

1<sup>st</sup> February 2016  
Internal ref no. 15029-01-sch06

As prepared for TFL  
Doc no. **LSWH-EN31-EAR-SPE-BCK-00256-C01**

bpr architects

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**West Hampstead Station**  
Architectural Performance Specification



Internal ref no. 15029-01-s06

Rev:	Date:	Notes:	Page:	By:
B01	08/03/16	First Draft Issue	ALL	SA
B02	23/12/16	Document numbering updated and general update to all sections in line with recent changes and input from external consultants	ALL	ECD
C01	20/04/17	Issued for construction	ALL	SA

Internal ref no. 15029-01-s06

**Note: Specification clauses generally**

Please note that all specified products, unless specifically stated, are to be “or equal approved”.

**Note: Planning**

All finishes are subject to discharge of planning conditions.

## Table of Contents

10-45-20/120 Demolition system.....	3
15-75-65/120 Structural insulated panels.....	5
20-10-10/110 Board suspended ceiling system.....	8
20-10-10/170 External soffit lining system.....	13
20-10-20/190 Unit (modular) suspended ceiling system.....	15
20-15-90/120 Flag and slab bound paving system.....	19
20-50-30/170 Single layer warm roof covering system.....	26
20-55-05/195 Wood-based rigid sheet floating floor system.....	30
20-55-15/190 Unbonded cementitious levelling screed system.....	33
20-55-75/165 Resilient sheet flooring system.....	36
20-55-75/170 Resilient tile flooring system.....	39
25-05-75/110 Point-fixed structural glass wall system.....	42
25-05-75/120 Stacked structural glass wall system.....	45
25-10-55/160 Masonry wall system.....	49
25-15-25/135 Gypsum board partition system.....	58
25-20-30/111 Composite board or palisade fencing system.....	63
25-20-30/115 Wood close boarded fencing system.....	64
25-20-85/110 Bollard system.....	67
25-25-10/110 Balustrade and guarding system.....	70
25-50-20/120 Doorset system.....	72
25-50-20/135 Hatch system.....	77
25-50-20/145 Internal security system.....	79
25-50-95/125 Window system.....	81
25-60-35/109 Hinged gate system.....	87
25-80-15/175 Modular wall system.....	90
25-80-35/130 Glass fibre reinforced concrete (GRC) cladding system.....	93
25-80-70/120 Rainscreen cladding system.....	95
25-85-97/140 Internal wall tiling system.....	100
25-90-20/120 Door hardware system.....	104
30-05-30/160 Permanently-fixed external stair system.....	106
30-05-30/165 Permanently-fixed vertical ladder system.....	109
30-05-30/195 Working platform and walkway system.....	112
30-85-30/140 Individual services penetrations fire stopping system.....	114
35-05-35/135 General fittings, furnishings and equipment system.....	117
35-35-30/130 External furniture system.....	121
35-70-70/118 Sink assembly.....	123
35-70-70/124 Wash basin assembly.....	126
35-70-70/134 WC assembly.....	128
35-70-70/140 Accessible WC package assembly.....	130
35-70-70/190 Sanitary accessories.....	132
35-80-25/110 Fixed external signage system.....	135
35-80-25/120 Free standing external signage system.....	136
35-85-40/145 Intumescent coating system.....	137
35-85-60/105 Anti-graffiti coating system.....	140
35-85-60/195 Water-borne paint system.....	142
40-40-25/165 External planter system.....	145

50-10-00/110 External gravity rainwater drainage system.....	147
50-10-15/110 Below ground drainage.....	152
70-80-35/110 General lighting system.....	155
80-45-45/120 Hydraulic lift system.....	156
80-50-25/110 Fall arrest system - guided anchor line.....	157

## **10-45-20/120 Demolition system**

### **System outline**

#### 10-45-20/120 Demolition system

- System performance: [10-45-20/210 Demolition and deconstruction objectives](#) and [10-45-20/220 Site clearance objectives](#).
- Execution: [10-45-20/615 Demolition generally](#);  
[10-45-20/625 Statutory and private services affected by demolition](#);  
[10-45-20/635 Disconnection of services](#);  
[10-45-20/660 Health hazards during demolition](#);  
[10-45-20/670 Dust control](#);  
[10-45-20/680 Unforeseen hazards](#);  
[10-45-20/695 Structures and services to be retained](#);  
and [10-45-20/700 Partly demolished structures](#).
- System completion: [10-45-20/810 Condition of services on completion](#) and [10-45-20/820 Site condition following completion](#).

