companion way ladder systems

- **Design:** Complete the design of the fixed ladder systems.
- **Standard:** To BS 4211.
- **Proposals:** Submit technical information, calculations and manufacturers' literature. Submit technical information, calculations and manufacturers' literature, including requirements for the method by which the fixed ladder system is to be fixed to the support.

- **Drawings:** Submit design development and details.

### **30-05-30/280 Slip resistance of fixed ladder, working platform, walkway and industrial stair systems**

- **Slip resistance value – water wet (minimum):**
  - **Stair or step treads:** To BS 7976-2, PTV of 45.
  - **Stair or step nosings:** To BS 7976-2, PTV of 45.
- **Demonstrating performance:**
  - **Submittals:** Test results on existing example system
  - **Testing company:** UKAS accredited (or European equivalent).

## **Products**

### **45-30-40/330 Carbon steel expanded gratings**

- **Manufacturer:** Submit proposals.
- **Standard:** To BS 4592-2.
- **Finish:** Hot dip galvanizing to BS EN ISO 1461
- **Size:**
  - **Length x width:** Refer to (24) series drawings.
  - **Depth:** 50mm.
- **Slip resistance value – water wet (minimum):** To BS 7976-2, PTV of 40.

## **Execution**

### **30-05-30/610 Preconstruction survey**

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Designated items:** All permanently fixed ladders.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### **30-05-30/650 Installing permanent fixed ladder systems**

- **Position:** Refer to (24) series drawings.
- **Standard:** To BS EN ISO 14122-4.
- **Fixing safety hoops:** Submit proposals.

## **System completion**

### **30-05-30/820 Documentation for permanently fixed ladder, working platform, walkways and industrial stair systems**

- **Number of copies:** Two paper and digital copies.

- **Submission:** Two weeks before date when principal contractor expects work to be practically complete.

Ω End of system



## 30-05-40/145 STR-203 Internal stair system

### System outline

#### 30-05-40/145 STR-203 Internal stair system

- **Description:** Fabricated steel stair with folded plate treads and risers spanning between steel channel stringers. Treads and risers factory welded to stringers. The stair wraps around a scenic glass lift.
- **System performance:** 30-05-40/205 Design submittals;  
30-05-40/210 Design of internal stair systems generally;  
and 30-05-40/260 Slip resistance of internal ramp and stair systems.
- **System manufacturer:** Submit proposals.
- **Treads:**
  - **Material:** 30-05-40/530 Custom made metal stair treads.
  - **Applied anti-slip treatment:** 45-20-62/340 Slip-resistant rebate inserts.
  - **Tread supports:** Steel welded to inside of stringers.
- **Risers:** Custom made metal stair risers. 6mm thick mild Steel plate painted to match tread colour. Welded and ground down joints.
- **Stair support:** 30-05-40/550 Custom made metal stair stringers.
- **Balustrade system:** Anodised aluminium balustrades and handrails with brushed bronze finish. BAL-101 system to be used on inner edge of stair (fixed to stair tread, around lift shaft); BAL-201 to be used on outer edge of stair ( fixed to concrete wall).
- **Assembly fasteners:** Submit proposals.
- **Samples required:** 30-05-40/305 Product samples.
- **Execution:** 30-05-40/610 Preconstruction survey;  
30-05-40/630 Installation of internal stairs and ramp systems generally;  
30-05-40/660 Corrosion protection of dissimilar materials in internal ramp and stair systems;  
30-05-40/670 Applying anti-slip treatments;  
and 30-05-40/680 Installation of applied tread inserts and nosings for internal stairs and ramps.
- **System completion:** 30-05-40/805 Removal of samples;  
30-05-40/810 Inspection of internal stairs and ramps;  
30-05-40/820 Slip resistance testing of internal stairs and ramps;  
30-05-40/830 Documentation for internal ramps and stair systems;

### System performance

#### 30-05-40/205 Design submittals

- **Detailed design:**
  - **Requirement:** To complete the design.
  - **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
- **Submittals:** Fully dimensioned general arrangement drawings, plans, elevations and sections. Changes in level and slopes. Constructional details of connections to adjacent flooring and building fabric. Details of special features, e.g. subframing, edge details, handrails, integral lighting. Technical information, calculations and manufacturers' literature. Details of paint systems and colour finishes. Shipping sections

- **Timing:** Before fabrication.
- **Format:** Drawings and specification in BIM compliant format

### 30-05-40/210 Design of internal stair systems generally

- **Design standard:** Complete the design to meet structural and safety requirements in accordance with BS 5395-1.
- **Category of loaded area:** To BS EN 1991-1-1, category B.

### 30-05-40/260 Slip resistance of internal ramp and stair systems

- **Slip resistance value – water wet (minimum):**
  - **Stair or step treads:** To BS 7976-2, PTV of 36.
  - **Stair or step nosings:** To BS 7976-2, PTV of 36.

## Products

### 30-05-40/305 Product samples

- **Manufacturer:** Submit proposals.
- **Submittals:** 500mm long tread sample complete with anti-slip linoleum insert, 300mm long balustrade sample including connection to stair, 300mm long handrail sample
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before ordering for project.

### 45-20-62/340 Slip-resistant rebate inserts

- **Manufacturer:** Submit proposals.
- **Material:** Linoleum, or rubber.
- **Format:** Pre-finished strip for insertion.
- **Thickness (minimum):** 5mm minimum.
- **Slip resistance – water wet (minimum):** To BS 7976-2, PTV of 36.
- **Colour:** RAL colour TBC.
- **Predrilled holes:** Required.
- **Accessories:** Any accessories required to achieve installation.

### 45-35-30/310 Powder coating

- **Manufacturer:** Submit proposals.
- **Standard:** BS EN 12206-1  
Only one coating plant shall be used for the Works along with one batch of powder, unless otherwise accepted by the Architect
- **Colour consistency:** Colour consistency shall be assured between batches for the Works, in accordance with the conditions described in BS 950: Part 1  
The powder coating shall be consistent in all respects, colour, gloss, texture, film thickness and within upper and lower levels agreed with the Architect from samples provided by the Contractor prior to the commencement of the powder coating
- **Powder formulation:** Suitable for urban environment.  
The powder shall be Class 2 organic coatings as, Qualicoat Specifications for quality label for liquid and powder organic coatings on aluminium for architectural application 15th edition

- **Testing:** The following tests shall be conducted on sample coatings taken from the applicators plant during the coating process for the Works and shall be conducted in accordance with the Qualicoat Specifications for quality label for liquid and powder organic coatings on aluminium for architectural application 15th Edition Chapter 2 Test Methods and Requirements:
  - 2.1 Appearance
  - 2.2 Gloss
  - 2.3 Coating thickness
  - 2.4 Adhesion (dry and wet)
  - 2.8 Impact test
  - 2.12 Accelerated weathering test
  - 2.18 Sawing, milling and drilling
 All tests shall comply with the minimum requirements of the Qualicoat specification
- **Sampling procedures:** Sampling procedures and plans shall comply with BS 6001: Part 1 for general inspection Level 2, AGL = 1% on each colour and finish used in the Works. These inspections shall be carried out in the powder coating applicators works prior to the fabrication.
- **Third party inspection:** The Contractor shall make provision for the cost of a minimum of three acceptance inspections to be conducted by an independent inspection authority. The Contractor shall provide details of the proposed independent inspector, who shall be experienced in the assessment of powder coated aluminium finishes. Should the Contractor not appoint an independent inspector, the Employer shall make such an appointment and a financial adjustment to the Sub-contract sum will be made in compensation.
- **Damaged polyester powder coat finishes:** The repair of damaged polyester powder coat finishes shall not be permitted. Any components that are damaged shall be replaced with new.
- **Execution:** 45-35-30/620 Application of powder coating.

## Custom made products

### 30-05-40/530 Custom made metal stair treads

- **Manufacturer:** Submit proposals.
- **Material:** Bespoke folded 6mm thick mild steel plate with inset finish zone for linoleum insert.
- **Finish:**
  - **Coating:** 45-35-30/310 Powder coating.
  - **Colour:** RAL colour TBC.
  - **Preparation:** Joints welded and ground smooth.
- **Tread surface:** Linoleum insert to tread to be securely fixed. RAL colour to be confirmed.
- **Edge treatment:** Square edge.
- **Size (l x w x d):** Refer to (24) series drawings.

### 30-05-40/550 Custom made metal stair stringers

- **Manufacturer:** Submit proposals.
- **Material:** Solid 5mm thick steel plate.
- **Finish:**
  - **Coating:** Powder coated to match treads and risers.
  - **Colour:** RAL colour TBC.
  - **Preparation:** Joints welded and ground smooth.

## Execution

### 30-05-40/610 Preconstruction survey

- **Procedure:** Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- **Designated items:** Stair well - note there is a scenic glass lift within the stairwell.
- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
- **Timing:** Before fabrication.

### 30-05-40/630 Installation of internal stairs and ramp systems generally

- **Structural members:** Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
- **Temporary support:** Do not use stairs, walkways or balustrades as temporary support or strutting for other work.

### 30-05-40/660 Corrosion protection of dissimilar materials in internal ramp and stair systems

- **Components:** Isolate using washers, sleeves or other suitable means to separate materials to avoid corrosion and or staining.

### 30-05-40/670 Applying anti-slip treatments

- **Treads:** Full coverage of going.

### 30-05-40/680 Installation of applied tread inserts and nosings for internal stairs and ramps

- **Treads:** Fully cured, sound and level.
- **Layout:** Refer to (24) series drawings.

### 45-35-30/620 Application of powder coating

- **Applicator:** Approved by powder coating manufacturer. Submit details before commencement of application.
- **Quality assurance:** Coating applicator to be tested and approved in accordance with the Qualicoat system
- **Pretreatment:** Chromate conversion coating
- **Commencement of powder coating:** Continuous from pretreatment.
- **Cut edges:** All cut edges of coated material shall be suitably treated. Submit proposals of treatment proposed.
- **Protection:** Prevent damage to coated components during handling, installation and by subsequent site operations.  
Cover all exposed surfaces with protective tape or film. Tape or film shall be low tack type applied at room temperature. The protective tape or film shall be in contact with the surface of the coating for a maximum period of six months and shall leave no residue or marks when removed. If after six months the coating still requires to be protected, then the protective tape or film shall be removed and replaced. Protective tape or film should be white in colour or of a lighter tone than the coating colour.
- **Project guarantees:** Submit powder manufacturer and applicator guarantees demonstrating compliance with specification on completion of coating work.

The normal cleaning frequency associated with the guarantees above shall be 12 months, unless otherwise agreed with the Employer's Agent

## System completion

### 30-05-40/805 Removal of samples

- **Items to be removed:** Product samples.
- **Timing:** At completion of work in this section.

### 30-05-40/810 Inspection of internal stairs and ramps

- **Timing:** Two weeks prior to date when principal contractor expects work to be practically complete.
- **Period of notice (minimum):** 5 working days.

### 30-05-40/820 Slip resistance testing of internal stairs and ramps

- **Surfaces to be tested:** Treads and landings
- **Surface condition:** Dry and wet
- **Timing:** Two weeks prior to handover, but after initial cleaning.
- **Period of notice (minimum):** 5 working days.
- **Slip resistance test:**
  - **Standard:** To BS 7976-2.
  - **Testing authority:** A UKAS External link accredited laboratory
  - **Witnesses and certifiers:** Contract administrator.
  - **Report:** Submit.
  - **Format:** As required under BS 7976.

### 30-05-40/830 Documentation for internal ramps and stair systems

- **Contents:** Copies of structural design calculations and test reports. General product information. Installation information. Inspection and maintenance reports.
- **Number of copies:** As required by the contract.
- **Submission:** Two weeks after request by Contract administrator.

Ω End of system

# 30-05-75/160 STR-200 Precast concrete stair or ramp system - type A

## System outline

### 30-05-75/160 STR-200 Precast concrete stair or ramp system type A

- **Description:** Precast concrete stair back of house with CON-202 finish
- **System performance:** 30-05-75/205 Design submittals; 30-05-75/275 Slip resistance of wearing surfaces; and 30-05-75/220 Design of stair and ramp systems generally.
- **System manufacturer:** Submit proposals.
- **Precast concrete unit:** 45-30-60/350 Precast concrete stair flight and landing units type back of house.
- **Continuity reinforcement:** Contractor's design.
- **System accessories:** All accessories necessary to complete the installation including fixings and supports, cast in nosings and sockets to receive balustrade and jointing and pointing.
- **Samples required:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes.
- **Execution:** 30-05-75/616 Accuracy of construction and 30-05-75/796 Site testing of anchors to concrete and masonry.
- **System completion:** 30-05-75/805 Removal of samples and 30-05-75/850 Testing of slip resistance.

## System performance

### 30-05-75/205 Design submittals

- **Detailed design:**
  - **Requirement:** The Contractor is to complete the design.
  - **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
  - **Design loads:** Refer to Structural Engineer's load tables
  - **Submittals:** For structural requirements, technical data and calculations refer to the Structural Engineer's documentation.  
For architectural requirements refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes
  - **Timing:** Submit during construction stage before manufacture.
  - **Format:** Drawings and specification in BIM compliant format.

### 30-05-75/220 Design of stair and ramp systems generally

- **Design for accidental loading:** To BS EN 1991-1-7, Table A.1, consequence class 2b.

### 30-05-75/275 Slip resistance of wearing surfaces

- **Standard:** To BS 7976-2.
- **Pendulum test value (minimum):** 36 Wet and Dry

## Products

### 45-30-60/350 Precast concrete stair flight and landing units type back of house

- **Manufacturer:** Submit proposals.
- **Standard:** To BS EN 14843.
- **Stair and landing unit configuration:** Generally, straight flight and two landings. Refer to drawings.
- **Dimensions (nominal):**
  - **Total rise:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Riser (maximum):** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Total going:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Going (minimum):** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Tread (minimum):** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Flight and landing width:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Flight waist:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Landing depth:** Refer to (24) Series drawings and Structural Engineer's documentation.
- **Landing factory finish:**
  - **Top surface:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-202 and the (24) and the (43) Series drawings.
  - **Soffit:**
    - Formed finish:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-202.
  - **Treads:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-202.
  - **Nosings:** Anti-slip nosings to contrast with stair to be fixed securely to treads. Submit proposals.
  - **Risers:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-202.
  - **Exposed strings:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-202.
  - **Stair soffit:**
    - Formed finish:**
- **Holes, channels and recesses:** Contractor design, as required for lifting and support. Should not be visible once installation is complete. Also refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes
- **Cast-in accessories:**
  - **Type:** Cast-in balustrade fixings.
  - **Position:** Well side stringers.