### **System performance**

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

- Scope of the demolition works: [In accordance with the BPR AND SE strip out drawings](#).
- Structures to be retained: [In accordance with the BPR AND SE strip out drawings](#).
- Designated items to be retained: [In accordance with the BPR AND SE strip out drawings](#).

#### 10-45-20/220 Site clearance objectives

- Required outcome: [Site to be clear of materials and vegetation that may potentially impact on future development of the site, or potentially harm occupants and All buried services to be either removed and disposed of or diverted in accordance with the requirements of the respective statutory authorities](#).

### **Execution**

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

- Standard: [To BS 6187](#).

#### 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](#).

#### 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 agreed](#).
- Drains: [Locate, disconnect and seal disused drain connections. Agree where drains are to be sealed](#).
- Person or organization responsible for arranging disconnection of supplies with appropriate authorities: [Contractor](#).

#### 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](#).

10-45-20/670 Dust control

- Requirement: [Minimize airborne dust. Keep public roadways and footpaths clear of mud and debris.](#)

10-45-20/680 Unforeseen hazards

- Unrecorded voids, tanks, chemicals, etc. discovered during demolition: [Give notice immediately.](#)
- Removal of unforeseen hazards: [Submit proposals.](#)

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.](#)

### **System completion**

10-45-20/810 Condition of services on completion

- Condition of services: [Clean and in working order.](#)

10-45-20/820 Site condition following completion

- Condition of site: [Clean, tidy and secure.](#)
- Security: [Submit proposals.](#)

Ω End of system

## **15-75-65/120 Structural insulated panels**

### **System outline**

#### 15-75-65/120 Structural insulated panels

- System performance: [15-75-65/206 Design supervision and checking](#); [15-75-65/220 Fixings for wall cladding systems](#); and [15-75-65/270 Compliance with performance requirements \(above\)](#).
- Structure type: [45-05-60/385 Structural insulated panels \(SIPs\) type A](#); [25-80-15/510 Aluminium framing channels](#); [45-05-60/301 General Note](#);
- Vapour control layer: [As per clause 45-65-50/325](#)
- Execution: [15-75-65/605 Transportation](#); [15-75-65/608 Pre-installation survey](#); [15-75-65/630 Storage](#); [15-75-65/650 Erection](#); and [15-75-65/660 Assembly](#).
- System completion: [15-75-65/820 Documentation](#) and [15-75-65/890 Verification of performance](#).

### **System performance**

#### 15-75-65/206 Design supervision and checking

- Required level of design supervision: [To BS EN 1990, DSL 2](#).
- Design supervision personnel: [Contractor's choice](#).

#### 15-75-65/220 Fixings for wall cladding systems

- Requirement:
  - Loading: [Fixings must be capable of sustaining and transmitting to the supporting structure all dead, imposed and wind loads from the wall cladding system. Where the cladding supports other fixtures, fixings must be capable of transmitting any loads generated by those fixtures.](#)
  - Movement: [Fixings must accommodate anticipated differential movement.](#)
  - Durability: [Fixings must be durable and have a design working life greater than that of the cladding.](#)

### **Products**

#### 45-05-60/301 General Note

- Other clauses: [Please also refer to the following clauses which relate to this system listed below](#);

[25-80-15/510 Aluminium channel secondary steelwork](#)  
[25-80-70/120 Rainscreen and brick slip cladding systems](#)  
[25-50-20/120 Doors](#)  
[25-50-95/125 Windows](#)

#### 45-05-60/385 Structural insulated panels (SIPs) type A

- Location: [Refer to wall type reference drawings for SIPs panel locations](#)
- Manufacturer: [Kingspan Insulation Ltd](#)  
[Pembroke](#)  
[Leominster](#)  
[Herefordshire](#)  
[HR6 9LA](#)  
Web: <http://www.kingspantek.co.uk/Products/TEK-Building-System/TEK-Building-System.aspx>



or similar approved.

- Product reference: [The Kingspan TEK® Building System](#)
- Green guide rating: [The Kingspan TEK® Building System achieves a BRE Green Guide rating of A or A+ depending on the full wall construction.](#)
- Wall location: [Refer to wall type reference drawings for SIPs panel locations](#)
- Panel size (as standard): [Length: 7.5 m \(maximum\).  
Width: 0.2 m \(minimum\), 1.22 m \(maximum\).](#)

[NOTE: Panels can be built-up using these standard sizes to make larger panels. Jointing in accordance with manufacturers details. Refer to wall type reference drawings for SIPs panel locations.](#)

- Panel thickness (overall): [142mm and 172mm in certain areas. Refer to wall type reference drawings for SIPs panel locations.](#)
- Facing materials:
  - Outer sheet material: [Oriented strand board \(OSB3\) bonded to the insulation core during manufacture.](#)
  - Outer sheet thickness: [15 mm.](#)
  - Insulation:
    - [Material: High performance CFC/HCFC free rigid thermoset urethane insulant of typical density 33 kg/m<sup>3</sup>, manufactured with a blowing agent that has zero Ozone Depletion Potential \(ODP\).](#)
    - [Thickness: Dependant on overall panel thickness. Refer to wall type reference drawings/ wall type sections drawings for SIPs panel locations.](#)
    - [Which will achieve U-values of 0.20 W/m<sup>2</sup>.K or better with no additional insulation.](#)
    - [Thermal conductivity: Insulation component: 0.023 W/mK.](#)
    - [OSB facings: 0.13 W/mK.](#)
    - [Density: 33 kg/m<sup>3</sup>.](#)
  - Inner sheet material: [Oriented strand board \(OSB3\) autohesively bonded to the insulation core during manufacture.](#)
  - Additional components: [Breather membrane and Timber sole plate. And all other items as required to fully complete the system. To be advised by supplier.](#)

### **Custom made products**

#### **25-80-15/510 Aluminium framing channels**

- Supplied by: [Eltherington Group Ltd](#)  
[Dansom Lane South](#)  
[Hull](#)  
[HU8 7LA](#)  
[East Yorkshire](#)  
[United Kingdom](#)  
[Tel: +44 \(0\)1482 320336.](#)  
[Web: <http://www.eltherington.co.uk/stockholding.html>](#)

or similar approved.

- Standard: [To relevant parts of BS EN 515, BS EN 573, BS EN 755 and BS EN 12020.](#)
- Area / location: [Concourse and ticket area interior, concourse exterior, staff accommodation exterior.](#)  
[High and Low level aluminum framing channels. Sizes vary depending on location.](#)
- Material: [Aluminium.](#)
- Product reference: [Aluminium stockholding \(various\).](#)
- Finish:
  - Coating: [Powder coating to BS 6496.](#)
  - Colour: [As Document LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\].](#)
- Size: [- 150x75x8mm unequal angles to wall skirtings.](#)  
[- 150x75x8mm horizontal channel between lower red brick panel and white glazed brick panel.](#)  
[- 75x75x8mm horizontal channel between white glazed brick panel and upper red brick panel.](#)

- 260x75x8mm PFC connection between wall and column.  
Refer to BPR external envelope package of drawings for further details / sizes.

## **Execution**

### 15-75-65/605 Transportation

- Handling, lifting and transportation: Do not damage or impair the intended performance of the units.

### 15-75-65/608 Pre-installation survey

- Survey:
  - Purpose: Carry out to verify that required accuracy can be achieved.
  - Timing: Before installation.

### 15-75-65/630 Storage

- Support: Do not induce excessive stress into the components.
- Protection: Prevent the ingress of water.

### 15-75-65/650 Erection

- Lifting: Use manufacturer's designated lifting points.
- Positioning: Do not drag units.
- Temporary support: Provide as required.
- Cutting and drilling: Do not cut or drill panels, except as recommended by or agreed with manufacturer.