## Execution

### 30-05-75/616 Accuracy of construction

- **Setting out:** To BS 5964-1.
- **Component shape and position:** To BS 5606.
- **Geometrical tolerances for concrete structures:** Stair flights and landings to be built within  $\pm 10\text{mm}$  of their designed location.

### 30-05-75/796 Site testing of anchors to concrete and masonry

- **Standard:** To BS 5080-1 and to BS 5080-2.
- **Preliminary tests:** Carry out preliminary tests to fixings that will be concealed when installation is complete.
- **Proof tests:** Test 10% of fixings to 1.5 times the working load. Report any failures to the Architect/Engineer.
- **Test failures:** Report immediately. Submit method statement for alternative method of fixing.

## System completion

### 30-05-75/805 Removal of samples

- **Items to be removed:** Prototype (or mock-ups).
- **Timing:** At completion of work in this section

### 30-05-75/850 Testing of slip resistance

- **Standard:** To BS 7976-2.
- **Surfaces to be tested:** Half landing top surface.
- **Surface condition:** Dry and wet.
- **Testing authority:** UKAS accredited laboratory.
- **Test:**
  - **Timing:** Four weeks prior to handover but after initial cleaning.
  - **Witnessing:**

**Requirement:** Arrange for witnessing of tests.

**Witnessing organization:** Project Manager and Architect.
  - **Report:**

**Content:** Number and date of standard;  
Location of site;  
Description of the surface;  
and Drawing showing test positions.

**Submission:** Within five working days of completion of the test.

Ω End of system



# 30-05-75/160 STR-201 Precast concrete stair or ramp system - type B

## System outline

### 30-05-75/160 STR-201 Precast concrete stair or ramp system type B

- **Description:** Precast concrete cycle (stair front of house) with CON-201 architectural concrete finish, anti-slip rubber treads, contrasting nosing, and concrete bicycle ramp to one side.
- **System performance:** 30-05-75/205 Design submittals; 30-05-75/275 Slip resistance of wearing surfaces; and 30-05-75/220 Design of stair and ramp systems generally.
- **System manufacturer:** Submit proposals.
- **Precast concrete unit:** 45-30-60/350 Precast concrete stair flight and landing units type cycle stair.
- **Continuity reinforcement:** Contractor's design.
- **System accessories:** All accessories necessary to complete the installation including fixings and supports, cast in nosings and sockets to receive balustrade and jointing and pointing.
- **Samples required:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes.
- **Execution:** 30-05-75/616 Accuracy of construction and 30-05-75/796 Site testing of anchors to concrete and masonry.
- **System completion:** 30-05-75/805 Removal of samples and 30-05-75/850 Testing of slip resistance.

## System performance

### 30-05-75/205 Design submittals

- **Detailed design:**
  - **Requirement:** The Contractor is to complete the design.
  - **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
  - **Design loads:** Refer to Structural Engineer's load tables
  - **Submittals:** For structural requirements, technical data and calculations refer to the Structural Engineer's documentation.  
For architectural requirements refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes
  - **Timing:** Submit during construction stage before manufacture.
  - **Format:** Drawings and specification in BIM compliant format.

### 30-05-75/220 Design of stair and ramp systems generally

- **Design for accidental loading:** To BS EN 1991-1-7, Table A.1, consequence class 2b.

### 30-05-75/275 Slip resistance of wearing surfaces

- **Standard:** To BS 7976-2.

- **Pendulum test value (minimum):** 36 Wet and Dry

## Products

### 45-30-60/350 Precast concrete stair flight and landing units type cycle stair

- **Manufacturer:** Submit proposals.
- **Standard:** To BS EN 14843.
- **Stair and landing unit configuration:** Straight flight and single landing.
- **Dimensions (nominal):**
  - **Total rise:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Riser (maximum):** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Total going:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Going (minimum):** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Tread (minimum):** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Flight and landing width:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Flight waist:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Landing depth:** Refer to (24) Series drawings and Structural Engineer's documentation.
- **Landing factory finish:**
  - **Top surface:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201 and the (24) and the (43) Series drawings.
  - **Soffit:**
    - Formed finish:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
    - Bonded finish:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
  - **Treads:** Rubber finish, dark grey colour.
  - **Nosings:** Anti-slip nosings to contrast with tread rubber finish to be fixed securely to treads. Submit proposals.
  - **Risers:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
  - **Exposed strings:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
  - **Stair soffit:**
    - Formed finish:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
- **Holes, channels and recesses:** Contractor design, as required for lifting and support. Should not be visible once installation is complete. Also refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
- **Cast-in accessories:**
  - **Type:** Pre-cast concrete bicycle ramp with curved groove to receive wheel. Refer to (24) series drawings.
  - **Position:** To the side of the stair, along the entire length of the stair. Refer to (24) series drawings.

## Execution

### 30-05-75/616 Accuracy of construction

- **Setting out:** To BS 5964-1.
- **Component shape and position:** To BS 5606.
- **Geometrical tolerances for concrete structures:** Stair flights and landings to be built within  $\pm 10\text{mm}$  of their designed location.

### 30-05-75/796 Site testing of anchors to concrete and masonry

- **Standard:** To BS 5080-1 and to BS 5080-2.
- **Preliminary tests:** Carry out preliminary tests to fixings that will be concealed when installation is complete.
- **Proof tests:** Test 10% of fixings to 1.5 times the working load. Report any failures to the Architect/Engineer.
- **Test failures:** Report immediately. Submit method statement for alternative method of fixing.

## System completion

### 30-05-75/805 Removal of samples

- **Items to be removed:** Prototype (or mock-ups).
- **Timing:** At completion of work in this section

### 30-05-75/850 Testing of slip resistance

- **Standard:** To BS 7976-2.
- **Surfaces to be tested:** Half landing top surface.
- **Surface condition:** Dry and wet.
- **Testing authority:** UKAS accredited laboratory.
- **Test:**
  - **Timing:** Four weeks prior to handover but after initial cleaning.
  - **Witnessing:**

**Requirement:** Arrange for witnessing of tests.

**Witnessing organization:** Project Manager and Architect.
  - **Report:**

**Content:** Number and date of standard;  
Location of site;  
Description of the surface;  
and Drawing showing test positions.

**Submission:** Within five working days of completion of the test.

Ω End of system

## 30-05-75/160 STR-202 Precast concrete stair or ramp system - type C

### System outline

#### 30-05-75/160 STR-202 Precast concrete stair or ramp system type C

- **Description:** Precast concrete stair (front of house) with CON-201 architectural concrete finish, with exposed concrete treads and contrasting anti-slip nosings.
- **System performance:** 30-05-75/205 Design submittals; 30-05-75/275 Slip resistance of wearing surfaces; and 30-05-75/220 Design of stair and ramp systems generally.
- **System manufacturer:** Submit proposals.
- **Precast concrete unit:** 45-30-60/350 Precast concrete stair flight and landing units type front of house.
- **Continuity reinforcement:** Contractor's design.
- **System accessories:** All accessories necessary to complete the installation including fixings and supports, cast in nosings and sockets to receive balustrade and jointing and pointing.
- **Samples required:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes.
- **Execution:** 30-05-75/616 Accuracy of construction and 30-05-75/796 Site testing of anchors to concrete and masonry.
- **System completion:** 30-05-75/805 Removal of samples and 30-05-75/850 Testing of slip resistance.

### System performance

#### 30-05-75/205 Design submittals

- **Detailed design:**
  - **Requirement:** The Contractor is to complete the design.
  - **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirements.
  - **Design loads:** Refer to Structural Engineer's load tables
  - **Submittals:** For structural requirements, technical data and calculations refer to the Structural Engineer's documentation. For architectural requirements refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes
  - **Timing:** Submit during construction stage before manufacture.
  - **Format:** Drawings and specification in BIM compliant format.

#### 30-05-75/220 Design of stair and ramp systems generally

- **Design for accidental loading:** To BS EN 1991-1-7, Table A.1, consequence class 2b.

#### 30-05-75/275 Slip resistance of wearing surfaces

- **Standard:** To BS 7976-2.

- **Pendulum test value (minimum):** 36 Wet and Dry

## Products

### 45-30-60/350 Precast concrete stair flight and landing units type front of house

- **Manufacturer:** Submit proposals.
- **Standard:** To BS EN 14843.
- **Stair and landing unit configuration:** Generally, straight flight and two landings. Refer to drawings.
- **Dimensions (nominal):**
  - **Total rise:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Riser (maximum):** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Total going:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Going (minimum):** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Tread (minimum):** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Flight and landing width:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Flight waist:** Refer to (24) Series drawings and Structural Engineer's documentation.
  - **Landing depth:** Refer to (24) Series drawings and Structural Engineer's documentation.
- **Landing factory finish:**
  - **Top surface:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201 and the (24) and the (43) Series drawings.
  - **Soffit:**
    - Formed finish:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
  - **Treads:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
  - **Nosings:** Anti-slip nosings to contrast with stair to be fixed securely to treads. Submit proposals.
  - **Risers:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
  - **Exposed strings:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
  - **Stair soffit:**
    - Formed finish:** Refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes CON-201
- **Holes, channels and recesses:** Contractor design, as required for lifting and support. Should not be visible once installation is complete. Also refer to Section 10-70-15/ 195 Precast concrete Architectural Concrete Finishes
- **Cast-in accessories:**
  - **Type:** Cast-in balustrade fixings.
  - **Position:** Well side stringers.

## Execution

### 30-05-75/616 Accuracy of construction

- **Setting out:** To BS 5964-1.
- **Component shape and position:** To BS 5606.
- **Geometrical tolerances for concrete structures:** Stair flights and landings to be built within  $\pm 10\text{mm}$  of their designed location.

### 30-05-75/796 Site testing of anchors to concrete and masonry

- **Standard:** To BS 5080-1 and to BS 5080-2.
- **Preliminary tests:** Carry out preliminary tests to fixings that will be concealed when installation is complete.
- **Proof tests:** Test 10% of fixings to 1.5 times the working load. Report any failures to the Architect/Engineer.
- **Test failures:** Report immediately. Submit method statement for alternative method of fixing.

## System completion

### 30-05-75/805 Removal of samples

- **Items to be removed:** Prototype (or mock-ups).
- **Timing:** At completion of work in this section

### 30-05-75/850 Testing of slip resistance

- **Standard:** To BS 7976-2.
- **Surfaces to be tested:** Half landing top surface.
- **Surface condition:** Dry and wet.
- **Testing authority:** UKAS accredited laboratory.
- **Test:**
  - **Timing:** Four weeks prior to handover but after initial cleaning.
  - **Witnessing:**
    - Requirement:** Arrange for witnessing of tests.
    - Witnessing organization:** Project Manager and Architect.
  - **Report:**
    - Content:** Number and date of standard;  
Location of site;  
Description of the surface;  
and Drawing showing test positions.
    - Submission:** Within five working days of completion of the test.

Ω End of system

## 30-70-90/105 WPS-100 + WPS-200 - Cementitious proprietary mortar slurry tanking system

### System outline

#### 30-70-90/105 WPS-100 + WPS-200 - Cementitious proprietary mortar slurry tanking system

- **Description:** Cementitious Mortar Tanking to walls and floors
- **System performance:** As recommended by the system manufacturer.
- **System manufacturer:** Sika
- **Substrates:**
  - **Preparation:** Remove existing finishes to expose existing blockwork (or other material) walls and floors.
  - **Pointing and filling mortar:** As recommended by the system manufacturer.
- **Tanking coatings:**
  - **Dry mix mortars:** 45-55-50/305 WPS-100 Cementitious tanking mortar type A (to walls) and 45-55-50/305 WPS-200 Cementitious tanking mortar type B (to floors).
  - **Coats (excluding dubbing out):** Sika® 1 Pre-bagged render system. Additional coats of Sika®-1 Render Mortar can be applied if necessary. All the below are minimum thickness, maximum thickness depends on substrate, working conditions and requirements.
  - **Nominal Thickness:** Walls 18mm total, Floors 30mm total. As per accompanying Sika detailed specification / drawings for project.
  - **Walls:** Sika1 Spritz and Bonding Coat Mortar @6mm, Sika 1 Render Mortar @ 6mm, Sika1 Finishing Mortar @6mm
  - **Floors:** Sika1 Spritz and Bonding Mortar @10mm, Sika 1 Screed Mortar @20mm
  - **Movement joint:** 45-75-90/320 Movement joint
  - **Mixing:** As recommended by the system manufacturer.
- **System accessories:** As per accompanying Sika detailed specification / drawings for project, including penetrations details, junction details, additional requirements and workmanship.
- **Execution:** 30-70-90/620 Applying proprietary cementitious waterproofing coatings; 30-70-90/628 Curing and drying of cementitious waterproofing coatings; and 30-70-90/612 Preparation of surfaces for cementitious mortar waterproofing.
- **System completion:** 30-70-90/810 Inspection of waterproof coatings and membranes.

### Products

#### 45-55-50/305 WPS-100 Cementitious tanking mortar type A (to walls)

- **Manufacturer:** Sika Limited
- **Product reference:** Sika 1 Prebagged Render Waterproofing System
- **Third party product certification:** Certificate 00/3761
- **Execution:** As recommended by the system manufacturer.
- **Fixings:** Recesses, made in the substrate to accept heavy duty fittings, lined with the render to form waterproof pockets; the pockets are packed with mortar to hold the fixings in position.

#### 45-55-50/305 WPS-200 Cementitious tanking mortar type B (to floors)

- **Manufacturer:** Sika Limited
- **Product reference:** Sika 1 Prebagged Screed Waterproofing System
- **Execution:** As recommended by the system manufacturer.

#### 45-75-90/320 Movement joint

- **Manufacturer:** Sika Limited
- **Reference:** SikaDur Combiflex SG System.
- **Components:**
  - **Tape:** SikaDur Combiflex waterproofing Tape.
  - **Mortar:** SikaDur 31 Rapid.
- **Size:** As recommended by the system manufacturer.
- **Execution:** As recommended by the system manufacturer.

### Execution

#### 30-70-90/612 Preparation of surfaces for cementitious mortar waterproofing

- **Preparing existing surfaces:**
  - **Previous coatings and contaminants:** Remove, including dirt, dust, efflorescence, mould, oil, paint and plaster as recommended by the system manufacturer.
  - **Evidence of cracking or loose or weak areas of substrate:** Notify.
  - **Filling blow holes and cavities:**
    - Preparation:** Remove loose material.
    - Finished level:** Flush with existing surface.
  - **Repointing mortar joints:**
    - Preparation:** Rake out to a depth of 12 mm (minimum). Remove loose material.
    - Finished level of joint:** Fill flush using waterproof mortar recommended by the tanking mortar manufacturer.

#### 30-70-90/620 Applying proprietary cementitious waterproofing coatings

- **Installation in accordance with third party certification:** As product Agrément certificate for proposed application. Workmanship should comply with BS 8000-4:1989.
- **Application generally:** Application methods and coating sequence as recommended by the tanking mortar/admixture manufacturer to achieve a water resistant structure.
- **Finish:** Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
- **Movement joints:** Centred over joints in substrate and extended through waterproof coating and finishes.
- **Daywork joints in successive coatings:** Staggered and lapped.
- **Penetrations for fixings or services:** Watertight.
- **Continuity between waterproofing on wall and floor:** As per the manufacturer's recommendations.



**30-70-90/628 Curing and drying of cementitious waterproofing coatings**

- **Curing coatings:** Control early evaporation from surface.
- **General:** Prevent premature setting, uneven drying and cracking of each coat.
- **Curing period (minimum):** As per the waterproofing mortar manufacturer's recommendations.

**System completion**

**30-70-90/810 Inspection of waterproof coatings and membranes**

- **Give notice:** Before covering any part of waterproof coatings or membranes with overlying construction.

Ω End of system

16014

## ***35 FF&E and general finishing systems***

Issued for Tender

09/04/2020

## 35-05-35/135 FFE-100 General fittings, furnishings and equipment system - type A

### System outline

#### 35-05-35/135 FFE-100 General fittings, furnishings and equipment system type A

- **Type:** A
- **Description:** Bespoke Entrance Matting
- **System performance:** 35-05-35/210 Design submittals type A.
- **System manufacturer:** Submit proposals.
- **Matting:** 45-35-35/420 Entrance matting.
- **Trims:** 3mm Bronze, Curved.
- **Samples required:** 35-05-35/305 Product samples.
- **System completion:** 35-05-35/810 General.

### System performance

#### 35-05-35/210 Design submittals type A

- **Detailed design:**
  - **Requirements:** The Contractor is to complete the design in accordance with the JCT Guide to the Use of Performance Specifications Appendix D Level 3
  - **Purpose:** To complete the detailed design in line with the Employers Requirements design intent.
  - **Submittals:** Drawings, schedules, technical information, calculations and manufacturer's literature.
  - **Format:** Drawings and specifications in digital, BIM compliant format
  - **Timing:** During detailed design stage and before works commence on site

### Products

#### 35-05-35/305 Product samples

- **Manufacturer:** Gradus
- **Submittals:** Representative sample of all materials minimum size of sample 600 x 600mm.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** During detailed design stage and before works commence on site.

#### 45-35-35/420 Entrance matting

- **Manufacturer:** Gradus
- **Product:** Bespoke

- **Arrangement:** Inset internal.
- **Profile:** Encased metal profiles with matting infill.
- **Dimensions:** 20mm overall depth. Refer to drawings for dimensions in plan.
- **Material:** Rubber with nylon fibres and brass strip
- **Pattern:** Confirm with architect during detailed design.
- **Colour:** Two toned. Confirm with architect during detailed design.
- **Integral accessories:** Brass matwell frame.

## System completion

### 35-05-35/810 General

- **Doors and drawers:** Accurately align, not binding, operating smoothly.
- **Hardware:** Functioning correctly.

Ω End of system

# 35-05-35/135 FFE-202 General fittings, furnishings and equipment system - type B

## System outline

### 35-05-35/135 FFE-202 General fittings, furnishings and equipment system type B

- **Description:** Double/Triple Lockers for Changing Room
- **System performance:** 35-05-35/210 Design submittals type B;  
35-05-35/240 Durability of fittings, furniture or equipment.
- **System manufacturer:** Venesta Washroom Systems Ltd
- **System reference:** Active Lockers
- **Width:** Refer to drawing series (74).
- **Model:** 2/3. Refer to drawing series (74).
- **Doors:**
  - **Colour:** TBC with the architect.
  - **Fittings:** TBC with the architect.
- **Execution:**
- **System completion:**

## System performance

### 35-05-35/210 Design submittals type B

- **Detailed design:**
  - **Requirements:** Complete the design of the system, including selection of components, accessories and fixings.
  - **Purpose:** For aesthetic evaluation and to demonstrate compliance with performance requirement.
  - **Submittals:** Drawings, schedules, technical information, calculations and manufacturer's literature.
  - **Format:** Drawings and specification in BIM-compliant format.
  - **Timing:** At construction stage, before manufacture.
  - **Number of copies:** Contractor's choice.

### 35-05-35/240 Durability of fittings, furniture or equipment

- **Requirement:** System to achieve specified minimum design life, allowing for specified level of acceptable maintenance.
- **Design life (minimum):** 20 years.
- **Level of maintenance:** Scheduled cleaning and maintenance
- **Records required:** Maintenance manual

Ω End of system

## 35-05-35/135 FFE-203 General fittings, furnishings and equipment system - type C

### System outline

#### 35-05-35/135 FFE-203 General fittings, furnishings and equipment system type C

- **Description:** Changing Room Benches
- **System performance:**
- **System manufacturer:** Thrislington Cubicles
- **Generally:** Refer to AHMM sanitary schedule.
- **Model:** Leisure - Slat.
- **Execution:**
- **System completion:**

Ω End of system

# 35-10-60/160 FOE-101 Office fittings, furnishings and equipment system - type A

## System outline

### 35-10-60/160 FOE-101 Office fittings, furnishings and equipment system type A

- **Description:** Custom fabricated recessed seating in office reception. High quality leather cushion and wall lining bonded to timber joinery bench.
- **System performance:** 35-10-60/240 Fire performance.
- **System manufacturer:** Submit proposals.
- **Leather:** Dyed vegetable tanned bridle leather
- **Fasteners:** Submit proposals
- **Samples required:** 35-10-60/305 Product samples. 35-10-60/511 Leather cushion and Seating wall lining. 35-10-60/512 Timber Joinery Bench.
- **System completion:** 35-10-60/890 Verification of performance type A;  
35-10-60/810 Appliances and equipment;  
and 35-10-60/890 Verification of performance type B.

## System performance

### 35-10-60/240 Fire performance

- **Reaction to fire:**
  - **Standard:** BS EN 13501-1
  - **Classification:** - Fabrics shall satisfy the 'Crib 5' test requirements in accordance with BS 5852: Part 2.
    - Surface applied finishes shall satisfy a Class 0 BS 476 or class B-s3-d2 in accordance with BS EN 13501-1 rating in accordance with the requirements of Building Regulations and the requirements of the Building Control Officer, unless otherwise specified.

## Products

### 35-10-60/305 Product samples

- **Purpose:** For use as a reference sample.
- **Timing:** Before ordering for the project.

## Custom made products

### 35-10-60/511 Leather cushion and Seating wall lining

- **Manufacturer:** Bill Amberg Studio
- **Leather:** Dyed vegetable tanned bridle leather with provision for hand stitched detailing using waxed braided threads
- **Finishes:** finish full grain, semi aniline. Colour TBC

- **Other materials:** Foam internal to create soft effect, leather to be relaxed not taut
- **Seams:** Pinched

### 35-10-60/512 Timber Joinery Bench

- **Manufacturer:** Submit proposals. - must be experienced office reception bench making firm with track record of fabricating high quality bespoke furniture. Examples of workmanship and previous commissions to be provided alongside sub-contractor proposal as part of Tender return.
- **Timber:** To BS EN 942.  
- Species: Elm
- **Execution:**

## System completion

### 35-10-60/810 Appliances and equipment

- **Test:** Correct working of functions and features.
- **Documentation:** Submit guarantees, instruction manuals, etc.

### 35-10-60/890 Verification of performance type A

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Supply test certificates to verify that all materials meet this requirement.
  - **Timing:** Prior to installation.

### 35-10-60/890 Verification of performance type B

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system



## 35-10-60/160 FOE-102 Office fittings, furnishings and equipment system - type B

### System outline

#### 35-10-60/160 FOE-102 Office fittings, furnishings and equipment system type B

- **Description:** Custom fabricated recessed seating in office lift lobbies. High quality leather cushion and wall lining bonded to timber joinery bench.
- **Generally:** Generally as FOE-101 but different configuration. Refer to (00) internal elevations drawings for details.
- **System completion:** 35-10-60/810 Appliances and equipment;  
35-10-60/890 Verification of performance type A;  
and 35-10-60/890 Verification of performance type B.

### System completion

#### 35-10-60/810 Appliances and equipment

- **Test:** Correct working of functions and features.
- **Documentation:** Submit guarantees, instruction manuals, etc.

#### 35-10-60/890 Verification of performance type A

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Supply test certificates to verify that all materials meet this requirement.
  - **Timing:** Prior to installation.

#### 35-10-60/890 Verification of performance type B

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

## 35-10-60/160 FOE-103 Office fittings, furnishings and equipment system - type C

### System outline

#### 35-10-60/160 FOE-103 Office fittings, furnishings and equipment system type C

- **Description:** Custom fabricated reception desk. Fabricated timber joinery. High quality leather desktop work surface bonded to plywood or similar. Desk to have recessed bronze trims and skirting. Interior of desk to have high pressure laminate facing on suitable substrate. Facing panel to be solid timber with line pattern to be routed in round nose profile. Interior panels to be operable type for storage behind. Include for printers, storage units and waste disposal bin. Desk to comply with AD Part M requirement for lowered area and induction loop facility and access. Integrated intercom system and gate control panel to be mounted on desk. Provide telephone point and an integrated cable tray and management system, concealed vertical cable boxing unit and electrical outlets and UBS charge points. The heater shall have an on/off switch accessible in the facing display. The work surface shall have an openable panel for access to the cable management system.
- **System performance:** 35-10-60/210 Design submittals and 35-10-60/240 Fire performance.
- **System manufacturer:** Submit proposals.
- **Samples required:** 35-10-60/305 Product samples. 35-10-60/513 Leather desktop work top. 35-10-60/514 Facing Panel. 35-10-60/515 Backing board. 35-10-60/516 High Pressure Laminate 35-10-60/517 Recessed skirting 35-10-60/518 Fixed drawer units. 35-10-60/519 Flexible storage cabinets. 35-10-60/301 Free standing bin. 35-10-60/302 Cable tray and management system. 35-10-60/303 USB/Sockets/etc.
- **Fabrication:** - Generally: To maintain accuracy of fabrication exact Site dimensions shall be taken as necessary before starting fabrication. Report any discrepancies to the Architect without delay and obtain instructions before proceeding
  - Permissible deviations for panels:
  - Length: + - 2mm
  - Width: + - 2mm
  - Squaresness: + - 2mm in 1m (taking longer of 2 sides at any corner as a baseline and measuring the deviation of the shorter side from the baseline perpendicular).
  - Flatness: Flatness (of panels with a core thickness of 12mm and over, as delivered to Site):  $\pm 1\text{mm}$  under a 600mm straightedge.
  - Assembly: Finished dimensions of components must be such that the required accuracy of the finished linings/ panelling and joints can be achieved.
  - Components and sub-elements: It is the specialist sub-contractors responsibility that the physical fitting together of any assembly of sub-elements be properly allowed for in the design of the corresponding subelements.
- **System completion:** 35-10-60/810 Appliances and equipment and 35-10-60/890 Verification of performance type B.

## System performance

### 35-10-60/210 Design submittals

- **Detailed design:**
  - **Requirements:** Complete the design of the system.
  - **Purpose:** For aesthetic evaluation.
  - **Submittals:** Working drawing of plan, elevation and sections at suitable scales.
  - **Timing:** Prior to fabrication of system.
  - **Format:** Drawings and specification in PDF and electronically.

### 35-10-60/240 Fire performance

- **Reaction to fire:**
  - **Standard:** BS EN 13501-1
  - **Classification:** - Fabrics shall satisfy the 'Crib 5' test requirements in accordance with BS 5852: Part 2.
    - Surface applied finishes shall satisfy a Class 0 BS 476 or class B-s3-d2 in accordance with BS EN 13501-1 rating in accordance with the requirements of Building Regulations and the requirements of the Building Control Officer, unless otherwise specified.

## Products

### 35-10-60/301 Free standing bin

- **Manufacturer:** Submit proposals.

### 35-10-60/302 Cable tray and management system

- **Manufacturer:** Submit proposals.

### 35-10-60/303 USB/Sockets/etc.

- **Manufacturer:** Submit proposals.

### 35-10-60/305 Product samples

- **Purpose:** For use as a reference sample.
- **Timing:** Before ordering for the project.

## Custom made products

### 35-10-60/513 Leather desktop work top

- **Manufacturer:** European cowhide or acceptable equivalent. Final selection through the submittal of samples. Ensure that colour variation of leathers is not beyond the normal commercial range. Ensure thickness is larger and equal to 1.2mm. Leather to be non-flammable.
- **Backing board:** Plywood or similar. Thickness to suit the design requirements.
- **Operable panel:** Operable hinged panel, cut out factory formed. Concealed pivot hinge or similar.

- **Execution:** - Generally: Install the works in accordance with the manufacturer's instructions and all workmanship shall be of a high standard using fully proven practices

- Setting out: The installed works to be accurate and in accordance with architect's drawings.

Dimensions to be checked on Site and any discrepancies notified to the Architect.

- Joints and alignment: All joints within the works shall be horizontal or vertical, with all edges and joints square, unless otherwise indicated.

- Tolerances: The installation shall accommodate all required tolerances including differences between actual site dimensions and dimensions indicated on the (72) Series drawings. Account shall be taken of the installation tolerance requirements such that repetitive units are accurately located, relative to each other.

At the time of completion, the visual requirements of the works are such that within any planning grid section the allowable tolerances are achieved.

### 35-10-60/514 Facing Panel

- **Manufacturer:** Submit proposals.
- **Generally:** Facing panel shall be of solid timber panel. Solid timber panel to be routed with round nose profile.
- **Execution:** - Generally: Install the works in accordance with the manufacturer's instructions and all workmanship shall be of a high standard using fully proven practices

- Setting out: The installed works to be accurate and in accordance with architect's drawings.

Dimensions to be checked on Site and any discrepancies notified to the Architect.

- Joints and alignment: All joints within the works shall be horizontal or vertical, with all edges and joints square, unless otherwise indicated.

- Tolerances: The installation shall accommodate all required tolerances including differences between actual site dimensions and dimensions indicated on the (72) Series drawings. Account shall be taken of the installation tolerance requirements such that repetitive units are accurately located, relative to each other.

At the time of completion, the visual requirements of the works are such that within any planning grid section the allowable tolerances are achieved.