### 15-75-65/660 Assembly

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

## **System completion**

### 15-75-65/820 Documentation

- Maintenance and replacement instructions:
  - Information: Include building description, date of completion, performance characteristics, repair methods, cleaning and maintenance requirements.

### 15-75-65/890 Verification of performance

- Requirement: Check completed installation and provide assurance of compliance with specified performance.

Ω End of system

## **20-10-10/110 Board suspended ceiling system**

### **System outline**

#### 20-10-10/110 Board suspended ceiling system

- System performance: [20-10-10/207 Board ceiling systems design requirements](#); [20-10-10/215 Durability type A](#); [20-10-10/220 Fire performance to BS 476](#); and [20-10-10/290 Compliance with performance requirements](#).
- Barriers in ceiling void:
  - Fire barriers: [45-45-70/450 Flexible cavity barriers](#).
- Linings:
  - Face layer: [45-45-50/301 MF Plasterboard ceiling](#)
- System accessories: [45-45-00/310 Ceiling access panels type A](#)
- Execution: [20-10-10/610 Installing suspension grids for boarded ceilings](#); [20-10-10/625 Installing cavity fire barriers above suspended ceilings](#); [20-10-10/640 Installing boarded ceilings and soffits](#); [20-10-10/660 Installing additional supports](#); [20-10-10/645 Installing plasterboard to metal framing](#); [20-10-10/665 Sealing gaps and air paths](#); and [20-10-10/675 Installing integrated services in suspended ceilings](#).
- System completion: [20-10-10/830 Operation and maintenance manual](#) and [20-10-10/895 Verification of performance](#).

### **System performance**

#### 20-10-10/207 Board ceiling systems design requirements

- Standard: [To BS 8000-0, BS 8212 and BS EN 13964](#).
- Integrated services fittings: [Supported independently of ceiling grid](#).

#### 20-10-10/215 Durability type A

- Standard: [To BS EN 13964](#).

#### 20-10-10/220 Fire performance to BS 476

- Fire resistance:
  - Fire resistance of ceiling system: [In accordance with Aecom's Grip 4 fire safety strategy document. In particular sections 5 - 7 of the report.](#)
  - Fire protection to structural beams: [In accordance with Aecom's Grip 4 fire safety strategy document.](#)
- Surface spread of flame: [Dependant of location of material within the building. Refer to Table 10 of Approved Document B and Aecom's Grip 4 fire safety strategy document. In particular section 7 of the report.](#)

#### 20-10-10/290 Compliance with performance requirements

- Purpose: [Proof of compliance with specified performance](#)
- General requirements: [Include details of performance related to the particular elements of construction.](#)
- Ceilings with integrated luminaires: [Test or assess with luminaires in place.](#)

## **Products**

### **45-45-00/310 Ceiling access panels type A**

- Manufacturer: [British Gypsum](#)  
[Head Office](#)  
[Gotham Road](#)  
[East Leake](#)  
[Loughborough](#)  
[Leicestershire](#)  
[LE12 6HX](#)  
[T: 0115 945 1000](#)  
  
[or similar approved.](#)
- Product reference: [Gyproc Profilex Standard Panel](#)
- Location / area: [Access points to be determined by M&E consultants. Contractor to allow for access panels to all MF plasterboard ceiling areas.](#)
- Size/ Frame: [550 x 550 mm, beaded frame. Exact size may vary depending on M&E requirements.](#)
- Panel: [Zinc coated mild steel, with powder coated white finish.](#)
- Fire rating: [To match adjacent construction.](#)
- Position: [Ceiling mounted.](#)
- Operation: [Swing down.](#)
- Locks: [Contractor to allow for 'tamper proof' fixings to all access panels.](#)

### **45-45-50/301 MF Plasterboard ceiling**

- Ceiling system manufacturer: [British Gypsum](#)  
[Head Office](#)  
[Gotham Road](#)  
[East Leake](#)  
[Loughborough](#)  
[Leicestershire](#)  
[LE12 6HX](#)  
[T: 0115 945 1000](#)  
  
[or similar approved.](#)
- Location / area: [Area of ceiling secured by pandclips denoted by different colour of plan As Drawing LSWH-EN31-EAR-DPL-BCK-00151 \[Reflected Ceiling Plan\].](#)
- Product reference: [CasoLine MF suspended ceiling system.](#)
- Suspension grid: [As required to fix plasterboard suspended ceiling.](#)  
[MF5 support centres: 450mm](#)  
[MF7 support centres: 1200mm](#)
- Linings: [1x12.5mm Gyproc WallBoard. \(By default will achieve 30min FR\).](#)
- Thickness (nominal): [12.5mm.](#)
- Edge profile: [Square.](#)
- Finish: [Thistle Multi Plaster Finish.](#)
- Access: [As Drawing LSWH-EN31-EAR-DPL-BCK-00151 \[Reflected Ceiling Plan\] and M&E drawings.](#)
- Accessories: [As per manufacturers details.](#)  
[Pandclips required to secure public areas of ceiling.](#)
- Integrated services fittings: [Metal beads / stops recommended by board manufacturer.](#)

### **45-45-70/450 Flexible cavity barriers**

- Manufacturer: [ROCKWOOL Limited.](#)  
[Pencoed Bridgend CF35 6NY United Kingdom](#)  
[Tel: 01656 862 621](#)

or similar approved.

- Product reference: Fire barrier slab. To be used where any service void exceeds 20m in any direction.
- Fire resistance rating: In accordance with Aecom's Grip 4 fire safety strategy document. In particular sections 5 - 7 of the report.
- Thickness (minimum): 50mm. 1/2 hour cavity barrier.
- Installation requirements: Continuous, with minimum joints.
- Fasteners: As recommended by the manufacturer.
- Facing: As recommended by the manufacturer.
- Other requirements: Accessories as required in accordance with manufacturers details. To be fixed between service void and underside of roof deck. Include for fire dampers for HVAC as per M&E details and drawings.

## **Execution**

### 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: As Drawing LSWH-EN31-EAR-DPL-BCK-00151 [Reflected Ceiling Plan].
  - Ceiling voids: As Drawing LSWH-EN31-EAR-DPL-BCK-00151 [Reflected Ceiling Plan].
  - Hanger centres (nominal): 1200 mm.
  - 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.
  - 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.

### 20-10-10/625 Installing cavity fire barriers above suspended ceilings

- Position of barriers: 20 m (maximum) apart in any direction.
- Fixing at perimeters and joints: Secure, stable and continuous with no gaps to provide a complete barrier to smoke and flame.
- Fixing: Secure barrier at head and base using proprietary angle support system. Fix angle support system to timber framework with woodscrews at 450 mm centres. Fix barriers securely to channels or angles at abutments to building structure. Provide permanent stability and continuity with no gaps to form a complete barrier to smoke and flame.
- Joints: Form to preserve integrity of barrier in fire.
- Service penetrations: Cut barriers neatly to accommodate services. Fit fire resistant sleeves around flexible materials. Fill gaps around services to fire barrier manufacturer's recommendations to maintain barrier integrity. Independently support services passing through the barrier on both sides of the barrier so that no load is placed on the barrier in the event of a fire.

- Ceiling systems intended for fire protection: Do not impair fire resisting performance of ceiling system.
- Ceiling systems not intended for fire protection: Do not mechanically interlink barriers with ceiling system.

#### 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.
- Two layer boarding: Stagger joints between layers.
- 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

- 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.
- Distance of screws from edges of boards (minimum): 10 mm.
- Screw heads: Set in a depression. Do not break paper or gypsum core.

#### 20-10-10/660 Installing additional supports

- Additional framing: At board edges and lining perimeters, as recommended by board manufacturer to suit type and performance of lining. For all fixtures, fittings and service outlets, mark framing positions clearly and accurately on linings. Accurately position all additional framing and fix securely.

#### 20-10-10/665 Sealing gaps and air paths

- 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.