### 35-10-60/515 Backing board

- **Manufacturer:** Submit proposals.
- **Plywood:** Generally to satisfy the requirements of BS EN 636.
- **Type:** Minimum class 2 bond quality to BS EN 314, in the thickness to suit the design requirements.
- **Use Class:** Plywood durability shall satisfy minimum class 2 to BS EN 335, unless otherwise agreed.
- **Dimensional tolerance:** To BS EN 315 and to satisfy any additional requirements of this specification
- **Fastenings of plywood to frame:** Ensure that fastenings do not protrude above surface of board. Fastenings shall be of a type recommended for the purpose by the fastening manufacturer.
- **Alternatives:** Pine Particleboard to BS EN 312, type P3  
Fir Particleboard to BS EN 312, type P3  
MDF in accordance with BS EN 622: Part 5 ('no added formaldehyde').  
Plywood with MDF Face & Back.
- **Execution:** - Generally: Install the works in accordance with the manufacturer's instructions and all workmanship shall be of a high standard using fully proven practices

- Setting out: The installed works to be accurate and in accordance with architect's drawings. Dimensions to be checked on Site and any discrepancies notified to the Architect.

- Joints and alignment: All joints within the works shall be horizontal or vertical, with all edges and joints square, unless otherwise indicated.

- Tolerances: The installation shall accommodate all required tolerances including differences between actual site dimensions and dimensions indicated on the (72) Series drawings. Account shall be taken of the installation tolerance requirements such that repetitive units are accurately located, relative to each other.

At the time of completion, the visual requirements of the works are such that within any planning grid section the allowable tolerances are achieved.

### 35-10-60/516 High Pressure Laminate

- **Manufacturer:** Submit proposals.
- **Generally:** Decorative high-pressure laminates of less than 2mm in thickness forming bonded panels shall be manufactured in accordance with BS EN 438: Part 3. Backing board to be manufacturer's standard.
- **Edging:** Edgings to be applied in a manner that minimizes the visible black line. All edgings to be formed using solid grade colour as high-pressure laminate to match laminated facings in colour and texture.
- **Installation:** Surfaces not to be installed before the surrounding areas are made watertight, wet trades have finished their work, wall and floor tiling is complete and the surrounding area has dried out. The panels to be installed securely using adequate concealed fixing components, without causing stress or distortion to panels and doors. No visible fixings shall be used.
- **Execution:** - Generally: Install the works in accordance with the manufacturer's instructions and all workmanship shall be of a high standard using fully proven practices

- Setting out: The installed works to be accurate and in accordance with architect's drawings.

Dimensions to be checked on Site and any discrepancies notified to the Architect.

- Joints and alignment: All joints within the works shall be horizontal or vertical, with all edges and joints square, unless otherwise indicated.

- Tolerances: The installation shall accommodate all required tolerances including differences between actual site dimensions and dimensions indicated on the (72) Series drawings. Account shall be taken of the installation tolerance requirements such that repetitive units are accurately located, relative to each other.

At the time of completion, the visual requirements of the works are such that within any planning grid section the allowable tolerances are achieved.

### 35-10-60/517 Recessed skirting

- **Manufacturer:** Submit proposals.
- **Material:** Bronze panel. 3mm thick, bonded. Colour to match external facade.
- **Backing board:** As 35-10-60/515 Backing board or suitable alternative.
- **Execution:** - Generally: Install the works in accordance with the manufacturer's instructions and all workmanship shall be of a high standard using fully proven practices

- Setting out: The installed works to be accurate and in accordance with architect's drawings.

Dimensions to be checked on Site and any discrepancies notified to the Architect.

- Joints and alignment: All joints within the works shall be horizontal or vertical, with all edges and joints square, unless otherwise indicated.

- Tolerances: The installation shall accommodate all required tolerances including differences between actual site dimensions and dimensions indicated on the (72) Series drawings. Account shall be taken of the installation tolerance requirements such that repetitive units are accurately located, relative to each other.

At the time of completion, the visual requirements of the works are such that within any planning grid section the allowable tolerances are achieved.

### 35-10-60/518 Fixed drawer units

- **Manufacturer:** Submit proposals.
- **Generally:** Drawers to be smooth operation with 'push opening' runner slides. Drawers accurately aligned and not binding. Adjust as necessary to ensure smooth operation.
- **Facing material:** Generally high pressure laminate.
- **Drawerbox:** Melamine faced particleboard or acceptable equivalent. Particleboard to BS EN 312, type P2/3.
- **Slides:** Stainless steel, 304 grade, full extension, ball bearing, side mounted, PUSH TO OPEN type.
- **Execution:** - Generally: Install the works in accordance with the manufacturer's instructions and all workmanship shall be of a high standard using fully proven practices

- Setting out: The installed works to be accurate and in accordance with architect's drawings.

Dimensions to be checked on Site and any discrepancies notified to the Architect.

- Joints and alignment: All joints within the works shall be horizontal or vertical, with all edges and joints square, unless otherwise indicated.

- Tolerances: The installation shall accommodate all required tolerances including differences between actual site dimensions and dimensions indicated on the (72) Series drawings. Account shall be taken of the installation tolerance requirements such that repetitive units are accurately located, relative to each other.

At the time of completion, the visual requirements of the works are such that within any planning grid section the allowable tolerances are achieved.

### 35-10-60/519 Flexible storage cabinets

- **Manufacturer:** Submit proposals.
- **Generally:** Drawers to be smooth operation with 'pushing opening' runner slides. Drawers accurately aligned and not binding. Adjust as necessary to ensure smooth operation.
- **Materials, finish and hardware:** As the fixed drawer units.
- **Wheels:** Colour to match the high pressure laminate finish, 4 no. double wheels or similar.
- **Size:** Refer to the (72) Series drawings.
- **Execution:** - Generally: Install the works in accordance with the manufacturer's instructions and all workmanship shall be of a high standard using fully proven practices

- Setting out: The installed works to be accurate and in accordance with architect's drawings.

Dimensions to be checked on Site and any discrepancies notified to the Architect.

- Joints and alignment: All joints within the works shall be horizontal or vertical, with all edges and joints square, unless otherwise indicated.

- Tolerances: The installation shall accommodate all required tolerances including differences between actual site dimensions and dimensions indicated on the (72) Series drawings. Account shall be taken of the installation tolerance requirements such that repetitive units are accurately located, relative to each other.

At the time of completion, the visual requirements of the works are such that within any planning grid section the allowable tolerances are achieved.

## System completion

### 35-10-60/810 Appliances and equipment

- **Test:** Correct working of functions and features.
- **Documentation:** Submit guarantees, instruction manuals, etc.

### 35-10-60/890 Verification of performance type B

- **Requirements:** Check completed system and provide assurance of compliance with specified performance.
- **Submissions:**
  - **Format:** Description of inspections, remedial works carried out and certification of compliance.
  - **Timing:** At completion of installation.

Ω End of system

# 35-35-30/160 FFE-200 Parking equipment system - type A

## System outline

### 35-35-30/160 FFE-200 Parking equipment system type A

- **Description:** Semi-Vertical Cycle Stand
- **System performance:** 35-35-30/205 Design submittals.
- **System manufacturer:** Cycle-Works Ltd.
- **Equipment:** 45-35-86/301 Carbon steel cycle stands - semi-vertical type A.
- **Site applied finishes:** None.
- **Execution:** 35-35-30/611 Building components into masonry walls and 35-35-30/613 Fixing base plates to concrete pads and strips.
- **System completion:** 35-35-30/823 Requirements for completion and 35-35-30/824 Documentation type A.

## System performance

### 35-35-30/205 Design submittals

- **Detailed design:**
  - **Requirement:** Complete the design of the cycle parking facilities.
  - **Purpose:** To demonstrate compliance with Employer's Requirements.
  - **Submittals:** Typical plan, elevation and section drawings at suitable scales. Overall dimensions and Fully dimensioned general arrangement drawings, plans, elevations and sections. Mounting and fixing details. Details of paint systems and colour finishes Shipping sections. Technical information, calculations and manufacturers' literature.
  - **Timing:** Before manufacture.
  - **Format:** Drawings and specification in BIM compliant format.

## Products

### 45-35-86/301 Carbon steel cycle stands - semi-vertical type A

- **Manufacturer:** Cycle-Works Ltd.
- **System Reference:** NMSV 04 - 2 Position Stand
- **Stand type:** Cycle.
- **Number of stands:** 14
- **Base:** As per manufacturer's details.
- **Finish as delivered:** Powdercoated to BS EN 13448
- **Colours:** To be confirmed with architect prior to procurement.
- **Film thickness (minimum):** 60 micrometres.



## Execution

### 35-35-30/611 Building components into masonry walls

- **Components being built in:** Accurately position and securely support. Set in mortar. Point neatly to match adjacent walling.
- **Temporary support:** Maintain for 48 hours (minimum) and prevent disturbance.
- **Method:** Securely fix components.
- **Setting method:** Submit proposals.

### 35-35-30/613 Fixing base plates to concrete pads and strips

- **Post fasteners:** Submit proposals.
- **Fixing:** Securely fix components.

## System completion

### 35-35-30/823 Requirements for completion

- **Condition:** Leave the works in a clean, tidy condition. Clean immediately before handover.
- **Tools:** Supply tools required for operation, maintenance and cleaning purposes.

### 35-35-30/824 Documentation type A

- **Manufacturer's operation and maintenance instructions:**
  - **Submit for the following products:** Semi-Vertical Cycle Stands
  - **Information required:**
    - Product description.
    - Date of purchase.
    - Performance characteristics.
    - Application (suitability for use).
    - Method of operation and control.
    - Cleaning and maintenance requirements.
  - **Number of copies:** Two.
- **Record drawings:**
  - **Submit record layout drawings indicating the following:** Semi-Vertical Cycle Stands
  - **Drawing format:** Electronic.
  - **Number of copies:** One.
- **Submission:** Two weeks before date of practical completion.

Ω End of system

# 35-35-30/160 FFE-201 Parking equipment system - type B

## System outline

### 35-35-30/160 FFE-201 Parking equipment system type B

- **Description:** Vertical Cycle
- **System performance:** 35-35-30/205 Design submittals.
- **System manufacturer:** Cycle-Works Ltd.
- **Equipment:** 45-35-86/301 Carbon steel cycle stands type B.
- **Site applied finishes:** None.
- **Execution:** 35-35-30/611 Building components into masonry walls and 35-35-30/613 Fixing base plates to concrete pads and strips.
- **System completion:** 35-35-30/823 Requirements for completion and 35-35-30/824 Documentation type B.

## System performance

### 35-35-30/205 Design submittals

- **Detailed design:**
  - **Requirement:** Complete the design of the cycle parking facilities.
  - **Purpose:** To demonstrate compliance with Employer's Requirements.
  - **Submittals:** Typical plan, elevation and section drawings at suitable scales. Overall dimensions and Fully dimensioned general arrangement drawings, plans, elevations and sections. Mounting and fixing details. Details of paint systems and colour finishes Shipping sections. Technical information, calculations and manufacturers' literature.
  - **Timing:** Before manufacture.
  - **Format:** Drawings and specification in BIM compliant format.

## Products

### 45-35-86/301 Carbon steel cycle stands type B

- **Manufacturer:** Cycle-Works Ltd.
- **System reference:** Eltham Cycle Stand
- **Stand type:** Cycle.
- **Number of stands:** 89
- **Base:** Manufacturer's standard.
- **Finish as delivered:** Powder coated to BS EN 13438.
- **Colours:** To be confirmed by architect prior to procurement.
- **Film thickness (minimum):** 60 micrometres.

## Execution

### 35-35-30/611 Building components into masonry walls

- **Components being built in:** Accurately position and securely support. Set in mortar. Point neatly to match adjacent walling.
- **Temporary support:** Maintain for 48 hours (minimum) and prevent disturbance.
- **Method:** Securely fix components.
- **Setting method:** Submit proposals.

### 35-35-30/613 Fixing base plates to concrete pads and strips

- **Post fasteners:** Submit proposals.
- **Fixing:** Securely fix components.

## System completion

### 35-35-30/823 Requirements for completion

- **Condition:** Leave the works in a clean, tidy condition. Clean immediately before handover.
- **Tools:** Supply tools required for operation, maintenance and cleaning purposes.

### 35-35-30/824 Documentation type B

- **Manufacturer's operation and maintenance instructions:**
  - **Submit for the following products:** Eltham Cycle Stand
  - **Information required:**
    - Product description.
    - Date of purchase.
    - Performance characteristics.
    - Application (suitability for use).
    - Method of operation and control.
    - Cleaning and maintenance requirements.
  - **Number of copies:** Two.
- **Record drawings:**
  - **Submit record layout drawings indicating the following:** Vertical Cycle Stands
  - **Drawing format:** Electronic.
  - **Number of copies:** One
- **Submission:** Two weeks before date of practical completion.

Ω End of system

## 35-70-70/124 SAN-201 Wash basin systems - type A

### System outline

#### 35-70-70/124 SAN-201 Wash basin systems type A

- **Description:** Bespoke Kast Concrete Double Sink for Office WC
- **System manufacturer:** Kast Concrete Basin
- **Generally:** Refer to AHMM sanitary schedule

Ω End of system

## 35-70-70/124 SAN-202 Wash basin systems - type B

### System outline

#### 35-70-70/124 SAN-202 Wash basin systems type B

- **Description:** Bespoke Kast Concrete Double Sink for Changing Room
- **System manufacturer:** Kast Concrete Basin
- **Generally:** Refer to AHMM sanitary schedule

Ω End of system

## 35-70-70/190 Sanitary accessories

### System outline

#### 35-70-70/190 Sanitary accessories

- **Description:** Accesories Bathroom
- **System performance:**
- **Sanitary fixtures fittings and equipment:** 45-35-55/310 SAN-301 Bespoke Mirrors type A;  
45-35-55/310 SAN-302 Bespoke Mirrors type B;  
45-35-72/322 SAN-705 Clothes hooks type C;  
45-35-72/334 SAN-702 Hand dryers;  
45-35-72/350 SAN-701 Sanitary towel disposal bins;  
45-35-72/358 SAN-602 Soap dispensers;  
45-35-72/368 SAN-704 Toilet roll holders;  
45-35-72/301 SAN-601 Mixer Tap;  
45-35-72/302 SAN-603 Bottle Trap;  
45-35-72/303 SAN-604 Bottle Waste;  
45-35-72/304 SAN-706 Accessible WC Doc M equitment packages;  
and 45-35-72/364 SAN-703 Toilet brush holders.45-35-72/305 SAN-605 Bib Tap45-35-72/306  
SAN-604 WC Wash Basin Bottle Waste45-35-72/307 SAN-603 WC Wash Basin Bottle Trap45-  
35-72/308 SAN-506 Shower Shelf45-35-72/309 SAN--505 Shower Waste45-35-72/311 SAN-504  
Doc M Accessible Shower Facilites with WC45-35-72/313 SAN-503 Shower Mixer45-35-72/315  
SAN-502 Shower Head45-35-72/317 SAN-501 Changing Room Shower Tray45-35-72/321 SAN-  
404 Urinal Connecting Set45-35-72/319 SAN-403 Urinal Connect Set45-35-72/323 SAN-402  
Urinal Flush Plate45-35-72/325 SAN-401 Office WC Urinals45-35-72/327 SAN-203 Cleaner's  
Sink45-35-72/329 SAN-202 Changing Room Washbasin45-35-72/331 SAN-104 WC Cistern45-  
35-72/333 SAN-103 WC Flush Plate45-35-72/336 SAN-101 Walled Mounted WC Pan45-35-  
72/337 SAN-102 WC Seat and Cover
- **Fixings and fasteners:**
- **Sealing:**
- **Execution:**
- **System completion:**

### Products

#### 45-35-55/310 SAN-301 Bespoke Mirrors type A

- **Manufacturer:** Submit proposals.
- **Standards:** To BS EN 1036-2.
- **Materials and standards:**
  - **Safety requirements:** To BS 6262-4 and BS 6262-6.
  - **Materials:** To BS EN 1036-1, float glass.
- **Dimensions:** Submit proposals.
- **Thickness:** 3 mm.
- **Finish:** Silvered to give maximum reflection, free from tarnishing, discoloration, scratches and other defects visible in the designed viewing conditions. Reflection undistorted.
- **Backing:** Submit proposals.

- **Frame:**
  - **Material:** Bronze
  - **Generally:** Refer to AHMM sanitary schedule, and 74\_(283), 74\_(284).
- **Edges:**
  - **Treatment:** Smoothed.
  - **Profile:** Square.
- **Provision for fixing:** Submit proposals.
- **Execution:** 45-35-55/610 Installing mirrors.

#### **45-35-55/310 SAN-302 Bespoke Mirrors type B**

- **Generally:** Generally as SAN-201, but different configuration. Refer to AHMM sanitary schedule, and 74\_(283), 74\_(284) for detail.
- **Thickness:**
- **Finish:** Silvered to give maximum reflection, free from tarnishing, discoloration, scratches and other defects visible in the designed viewing conditions. Reflection undistorted.

#### **45-35-72/301 SAN-601 Mixer Tap**

- **Manufacturer:** Vola
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** KV3M
- **Execution:**

#### **45-35-72/302 SAN-603 Bottle Trap**

- **Manufacturer:** Crosswater
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Millenium tall bottle trap

#### **45-35-72/303 SAN-604 Bottle Waste**

- **Manufacturer:** Vola
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** V63

#### **45-35-72/304 SAN-706 Accessible WC Doc M equipment packages**

- **Manufacturer:** Ideal Standard
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Doc M Packs

#### **45-35-72/305 SAN-605 Bib Tap**

- **Manufacturer:** Armitage Shanks
- **Product reference:** S8270 - HBN 00-10 HTM64 (TB H1) Markwik Bib Taps
- **Generally:** Refer to AHMM sanitary schedule
- **Execution:**

#### **45-35-72/306 SAN-604 WC Wash Basin Bottle Waste**

- **Manufacturer:** Vola

- **Generally:** Refer to AHMM sanitary schedule
- **Model:** A63
- **Execution:**

**45-35-72/307 SAN-603 WC Wash Basin Bottle Trap**

- **Manufacturer:** Crosswater
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Millenium tall bottle trap

**45-35-72/308 SAN-506 Shower Shelf**

- **Manufacturer:** Roca
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Tempo 300 x 100mm
- **Execution:**

**45-35-72/309 SAN--505 Shower Waste**

- **Manufacturer:** Kaldewei
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Waste Fitting KA 120
- **Execution:**

**45-35-72/311 SAN-504 Doc M Accessible Shower Facilities with WC**

- **Manufacturer:** Ideal Standard
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Doc M Shower Room Pack - Additional WC & Washbasin
- **Execution:**

**45-35-72/313 SAN-503 Shower Mixer**

- **Manufacturer:** Hansgrohe
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Ecostat E Thermostatic Mixer for concealed installation for 1 outlets with shute-off valve
- **Execution:**

**45-35-72/315 SAN-502 Shower Head**

- **Manufacturer:** Hansgrohe
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Raindance E Overhead shower 240 1 jet EcoSmart 9 1/min with shower arm
- **Execution:**

**45-35-72/317 SAN-501 Changing Room Shower Tray**

- **Manufacturer:** Kaldewei
- **Genearily:** Refer to AHMM sanitary schedule
- **Model:** Conoflat
- **Execution:**



**45-35-72/319 SAN-403 Urinal Connect Set**

- **Manufacturer:** Ideal Standard
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Urinal Syphon Connector with 75mm Water Seal and 40mm outlet
- **Execution:**

**45-35-72/321 SAN-404 Urinal Connecting Set**

- **Manufacturer:** Ideal Standard
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Urinal Connecting Set
- **Execution:**

**45-35-72/322 SAN-705 Clothes hooks type C**

- **Manufacturer:** Roca
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Hotel's 2.0

**45-35-72/323 SAN-402 Urinal Flush Plate**

- **Manufacturer:** Vola
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Vola RS82E
- **Execution:**

**45-35-72/325 SAN-401 Office WC Urinals**

- **Manufacturer:** Kohler
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Branham Urinal
- **Execution:**

**45-35-72/327 SAN-203 Cleaner's Sink**

- **Manufacturer:** Armitage Shanks
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Alder Sink
- **Execution:**

**45-35-72/329 SAN-202 Changing Room Washbasin**

- **Manufacturer:** Lovair
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Maxi Slab L-MS Series
- **Execution:**

**45-35-72/331 SAN-104 WC Cistern**

- **Manufacturer:** Geberit Sales Ltd
- **Product reference:** UP320 Concealed Dual Flush Cistern

- **Flush plate:**
- **Generally:** Refer to AHMM sanitary schedule
- **Execution:**

**45-35-72/333 SAN-103 WC Flush Plate**

- **Manufacturer:** Vola
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** RS83E
- **Execution:**

**45-35-72/334 SAN-702 Hand dryers**

- **Manufacturer:** Dyson
- **Product reference:** Airblade™ 9kJ Hand Dryer

**45-35-72/336 SAN-101 Walled Mounted WC Pan**

- **Manufacturer:** Duravit
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Vero Air Toilet Wall Mounted Rimless
- **Execution:**

**45-35-72/337 SAN-102 WC Seat and Cover**

- **Manufacturer:** Duravit
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Vero Air Toilet Seat and Cover with automatic closure
- **Execution:**

**45-35-72/350 SAN-701 Sanitary towel disposal bins**

- **Manufacturer:** Dolphin
- **Generally:** Refer to AHMM sanitary schedule

**45-35-72/358 SAN-602 Soap dispensers**

- **Manufacturer:** Vola
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** T36L

**45-35-72/364 SAN-703 Toilet brush holders**

- **Manufacturer:** Roca
- **Generally:** Refer to AHMM sanitary schedule
- **Model:** Hotel's 2.0

**45-35-72/368 SAN-704 Toilet roll holders**

- **Manufacturer:**
- **Form:**
- **Materials:**
- **Finish and colour:**

- **Integral accessories:**

## Execution

### 45-35-55/610 Installing mirrors

- **Fixing:** 3 mm (minimum) gap between back of mirror and wall surface.
- **Alignment:** Accurately align to suit mirror shape and location.

Ω End of system

16014

## ***40 Flora and fauna systems***

Issued for Tender

09/04/2020

## 40-40-45/125 Extensive green roof system

### System outline

#### 40-40-45/125 Extensive green roof system

- **Description:** Bauder XF118 Wildflower Blanket
- **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.  
Tel: 01473 257 671. Fax: 01473 230 761. Email: technical@bauder.co.uk
- **Protection:**
  - **Protection layer:** Product code: Bauder FSM600 - 4mm protection fleece.  
Installation: Protection fleece rolled out and laid loose. Laps to be sealed by lightly heating overlap area with a propane gas torch to melt the polypropylene fibres and then press seal the two fleece sheets together.  
Joints: Minimize.  
Overlaps (minimum): Laps to be 150mm  
Upstands: Sufficient protection fleece must be allowed for so that it may be installed to all abutment upstands and edge details, in accordance with the manufacturer's instructions. Extend to full height of the upstand and secure in place by using a lead or fabricated metal counter-flashing.  
Openings in landscape restraint kerbs: Where these kerbs are present (roof slopes above 5o), the protection layer should be cut away from the openings/ gaps to avoid impeding drainage.
- **Moisture control:**
  - **Drainage layer:** Product code: Bauder DSE40 - drainage / water storage panel.  
Extent: Continuous over entire designated roof area.  
Fitting: Loose laid over the protection layer. Boards to overlap and interlock by one cup profile at sides and ends and each row be laid staggered. The 'X' stamped impression on the highpoint of the cup moulding indicates where boards overlap.  
Upstands: Carefully cut to fit closely around penetrations and outlets.  
Construction of planter walls: The drainage/water storage board provides a suitable base surface for building concrete or brick kerbs/walls. The specified infill haunching should be installed over the board to required depth of cover, poured directly into the cells of board. These should be constructed to provide an adequate support for the raised masonry planters. For the specification of the type of infill and all kerb/wall construction elements please refer to the structural engineer's plans and the specification. An internal surface of the planter wall may be primed using bituminous primer and then lined with single layer of torch applied root resistant Bauder Plant-E. The bright green slate finish may be considered undesirable, but the slate is necessary for long-term UV protection of the bitumen. To disguise and blacken the slate colour, paint exposed areas above anticipated soil level with a light coat of bituminous primer.
  - **Filter membrane:** Product code: Bauder Filter Fleece.  
Joints: Minimize.  
Overlaps (minimum): 150mm

Fitting: Loose laid over drainage layer in accordance with manufacturer's recommendation.

Upstands (soft landscaping): Extend up, between vegetation barrier and growing medium and trim flush with finished surface level.

Upstands (Hard landscaping): Extend to top of perimeter abutments and trim flush just below finished surface level.

- **Drainage ancillaries:** Slip layer.

Product code: Bauder PE Foil (loose laid) rolled out in single layer.

- **Planting systems:**

- **Vegetation:** Product code: Bauder XF118 UK Native Species Wildflower Blanket.

Planting mix: Non-invasive selected wildflowers (see manufacturer's literature)

Thickness: 25mm.

Roll size: 2m x 1m

Handling blankets and timing: Lay within 24 hours of delivery. Watering and installation over

large areas should be carried out in sections that could be completed within 4 hour time frame.

Laying blankets: Dry, damaged, frosty or waterlogged blankets: Do not lay.

Excessive stacking: Not permitted.

Method: Laid manually / two-man operation

Pre-grown wildflower blankets should be supplied and installed in strict accordance with the

manufacturer's recommendations.

Material loss (maximum): 3% of total surface area.

Growing medium condition: Immediately prior to planting, the whole system should be thoroughly watered to ensure that the water storage/drainage board is filled and the substrate

growing medium saturated

Layers: Pre-grown wildflower blankets should be typically applied directly over a minimum of

100mm of prepared level or gently undulating substrate.

Orientation: Perpendicular to slope of roof.

Joints: Staggered/tight abut together to minimize any gaps. Do not stretch blankets. All excess vegetation should be removed from the overlap and the opposite leading edge of the

blanket to ensure that the joints abut together tightly (as per the manufacturer's installation

guideline).

Edges: Finish with whole blankets.

Consolidation: N/A

Dressing: Bauder Xero Terr 3 substrate.

Application: Brush in to fill joints.

Watering: Thoroughly water using surface sprinklers immediately after installation and substrate dressing, ensuring that the blankets and substrate are fully saturated before moving

on to the next area.

Slopes: When applying the system on roof slopes above 10%, on large or exposed areas, the

vegetation blankets should be secured in place by suitable bio-degradable landscaping pegs.

Great care should be taken to prevent any damage to the waterproofing.

- **Edge restraints:**

- **Execution:** INSTALLATION GENERALLY

Preparation: Clear all surfaces of debris.

Timing: After certification of waterproof membrane integrity.

Surface condition: Visually inspect waterproof membrane, report any damage.

Faults in waterproof membrane: Report.

Contamination: Do not use materials detrimental to healthy plant growth.

Storage: Do not overload.

Point loads: Avoid.

Outlets: Do not block.

Outlet grilles: Installed (these can be omitted where Bauder inspection chambers are used if the grille cap height obstructs the closing of the chamber lid).

- **System completion:** General: Leave the works in a clean, tidy condition.

Surfaces: Clean immediately before handover.

Outlets: Clean and clear of obstructions.

Completed green roof: Protect from adjacent or high level working.

Ω End of system

16014

## ***80 Transport systems***

Issued for Tender

09/04/2020



# 80-45-45/151 LFT-100 Lift car fit-out architectural requirements - type A

## System outline

### 80-45-45/151 LFT-100 Lift car fit-out architectural requirements type A

- **Type:** A
- **Description:** Lifts C2 & C3 - Core C Passenger lift bespoke interior finishes serving office and hotel floors.
- **System performance:** Refer to HPF Vertical Transportation Report.
  - Compliance with EN 81-1.
  - All lifts shall be suitable for wheelchair disabled access in accordance with Disability Discrimination Act (DDA) regulations, British Standards and the Building Regulations and shall be suitable for operation by the disabled, blind and semi-ambulant.
  - Drilling and fixing of entrances and guide rail brackets.
  - Removal of rubbish to a central skip, provided by others.
  - Task Lighting / Permanent Shaft lighting.
  - All surfaces shall meet a Class 0 surface spread of flame. Firefighting lifts shall satisfy the requirements of British Standards and Codes for firefighting lifts.
- **Performance of material finishes:**
  - **Glazing:** Glazing to lift shafts and lift cars shall be constructed from laminated glass to meet the requirements of BS EN 81: Parts 1 and 2.
  - **Specific live loads:** Horizontal line load applied to the walls in accordance with BS 6180 and BS 6399: Part 1. Dynamic loads created by lift occupants jumping up and down in the lift car.
  - **Thermal movement:** Provide components to withstand expansion and contraction of materials caused by ambient air temperature range of 5°C to 28°C and increases due to solar radiation for the surface differential temperature range of 5°C and +80°C without causing failure of joint, damaging loads on fasteners, reduction of performance or other detrimental effects.
  - **Slip resistance of floor finishes:** Slip resistance of floor finishes: When tested using the TRL Pendulum Tester, flooring, inclusive of surface treatment, shall achieve test value of >36 PTV and surface roughness not less than 20 Rz.
- **System manufacturer:** Submit proposals.
- **Product reference:** Submit proposals.
- **Equipment:** As required to achieve compliant installation and operation. Refer to HPF Vertical Transportation Report.
- **Hoistway dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Lift car dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Car doors:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Speed:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Travel and stops:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Operational arrangement:** Triplex operation.
- **Lighting:**
  - **Generally:** Energy efficient lighting. Refer to Services Engineers documentation

- **Type:** Diffused LED backlit field ceiling panel. Refer to (66) Series drawings.
- **Wall finish:** Hardwood veneer faced plywood. Veneer species to be Elm, or acceptable equivalent. Boards shall have hardwood edgings and be prefinished and planed all round. Plywood and veneer quality to be highest quality premium grade with no knots permitted. Finish to be clear hardwearing lacquer system. Panels to be secretly fixed to framing supports. Provide apertures in the wall panels for fixing the handrail/ protection rail to lift car support structure, unless otherwise indicated. Refer to (66) Series drawings.
- **Mirror:** Full height mirror. Mirror backing to be WBP grade plywood. Mirror to have concealed support and concealed fixing as indicated on the (66) Series drawings.
- **Handrail:** Anodised aluminium tubular rails with brushed bronze non-directional finish. Bronze bracketry to be stem type. Refer to (66) Series drawings. Include all bracketry as required. Rails shall be set out around the walls at a height as indicated on the (66) Series drawings. Tubular handrails shall receive a flat end cap of brushed bronze anodised aluminium to match handrail finish. Rails to be concealed fixed through to the lift car support structure.
- **Ceiling:** Back-illuminated opalescent glass ceiling panels, rebated to finish flush with frame, with LED light sheet above. Joints between panels shall be tight butt type. Panels to be removable to provide access for maintenance. Brushed bronze finished trims to ceiling edges. Ceiling shall be evenly back-lit. No visible fixings.  
LED colour temperature 4000K, high output.  
Lightsheet edgemit on front and rear long edges and both sides.
- **Floor finish:** Epoxy resinous terrazzo to match lift lobby flooring on a cement board or marine grade plywood with angled divider strips at perimeter. Provide minimum 35mm tolerance. Topping mix shall be a mix of epoxy resin and a hardener, mixed in accordance with the terrazzo manufacturer's recommendation. The floor to withstand the loading forces from self, dead and live loads.
- **Car reveal panels:** Large format anodised aluminium panels with brushed bronze finish, to match lift car doors.
- **Lift car door panels/ architraves:** Large format anodised aluminium panels factory bonded/ fixed to door structure with brushed bronze finish, to match reveals.
- **Skirting:** Anodised aluminium - brushed bronze finish with a moisture resistant MDF backing. Concealed fixings.
- **Threshold:** Bronze finish threshold, to match lift car doors and reveals.
- **Car operating panels:** Lift car operating panel to be brushed bronze anodised aluminium, and suitably backed. The operating buttons shall be located by a 2.5mm thick stainless steel surround ring. All fixings shall be concealed. The buttons shall comprise a full set of vandal-resisting illuminating pushbuttons of high quality bronze finish. The indication numbers and letters shall be raised tactile digits on buttons. Panels and buttons to finish flush with all adjacent surfaces.
- **Lift car controls:** The lift car controls shall be located as indicated on the (66) Series drawings and provide access by disabled persons to call point in fascia panel required. For technical requirements, see the Services Engineer's documentation. The naming of floor levels shall be determined by the Employer's Agent. Lift car intercom speaker/ receiver shall be set in the control panel. Vocal announcements shall be in accordance with the Lift Engineer's documentation or the Service Engineer's documentation, to the acceptance of the Employer's Agent.
- **Other controls:**
  - **Provide:**
    - Alarm horn button.
    - Door open button.
    - Door close button.
    - Key switch operated car override control engraved 'car preference'.
    - Key operated fan switch.
    - Communications link.
    - Provision for future fitting of security card reader control functions.
- **Landing doors:** On Office floors (Levels 0, 2, 3, 4, 5 & 6): Landing door panels and frames shall comprise 60min fire-rated reeded glass panels with a bronze anodised aluminium frame

supported from above within a concealed fixed head track fixed to substrate framing. Refer to (66) Series drawings and (00)-240, 241, 243 drawings.

On Hotel floors (Levels 1, 7 & 8): Landing door panels and frames shall comprise 60min fire-rated stainless steel supported from above within a concealed fixed head track fixed to substrate framing. Panels to have a satin brushed 240 grit non-directional finish. Refer to (66) Series drawings and (00)-240, 241, 243 drawings.

- **Door operation:** Automatic power operated landing doors to be coupled to the lift car doors to provide simultaneous opening and closing.
- **Hall buttons:** On Office floors (Levels 0, 2, 3, 4, 5 & 6): Two sets of hall buttons will be provided for the call operation of the car group. Bespoke bronze anodised aluminium panel, suitably backed. The call buttons shall be located by a 2.5mm thick stainless steel surround ring. All fixings shall be concealed. The buttons shall comprise a full set of vandal-resisting illuminating push buttons of high quality bronze finish. The indication numbers and letters shall be raised tactile digits on buttons. Refer to (66) Series drawings and (00)-240, 241, 243 drawings.

On Hotel floors (Levels 1, 7 & 8): One or two sets of hall buttons will be provided for the call operation of the car group. Refer to (66) Series drawings and (00)-240, 241, 243 drawings. Standard stainless steel panel fixed to wall, with standard call buttons and fixings.

- **Landing indicators:** On Office floors (Levels 0, 2, 3, 4, 5 & 6): Landing indicators, showing direction of travel and floor designation, set within lift lobby wall panel, flush finish. Located in same panel as hall buttons. Refer to (66) Series drawings and (00)-240, 241, 243 drawings.

On Hotel floors (Levels 1, 7 & 8): Landing indicators, showing direction of travel and floor designation, fixed to lift lobby wall. Refer to (66) Series drawings and (00)-240, 241, 243 drawings. Standard landing indicator, located in same panel as hall buttons.

- **Automatic car return:** Lift will return to main floor when not in service.
- **Trap door:** Comply with the requirements of BS EN 81-1 and BS EN 81-2.
- **Lift shaft:** Each lift shaft shall be provided with permanent lighting and socket outlet. Refer to HPF drawings.
- **Ventilation:** Ventilation shall be provided at high and low level supplied via gaps between the walls, floor and ceiling panels. Natural ventilation to be provided above the lift car ceiling. Refer to (66) Series drawings and the Services Engineers documentation.
- **Fire rating:** 60mins
- **Execution:** 80-45-45/613 Lift ceiling installation; 80-45-45/611 Lift floor installation; 80-45-45/612 Lift wall installation; 80-45-45/615 Lift handrail installation and 80-45-45/614 Landing door installation
- **System completion:** Provide Health & Safety files and Operating & Maintenance manuals.
- **System facility management:** Provide ongoing certification for elements of the installation.

## Execution

### 80-45-45/611 Lift floor installation

- **Tolerances:** The floor flatness not be in excess of 3.0mm either way in 1000mm and shall be non-cumulative.

### 80-45-45/612 Lift wall installation

- **Tolerance:** Panels flatness shall not exceed 1.0mm either way in any 1000mm and shall be non-cumulative).
- **Durability:** Panels shall be resistant to impact consistent with a public thoroughfare.

- **Corner interfaces:** All external and internal angles shall be 90°, unless otherwise indicated on (66) Series drawings..
- **Joints and shadow gaps:** • All joints shall not deviate by  $<3\text{mm} = \pm 0.5\text{mm}$ ; joints  $>3\text{mm} = \pm 1\text{mm}$ .
  - Any shadow gaps between panels shall not deviate in excess of  $\pm 1\text{mm}$ . All shadow gaps shall be backed with stainless steel.

#### 80-45-45/613 Lift ceiling installation

- **Tolerance:** Panels shall have a flatness criterion of 1:1000.
- **Fixings:** All fixing of the panels shall be concealed. Where panels are opening the hinges shall be concealed.

#### 80-45-45/614 Landing door installation

- **Tolerance:** The panels shall have a flatness criterion of 1:1000 over any length (i.e. the permitted deviation from the true panel shall not exceed 1.0mm either way in any 1000mm and shall be non-cumulative).
- **Fixings:** All fixings to be concealed.

#### 80-45-45/615 Lift handrail installation

- **Generally:** Handrail to be fabricated so that it may be assembled inside the lift car on Site, and can be removed for maintenance.
- **Tolerances:** Handrails to run horizontally.
- **Fixing:** All fixings to be concealed.

Ω End of system

## 80-45-45/151 LFT-101 Lift car fit-out architectural requirements - type B

### System outline

#### 80-45-45/151 LFT-101 Lift car fit-out architectural requirements type B

- **Description:** Lift C1 - Core C Goods / Passenger lift bespoke interior finishes serving hotel and office floors.
- **System performance:** As per LFT-100, and additionally:
  - comply with the requirements of BS EN 81-72:2015 and BS EN 81-1:1998 or BS EN 81-2:1998
- **Performance of material finishes:**
  - **Glazing:** Glazing to lift shafts and lift cars shall be constructed from laminated glass to meet the requirements of BS EN 81: Parts 1 and 2.
  - **Specific live loads:** Horizontal line load applied to the walls in accordance with BS 6180 and BS 6399: Part 1. Dynamic loads created by lift occupants jumping up and down in the lift car.
  - **Thermal movement:** Provide components to withstand expansion and contraction of materials caused by ambient air temperature range of 5°C to 28°C and increases due to solar radiation for the surface differential temperature range of 5°C and +80°C without causing failure of joint, damaging loads on fasteners, reduction of performance or other detrimental effects.
  - **Slip resistance of floor finishes:** Slip resistance of floor finishes: When tested using the TRL Pendulum Tester, flooring, inclusive of surface treatment, shall achieve test value of >36 PTV and surface roughness not less than 20 Rz.
- **System manufacturer:** Submit proposals.
- **Product reference:** Submit proposals.
- **Equipment:** As required to achieve compliant installation and operation. Refer to HPF Vertical Transportation Report.
- **Hoistway dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Lift car dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Car doors:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Speed:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Travel and stops:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Operational arrangement:** Triplex operation.
- **Lighting:**
  - **Generally:** Energy efficient lighting. Refer to Services Engineers documentation
  - **Type:** As LFT-100.
- **Wall finish:** As LFT-100.
- **Mirror:** As LFT-100.
- **Handrail:** As LFT-100.
- **Ceiling:** As LFT-100.
- **Floor finish:** As LFT-100.
- **Car reveal panels:** As LFT-100.
- **Lift car door panels/ architraves:** As LFT-100.

- **Skirting:** As LFT-100.
- **Threshold:** Finishes as LFT-100, but with 25mm raised thresholds to the lift entrances doors to minimise water penetration to the firefighting lift.
- **Car operating panels:** As LFT-100.
- **Lift car controls:** As LFT-100.
- **Other controls:**
  - **Provide:** As LFT-100.
- **Landing doors:** As LFT-100, and additionally, at basement 1 level, Landing door panels and frames shall comprise 60min fire-rated stainless steel supported from above within a concealed fixed head track fixed to substrate framing. Panels to have a satin brushed 240 grit non-directional finish. Refer to (66) Series drawings.
- **Door operation:** As LFT-100.
- **Hall buttons:** As LFT-100, and additionally, at basement 1 level, one set of hall buttons will be provided for the call operation of the car group. Refer to (66) Series drawings. Standard stainless steel panel fixed to wall, with standard call buttons and fixings.
- **Landing indicators:** As LFT-100, and additionally, at basement 1 level, standard landing indicators fixed to lift lobby wall, located in same panel as hall buttons. Refer to (66) Series drawings.
- **Automatic car return:** As LFT-100.
- **Trap door:** As LFT-100.
- **Lift shaft:** As LFT-100.
- **Ventilation:** As LFT-100.
- **Fire rating:** 60 mins.
- **Execution:** As LFT-100.
- **System completion:** Provide Health & Safety files and Operating & Maintenance manuals.
- **System facility management:** Provide ongoing certification for elements of the installation.

Ω End of system

## 80-45-45/151 LFT-102 Lift car fit-out architectural requirements - type C

### System outline

#### 80-45-45/151 LFT-102 Lift car fit-out architectural requirements type C

- **Description:** Lift D1 - Core D Passenger / Goods / Firefighting Lift. Back-of-house lift with standard finishes.
- **System performance:** Refer to HPF Vertical Transportation Report.
  - Compliance with EN 81-1.
  - All lifts shall be suitable for wheelchair disabled access in accordance with Disability Discrimination Act (DDA) regulations, British Standards and the Building Regulations and shall be suitable for operation by the disabled, blind and semi-ambulant.
  - Drilling and fixing of entrances and guide rail brackets.
  - Removal of rubbish to a central skip, provided by others.
  - Task Lighting / Permanent Shaft lighting.
  - All surfaces shall meet a Class 0 surface spread of flame. Firefighting lifts shall satisfy the requirements of British Standards and Codes for firefighting lifts.
- **Performance of material finishes:**
  - **Specific live loads:** Horizontal line load applied to the walls in accordance with BS 6180 and BS 6399: Part 1. Dynamic loads created by lift occupants jumping up and down in the lift car.
  - **Thermal movement:** Provide components to withstand expansion and contraction of materials caused by ambient air temperature range of 5°C to 28°C and increases due to solar radiation for the surface differential temperature range of 5°C and +80°C without causing failure of joint, damaging loads on fasteners, reduction of performance or other detrimental effects.
  - **Slip resistance of floor finishes:** Slip resistance of floor finishes: When tested using the TRL Pendulum Tester, flooring, inclusive of surface treatment, shall achieve test value of >36 PTV and surface roughness not less than 20 Rz.
- **System manufacturer:** Submit proposals.
- **Product reference:** Submit proposals.
- **Equipment:** As required to achieve compliant installation and operation. Refer to HPF Vertical Transportation Report.
- **Hoistway dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Lift car dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Car doors:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Speed:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Travel and stops:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Operational arrangement:** Simplex operation.
- **Lighting:**
  - **Generally:** Energy efficient lighting. Refer to Services Engineers documentation
  - **Type:** LED lights fixed to the ceiling. Refer to (66) Series drawings.
- **Wall finish:** Stainless steel, grade 1.4401 brake pressed fabricated panels with brushed 240 grit non-directional finish. Backing to be WBP grade plywood, or similar. Panels to have concealed support and concealed fixing. Provide apertures in the wall panels for fixing the handrail/



protection rail to lift car support structure, unless otherwise indicated. Refer to (66) Series drawings.

- **Mirror:** Mirror backing to be WBP grade plywood. Mirror to have concealed support and concealed fixing as indicated on the (66) Series drawings.
- **Handrail:** Stainless steel grade 1.4401 tubular rails with brushed non-directional finish. Bracketry to be stem type. Refer to (66) Series drawings. Include all bracketry as required. Rails shall be set out around the walls at a height as indicated on the (66) Series drawings. Tubular handrails shall receive a flat end cap of stainless steel to match handrail finish. Rails to be concealed fixed through to the lift car support structure.
- **Ceiling:** Panels to be brake pressed fabricated stainless steel with return edge to wall finish with brushed 240 grit non-directional finish. Joints between panels shall be tight butt type. Central ceiling panel shall have apertures to accommodate fully recessed low voltage downlighters. Central ceiling panel hinged to provide access for maintenance of light fittings. No visible fixings.
- **Floor finish:** Mild steel plate construction, thickness to suit performance criteria. 1 bar mild steel chequer plate galvanised and layed onto a moisture resistant MDF subfloor (35mm nominal). Contractor or specialist sub-contractor to submit proposals for bonding/ fixing floor plate to substrate.
- **Car reveal panels:** Stainless steel grade 1.4401 with brushed non-directional finish.
- **Lift car door panels/ architraves:** Stainless steel grade 1.4401 with brushed non-directional finish.
- **Threshold:** Ribbed stainless steel grade 1.4401.
- **Car operating panels:** Lift car operating panel to be brushed stainless steel, and suitably backed. The operating buttons shall be located by a 2.5mm thick stainless steel surround ring. All fixings shall be concealed. The buttons shall comprise a full set of vandal-resisting illuminating pushbuttons of high quality stainless steel finish. The indication numbers and letters shall be raised tactile digits on buttons. Panels and buttons to finish flush with all adjacent surfaces.
- **Lift car controls:** The lift car controls shall be located as indicated on the (66) Series drawings and provide access by disabled persons to call point in fascia panel required. For technical requirements, see the Services Engineer's documentation. The naming of floor levels shall be determined by the Employer's Agent. Lift car intercom speaker/ receiver shall be set in the control panel. Vocal announcements shall be in accordance with the Lift Engineer's documentation or the Service Engineer's documentation, to the acceptance of the Employer's Agent.
- **Other controls:**
  - **Provide:**
    - Alarm horn button.
    - Door open button.
    - Door close button.
    - Key switch operated car override control engraved 'car preference'.
    - Key operated fan switch.
    - Communications link.
    - Provision for future fitting of security card reader control functions.
- **Landing doors:** Landing door panels and frames shall comprise brake pressed stainless steel supported from above within a concealed fixed head track fixed to substrate framing. Panels to have a satin brushed 240 grit non-directional finish.
- **Door operation:** Automatic power operated landing doors to be coupled to the lift car doors to provide simultaneous opening and closing.
- **Hall buttons:** One set of hall buttons will be provided for the call operation. Stainless steel panel, suitably backed. The call buttons shall be located by a 2.5mm thick stainless steel surround ring. All fixings shall be concealed. The buttons shall comprise a full set of vandal-resisting illuminating push buttons of high quality stainless steel finish. The indication numbers and letters shall be raised tactile digits on buttons. Refer to (66) Series drawings.
- **Landing indicators:** Landing indicators, showing direction of travel and floor designation, set within lift lobby wall panel, flush finish. Refer to (66) Series drawings.



- **Automatic car return:** Lift will return to main floor when not in service.
- **Trap door:** Comply with the requirements of BS EN 81-1 and BS EN 81-2.
- **Lift shaft:** Each lift shaft shall be provided with permanent lighting and socket outlet. Refer to HPF drawings.
- **Ventilation:** Ventilation shall be provided at high and low level supplied via gaps between the walls, floor and ceiling panels. Natural ventilation to be provided above the lift car ceiling. Refer to (66) Series drawings and the Services Engineers documentation.
- **Fire rating:** 60 mins.
- **Execution:** 80-45-45/613 Lift ceiling installation; 80-45-45/611 Lift floor installation; 80-45-45/612 Lift wall installation; 80-45-45/615 Lift handrail installation and 80-45-45/614 Landing door installation
- **System completion:** Provide Health & Safety files and Operating & Maintenance manuals.
- **System facility management:** Provide ongoing certification for elements of the installation.

## Execution

### 80-45-45/611 Lift floor installation

- **Tolerances:** The floor flatness not be in excess of 3.0mm either way in 1000mm and shall be non-cumulative.

### 80-45-45/612 Lift wall installation

- **Tolerance:** Panels flatness shall not exceed 1.0mm either way in any 1000mm and shall be non-cumulative).
- **Durability:** Panels shall be resistant to impact consistent with a public thoroughfare.
- **Corner interfaces:** All external and internal angles shall be 90°, unless otherwise indicated on (66) Series drawings..
- **Joints and shadow gaps:**
  - All joints shall not deviate by <3mm =  $\pm 0.5$ mm; joints >3mm =  $\pm 1$ mm.
  - Any shadow gaps between panels shall not deviate in excess of  $\pm 1$ mm. All shadow gaps shall be backed with stainless steel.

### 80-45-45/613 Lift ceiling installation

- **Tolerance:** Panels shall have a flatness criterion of 1:1000.
- **Fixings:** All fixing of the panels shall be concealed. Where panels are opening the hinges shall be concealed.

### 80-45-45/614 Landing door installation

- **Tolerance:** The panels shall have a flatness criterion of 1:1000 over any length (i.e. the permitted deviation from the true panel shall not exceed 1.0mm either way in any 1000mm and shall be non-cumulative).
- **Fixings:** All fixings to be concealed.

### 80-45-45/615 Lift handrail installation

- **Generally:** Handrail to be fabricated so that it may be assembled inside the lift car on Site, and can be removed for maintenance.
- **Tolerances:** Handrails to run horizontally.

- **Fixing:** All fixings to be concealed.

Ω End of system

## 80-45-45/151 LFT-103 Lift car fit-out architectural requirements - type D

### System outline

#### 80-45-45/151 LFT-103 Lift car fit-out architectural requirements type D

- **Description:** Lifts B2 & B3 - Core B Passenger Lift interior finishes. Standard lift finishes, to be replaced by Hotel Fit-Out contractor during Fit-Out Stage.
- **System performance:** Refer to HPF Vertical Transportation Report.
  - Compliance with EN 81-1.
  - All lifts shall be suitable for wheelchair disabled access in accordance with Disability Discrimination Act (DDA) regulations, British Standards and the Building Regulations and shall be suitable for operation by the disabled, blind and semi-ambulant.
  - Drilling and fixing of entrances and guide rail brackets.
  - Removal of rubbish to a central skip, provided by others.
  - Task Lighting / Permanent Shaft lighting.
  - All surfaces shall meet a Class 0 surface spread of flame. Firefighting lifts shall satisfy the requirements of British Standards and Codes for firefighting lifts.
- **Performance of material finishes:**
  - **Specific live loads:** Horizontal line load applied to the walls in accordance with BS 6180 and BS 6399: Part 1. Dynamic loads created by lift occupants jumping up and down in the lift car.
  - **Thermal movement:** Provide components to withstand expansion and contraction of materials caused by ambient air temperature range of 5°C to 28°C and increases due to solar radiation for the surface differential temperature range of 5°C and +80°C without causing failure of joint, damaging loads on fasteners, reduction of performance or other detrimental effects.
  - **Slip resistance of floor finishes:** Slip resistance of floor finishes: When tested using the TRL Pendulum Tester, flooring, inclusive of surface treatment, shall achieve test value of >36 PTV and surface roughness not less than 20 Rz.
- **System manufacturer:** Submit proposals.
- **Product reference:** Submit proposals.
- **Equipment:** As required to achieve compliant installation and operation. Refer to HPF Vertical Transportation Report.
- **Hoistway dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Lift car dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Car doors:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Speed:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Travel and stops:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Operational arrangement:** Duplex operation.
- **Lighting:**
  - **Generally:** Energy efficient lighting. Refer to Services Engineers documentation.
  - **Type:** LED lights fixed to the ceiling. Refer to (66) Series drawings.
- **Wall finish:** Stainless steel, grade 1.4401 brake pressed fabricated panels with brushed 240 grit non-directional finish. Backing to be WBP grade plywood, or similar. Panels to have concealed support and concealed fixing. Provide apertures in the wall panels for fixing the handrail/

protection rail to lift car support structure, unless otherwise indicated. Refer to (66) Series drawings.

- **Ceiling:** Panels to be brake pressed fabricated stainless steel with return edge to wall finish with brushed 240 grit non-directional finish. Joints between panels shall be tight butt type. Central ceiling panel shall have apertures to accommodate fully recessed low voltage downlighters. Central ceiling panel hinged to provide access for maintenance of light fittings. No visible fixings.
- **Floor finish:** Mild steel plate construction, thickness to suit performance criteria. 1 bar mild steel chequer plate galvanised and layed onto a moisture resistant MDF subfloor (35mm nominal). Contractor or specialist sub-contractor to submit proposals for bonding/ fixing floor plate to substrate.
- **Car reveal panels:** Stainless steel grade 1.4401 with brushed non-directional finish.
- **Lift car door panels/ architraves:** Stainless steel grade 1.4401 with brushed non-directional finish.
- **Threshold:** Ribbed stainless steel grade 1.4401.
- **Car operating panels:** Lift car operating panel to be brushed stainless steel, and suitably backed. The operating buttons shall be located by a 2.5mm thick stainless steel surround ring. All fixings shall be concealed. The buttons shall comprise a full set of vandal-resisting illuminating pushbuttons of high quality stainless steel finish. The indication numbers and letters shall be raised tactile digits on buttons. Panels and buttons to finish flush with all adjacent surfaces.
- **Lift car controls:** The lift car controls shall be located as indicated on the (66) Series drawings and provide access by disabled persons to call point in fascia panel required. For technical requirements, see the Services Engineer's documentation. The naming of floor levels shall be determined by the Employer's Agent. Lift car intercom speaker/ receiver shall be set in the control panel. Vocal announcements shall be in accordance with the Lift Engineer's documentation or the Service Engineer's documentation, to the acceptance of the Employer's Agent.
- **Other controls:**
  - **Provide:**
    - Alarm horn button.
    - Door open button.
    - Door close button.
    - Key switch operated car override control engraved 'car preference'.
    - Key operated fan switch.
    - Communications link.
    - Provision for future fitting of security card reader control functions.
- **Landing doors:** Landing door panels and frames shall comprise 60min fire-rated stainless steel supported from above within a concealed fixed head track fixed to substrate framing. Panels to have a satin brushed 240 grit non-directional finish. Refer to (66) Series drawings.
- **Door operation:** Automatic power operated landing doors to be coupled to the lift car doors to provide simultaneous opening and closing.
- **Hall buttons:** One set of hall buttons will be provided for the call operation of the car group. Standard stainless steel panel fixed to wall, with standard call buttons and fixings. Panel to be centred between the two passenger lifts.
- **Landing indicators:** Landing indicators, showing direction of travel and floor designation, set within lift lobby wall panel (same panel as hall buttons), flush finish.
- **Automatic car return:** Lift will return to main floor when not in service.
- **Trap door:** Comply with the requirements of BS EN 81-1 and BS EN 81-2.
- **Lift shaft:** Each lift shaft shall be provided with permanent lighting and socket outlet. Refer to HPF drawings.
- **Ventilation:** Ventilation shall be provided at high and low level supplied via gaps between the walls, floor and ceiling panels. Natural ventilation to be provided above the lift car ceiling. Refer to (66) Series drawings and the Services Engineers documentation.
- **Fire rating:** 60 mins.

- **Execution:** 80-45-45/613 Lift ceiling installation; 80-45-45/611 Lift floor installation; 80-45-45/612 Lift wall installation; and 80-45-45/614 Landing door installation
- **System completion:** Provide Health & Safety files and Operating & Maintenance manuals.
- **System facility management:** Provide ongoing certification for elements of the installation.

## Execution

### 80-45-45/611 Lift floor installation

- **Tolerances:** The floor flatness not be in excess of 3.0mm either way in 1000mm and shall be non-cumulative.

### 80-45-45/612 Lift wall installation

- **Tolerance:** Panels flatness shall not exceed 1.0mm either way in any 1000mm and shall be non-cumulative).
- **Durability:** Panels shall be resistant to impact consistent with a public thoroughfare.
- **Corner interfaces:** All external and internal angles shall be 90°, unless otherwise indicated on (66) Series drawings..
- **Joints and shadow gaps:** • All joints shall not deviate by <3mm =  $\pm 0.5$ mm; joints >3mm =  $\pm 1$ mm.
  - Any shadow gaps between panels shall not deviate in excess of  $\pm 1$ mm. All shadow gaps shall be backed with stainless steel.

### 80-45-45/613 Lift ceiling installation

- **Tolerance:** Panels shall have a flatness criterion of 1:1000.
- **Fixings:** All fixing of the panels shall be concealed. Where panels are opening the hinges shall be concealed.

### 80-45-45/614 Landing door installation

- **Tolerance:** The panels shall have a flatness criterion of 1:1000 over any length (i.e. the permitted deviation from the true panel shall not exceed 1.0mm either way in any 1000mm and shall be non-cumulative).
- **Fixings:** All fixings to be concealed.

Ω End of system

## 80-45-45/151 LFT-104 Lift car fit-out architectural requirements - type E

### System outline

#### 80-45-45/151 LFT-104 Lift car fit-out architectural requirements type E

- **Description:** Lift B1 - Core B Goods Lift interior finishes. Standard lift finishes, to be replaced by Hotel Fit-Out contractor during Fit-Out Stage.
- **System performance:** Refer to HPF Vertical Transportation Report.
  - Compliance with EN 81-1.
  - All lifts shall be suitable for wheelchair disabled access in accordance with Disability Discrimination Act (DDA) regulations, British Standards and the Building Regulations and shall be suitable for operation by the disabled, blind and semi-ambulant.
  - Drilling and fixing of entrances and guide rail brackets.
  - Removal of rubbish to a central skip, provided by others.
  - Task Lighting / Permanent Shaft lighting.
  - All surfaces shall meet a Class 0 surface spread of flame. Firefighting lifts shall satisfy the requirements of British Standards and Codes for firefighting lifts.
- **Performance of material finishes:**
  - **Specific live loads:** Horizontal line load applied to the walls in accordance with BS 6180 and BS 6399: Part 1. Dynamic loads created by lift occupants jumping up and down in the lift car.
  - **Thermal movement:** Provide components to withstand expansion and contraction of materials caused by ambient air temperature range of 5°C to 28°C and increases due to solar radiation for the surface differential temperature range of 5°C and +80°C without causing failure of joint, damaging loads on fasteners, reduction of performance or other detrimental effects.
  - **Slip resistance of floor finishes:** Slip resistance of floor finishes: When tested using the TRL Pendulum Tester, flooring, inclusive of surface treatment, shall achieve test value of >36 PTV and surface roughness not less than 20 Rz.
- **System manufacturer:** Submit proposals.
- **Product reference:** Submit proposals.
- **Equipment:** As required to achieve compliant installation and operation. Refer to HPF Vertical Transportation Report.
- **Hoistway dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Lift car dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Car doors:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Speed:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Travel and stops:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Operational arrangement:** Simplex operation.
- **Lighting:**
  - **Generally:** Energy efficient lighting. Refer to Services Engineers documentation.
  - **Type:** LED lights fixed to the ceiling. Refer to (66) Series drawings.
- **Wall finish:** Stainless steel, grade 1.4401 brake pressed fabricated panels with brushed 240 grit non-directional finish. Backing to be WBP grade plywood, or similar. Panels to have concealed support and concealed fixing. Provide apertures in the wall panels for fixing the handrail/

protection rail to lift car support structure, unless otherwise indicated. Refer to (66) Series drawings.

- **Goods lift bumper rail:** Goods lift bumper rails as per manufacturer's basic range.
- **Ceiling:** Panels to be brake pressed fabricated stainless steel with return edge to wall finish with brushed 240 grit non-directional finish. Joints between panels shall be tight butt type. Central ceiling panel shall have apertures to accommodate fully recessed low voltage downlighters. Central ceiling panel hinged to provide access for maintenance of light fittings. No visible fixings.
- **Floor finish:** Mild steel plate construction, thickness to suit performance criteria. Rubber floor finish on moisture resistant MDF subfloor (35mm nominal).
- **Car reveal panels:** Stainless steel grade 1.4401 with brushed non-directional finish.
- **Lift car door panels/ architraves:** Stainless steel grade 1.4401 with brushed non-directional finish.
- **Threshold:** Ribbed stainless steel grade 1.4401.
- **Car operating panels:** Lift car operating panel to be brushed stainless steel, and suitably backed. The operating buttons shall be located by a 2.5mm thick stainless steel surround ring. All fixings shall be concealed. The buttons shall comprise a full set of vandal-resisting illuminating pushbuttons of high quality stainless steel finish. The indication numbers and letters shall be raised tactile digits on buttons. Panels and buttons to finish flush with all adjacent surfaces.
- **Lift car controls:** The lift car controls shall be located as indicated on the (66) Series drawings and provide access by disabled persons to call point in fascia panel required. For technical requirements, see the Services Engineer's documentation. The naming of floor levels shall be determined by the Employer's Agent. Lift car intercom speaker/ receiver shall be set in the control panel. Vocal announcements shall be in accordance with the Lift Engineer's documentation or the Service Engineer's documentation, to the acceptance of the Employer's Agent.
- **Other controls:**
  - **Provide:**
    - Alarm horn button.
    - Door open button.
    - Door close button.
    - Key switch operated car override control engraved 'car preference'.
    - Key operated fan switch.
    - Communications link.
    - Provision for future fitting of security card reader control functions.
- **Landing doors:** Landing door panels and frames shall comprise 60min fire-rated stainless steel supported from above within a concealed fixed head track fixed to substrate framing. Panels to have a satin brushed 240 grit non-directional finish. Refer to (66) Series drawings.
- **Door operation:** Automatic power operated landing doors to be coupled to the lift car doors to provide simultaneous opening and closing.
- **Hall buttons:** One set of hall buttons will be provided for the call operation of the car group. Standard stainless steel panel fixed to wall, with standard call buttons and fixings. Refer to (66) Series drawings.
- **Landing indicators:** Landing indicators, showing direction of travel and floor designation, set within lift lobby wall panel (same panel as hall buttons), flush finish.
- **Automatic car return:** Lift will return to main floor when not in service.
- **Trap door:** Comply with the requirements of BS EN 81-1 and BS EN 81-2.
- **Lift shaft:** Each lift shaft shall be provided with permanent lighting and socket outlet. Refer to HPF drawings.
- **Ventilation:** Ventilation shall be provided at high and low level supplied via gaps between the walls, floor and ceiling panels. Natural ventilation to be provided above the lift car ceiling. Refer to (66) Series drawings and the Services Engineers documentation.
- **Fire rating:** 60 mins.

- **Execution:** 80-45-45/613 Lift ceiling installation; 80-45-45/611 Lift floor installation; 80-45-45/612 Lift wall installation; and 80-45-45/614 Landing door installation
- **System completion:** Provide Health & Safety files and Operating & Maintenance manuals.
- **System facility management:** Provide ongoing certification for elements of the installation.

## Execution

### 80-45-45/611 Lift floor installation

- **Tolerances:** The floor flatness not be in excess of 3.0mm either way in 1000mm and shall be non-cumulative.

### 80-45-45/612 Lift wall installation

- **Tolerance:** Panels flatness shall not exceed 1.0mm either way in any 1000mm and shall be non-cumulative).
- **Durability:** Panels shall be resistant to impact consistent with a public thoroughfare.
- **Corner interfaces:** All external and internal angles shall be 90°, unless otherwise indicated on (66) Series drawings..
- **Joints and shadow gaps:** • All joints shall not deviate by <3mm =  $\pm 0.5$ mm; joints >3mm =  $\pm 1$ mm.
  - Any shadow gaps between panels shall not deviate in excess of  $\pm 1$ mm. All shadow gaps shall be backed with stainless steel.

### 80-45-45/613 Lift ceiling installation

- **Tolerance:** Panels shall have a flatness criterion of 1:1000.
- **Fixings:** All fixing of the panels shall be concealed. Where panels are opening the hinges shall be concealed.

### 80-45-45/614 Landing door installation

- **Tolerance:** The panels shall have a flatness criterion of 1:1000 over any length (i.e. the permitted deviation from the true panel shall not exceed 1.0mm either way in any 1000mm and shall be non-cumulative).
- **Fixings:** All fixings to be concealed.

Ω End of system



## 80-45-45/151 LFT-105 Lift car fit-out architectural requirements - type F

### System outline

#### 80-45-45/151 LFT-105 Lift car fit-out architectural requirements type F

- **Description:** Lift A1 - Glazed passenger lift, serving the Annexe building.
- **System performance:** Refer to HPF Vertical Transportation Report.
  - Compliance with EN 81-1.
  - All lifts shall be suitable for wheelchair disabled access in accordance with Disability Discrimination Act (DDA) regulations, British Standards and the Building Regulations and shall be suitable for operation by the disabled, blind and semi-ambulant.
  - Drilling and fixing of entrances and guide rail brackets.
  - Removal of rubbish to a central skip, provided by others.
  - Task Lighting / Permanent Shaft lighting.
  - All surfaces shall meet a Class 0 surface spread of flame. Firefighting lifts shall satisfy the requirements of British Standards and Codes for firefighting lifts.
- **Performance of material finishes:**
  - **Glazing:** Glazing to lift shafts and lift cars shall be constructed from laminated glass to meet the requirements of BS EN 81: Parts 1 and 2.
  - **Specific live loads:** Horizontal line load applied to the walls in accordance with BS 6180 and BS 6399: Part 1. Dynamic loads created by lift occupants jumping up and down in the lift car.
  - **Thermal movement:** Provide components to withstand expansion and contraction of materials caused by ambient air temperature range of 5°C to 28°C and increases due to solar radiation for the surface differential temperature range of 5°C and +80°C without causing failure of joint, damaging loads on fasteners, reduction of performance or other detrimental effects.
  - **Slip resistance of floor finishes:** Slip resistance of floor finishes: When tested using the TRL Pendulum Tester, flooring, inclusive of surface treatment, shall achieve test value of >36 PTV and surface roughness not less than 20 Rz.
- **System manufacturer:** Submit proposals.
- **Product reference:** Submit proposals.
- **Equipment:** As required to achieve compliant installation and operation. Refer to HPF Vertical Transportation Report.
- **Hoistway dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Lift car dimensions:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Car doors:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Speed:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Travel and stops:** Refer to (66) Series drawings and/or HPF Vertical Transportation Report.
- **Operational arrangement:** Simplex operation.
- **Lighting:**
  - **Generally:** Energy efficient lighting. Refer to Services Engineers documentation
  - **Type:** Diffused LED backlit field ceiling panel. Refer to (66) Series drawings.
- **Wall finish:** Large format glazed panel walls with bronze framing.

- **Handrail:** Anodised aluminium tubular rails with brushed bronze non-directional finish. Bronze bracketry to be stem type. Refer to (66) Series drawings. Include all bracketry as required. Rails shall be set out around the walls at a height as indicated on the (66) Series drawings. Tubular handrails shall receive a flat end cap of bronze anodised aluminium to match handrail finish. Rails to be concealed fixed through to the lift car support structure.
- **Ceiling:** Back-illuminated opalescent glass ceiling panels (lit at sides/edges). Joints between panels shall be tight butt type. Panels to be removable to provide access for maintenance. Bronze finished trims to ceilings. Ceiling shall be evenly back-lit. No visible fixings.
- **Floor finish:** Epoxy resinous terrazzo to match lift lobby flooring on a cement board or marine grade plywood with angled divider strips at perimeter. Provide minimum 35mm tolerance. Topping mix shall be a mix of epoxy resin and a hardener, mixed in accordance with the terrazzo manufacturer's recommendation. The floor to withstand the loading forces from self, dead and live loads.
- **Car reveal panels:** Large format anodised aluminium panels with brushed bronze finish.
- **Lift car door panels/ architraves:** Glass panels with bronze anodised aluminium framing to match landing doors.
- **Skirting:** Brushed bronze anodised aluminium with a moisture resistant MDF backing. Concealed fixings.
- **Threshold:** Bronze finish threshold, to match lift car doors and reveals.
- **Car operating panels:** Lift car operating panel to be brushed bronze, and suitably backed. The operating buttons shall be located by a 2.5mm thick stainless steel surround ring. All fixings shall be concealed. The buttons shall comprise a full set of vandal-resisting illuminating pushbuttons of high quality bronze finish. The indication numbers and letters shall be raised tactile digits on buttons. Panels and buttons to finish flush with all adjacent surfaces.
- **Lift car controls:** The lift car controls shall be located as indicated on the (66) Series drawings and provide access by disabled persons to call point in fascia panel required. For technical requirements, see the Services Engineer's documentation. The naming of floor levels shall be determined by the Employer's Agent. Lift car intercom speaker/ receiver shall be set in the control panel. Vocal announcements shall be in accordance with the Lift Engineer's documentation or the Service Engineer's documentation, to the acceptance of the Employer's Agent.
- **Other controls:**
  - **Provide:**
    - Alarm horn button.
    - Door open button.
    - Door close button.
    - Key switch operated car override control engraved 'car preference'.
    - Key operated fan switch.
    - Communications link.
    - Provision for future fitting of security card reader control functions.
- **Landing doors:** Landing door panels and frames shall comprise 60min fire-rated glass panels with a bronze metal frame supported from above within a concealed fixed head track fixed to substrate framing. Refer to (66) Series drawings.
- **Door operation:** Automatic power operated landing doors to be coupled to the lift car doors to provide simultaneous opening and closing.
- **Hall buttons:** One sets of hall buttons. Bespoke bronze anodised aluminium panel, suitably backed. The call buttons shall be located by a 2.5mm thick stainless steel surround ring. All fixings shall be concealed. The buttons shall comprise a full set of vandal-resisting illuminating push buttons of high quality bronze finish. The indication numbers and letters shall be raised tactile digits on buttons. Refer to (66) Series drawings.
- **Landing indicators:** Landing indicators, showing direction of travel and floor designation, set within lift lobby wall panel, flush finish. Located in same panel as hall buttons. Refer to (66) Series drawings.
- **Automatic car return:** Lift will return to main floor when not in service.

- **Trap door:** Comply with the requirements of BS EN 81-1 and BS EN 81-2.
- **Lift shaft:** Each lift shaft shall be provided with permanent lighting and socket outlet. Refer to HPF drawings.
- **Ventilation:** Ventilation shall be provided at high and low level supplied via gaps between the walls, floor and ceiling panels. Natural ventilation to be provided above the lift car ceiling. Refer to (66) Series drawings and the Services Engineers documentation.
- **Fire rating:** 60 mins.
- **Execution:** 80-45-45/613 Lift ceiling installation; 80-45-45/611 Lift floor installation; 80-45-45/612 Lift wall installation; 80-45-45/615 Lift handrail installation and 80-45-45/614 Landing door installation
- **System completion:** Provide Health & Safety files and Operating & Maintenance manuals.
- **System facility management:** Provide ongoing certification for elements of the installation.

## Execution

### 80-45-45/611 Lift floor installation

- **Tolerances:** The floor flatness not be in excess of 3.0mm either way in 1000mm and shall be non-cumulative.

### 80-45-45/612 Lift wall installation

- **Tolerance:** Panels flatness shall not exceed 1.0mm either way in any 1000mm and shall be non-cumulative).
- **Durability:** Panels shall be resistant to impact consistent with a public thoroughfare.
- **Corner interfaces:** All external and internal angles shall be 90°, unless otherwise indicated on (66) Series drawings..
- **Joints and shadow gaps:**
  - All joints shall not deviate by  $<3\text{mm} = \pm 0.5\text{mm}$ ; joints  $>3\text{mm} = \pm 1\text{mm}$ .
  - Any shadow gaps between panels shall not deviate in excess of  $\pm 1\text{mm}$ . All shadow gaps shall be backed with stainless steel.

### 80-45-45/613 Lift ceiling installation

- **Tolerance:** Panels shall have a flatness criterion of 1:1000.
- **Fixings:** All fixing of the panels shall be concealed. Where panels are opening the hinges shall be concealed.

### 80-45-45/614 Landing door installation

- **Tolerance:** The panels shall have a flatness criterion of 1:1000 over any length (i.e. the permitted deviation from the true panel shall not exceed 1.0mm either way in any 1000mm and shall be non-cumulative).
- **Fixings:** All fixings to be concealed.

### 80-45-45/615 Lift handrail installation

- **Generally:** Handrail to be fabricated so that it may be assembled inside the lift car on Site, and can be removed for maintenance.
- **Tolerances:** Handrails to run horizontally.
- **Fixing:** All fixings to be concealed.

Ω End of system