#### 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.

### **System completion**

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

- Contents:

- Cleaning: [Cleaning methods and materials.](#)
- 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.](#)

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

- Requirements: [Check completed system and provide assurance of compliance with specified performance.](#)

Ω End of system

## **20-10-10/170 External soffit lining system**

### **System outline**

#### 20-10-10/170 External soffit lining system

- System performance: [20-10-10/215 Durability type B](#); [20-10-10/220 Fire performance to BS 476](#); and [20-10-10/290 Compliance with performance requirements](#).
- Linings:
  - Face layer: [45-45-50/360 External soffit lining board](#)
- Execution: [20-10-10/640 Installing boarded ceilings and soffits](#).
- System completion: [20-10-10/895 Verification of performance](#).

### **System performance**

#### 20-10-10/215 Durability type B

- Standard: [To BS EN 13964](#).

#### 20-10-10/220 Fire performance to BS 476

- Fire resistance:
  - Fire resistance of ceiling system: [In accordance with Aecom's Grip 4 fire safety strategy document. In particular sections 5 - 7 of the report.](#)
  - Fire protection to structural beams: [In accordance with Aecom's Grip 4 fire safety strategy document.](#)
- Surface spread of flame: [Dependant of location of material within the building. Refer to Table 10 of Approved Document B and Aecom's Grip 4 fire safety strategy document. In particular section 7 of the report.](#)

#### 20-10-10/290 Compliance with performance requirements

- Purpose: [Proof of compliance with specified performance](#)
- General requirements: [Include details of performance related to the particular elements of construction.](#)
- Ceilings with integrated luminaires: [Test or assess with luminaires in place.](#)

### **Products**

#### 45-45-50/360 External soffit lining board

- Manufacturer: [Knauf Drywall](#)  
[Kemsley Fields Business Park](#)  
[Sittingbourne](#)  
[Kent](#)  
[ME9 8SR](#)  
[Technical Service Helpline: 01795 416 259](#)  
[Technical Service e-mail: \[technical@knauf.co.uk\]\(mailto:technical@knauf.co.uk\)](#)  
[Web: <http://www.knauf.co.uk/product-range-overview/aquapanel>](#)  
  
[or similar approved.](#)
- Product reference: [AQUAPANEL](#)  
[Exterior Cement Boards which provide a solid, dry base that can withstand the extreme weathering effects of wind, rain and snow. Substrate can be applied directly under render finishes.](#)
- Area / location: [To external soffits: Under staff accommodation, South ticket area.](#)
- Board size: [2400 x 1200mm](#)  
[Note: Allow for removable hatches at regular intervals to be installed to provide access to structure / M&E equipment behind.](#)



- Thickness: 12.5 mm.
- Board finish (front face): Smooth, unsanded.
- Board finish (back face): Sanded.
- Render finish (to exposed side): Colour: White  
As Document LSWH-EN31-EAR-SCH-BCK-00257 [Finishes Schedule].  
NOTE: Contractor to consult with the render manufacturers for their recommendations for use on Cement boards.
- Standard: To BS EN 12467.
- Fire rating: Up to 30 minutes.

### **Execution**

#### 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.
- Two layer boarding: Stagger joints between layers.
- 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.

### **System completion**

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

- Requirements: Check completed system and provide assurance of compliance with specified performance.

Ω End of system

## **20-10-20/190 Unit (modular) suspended ceiling system**

### **System outline**

#### 20-10-20/190 Unit (modular) suspended ceiling system

- System performance: [20-10-10/220 Fire performance to BS 476](#)  
[20-10-10/215 Durability type A](#)  
[20-10-10/290 Compliance with performance requirements](#)
- Ceiling units: [45-80-40/330 Mineral fibre infill units](#) and [45-80-40/320 Metal infill ceiling units](#).
- Barriers in ceiling void:
  - Fire barriers: [45-45-70/450 Flexible cavity barriers](#).
- Execution: [20-10-20/615 Installing demountable suspended ceilings generally](#);  
[20-10-20/620 Setting out demountable suspended ceilings](#);  
[20-10-20/685 Installing cavity fire barriers above demountable suspended ceilings](#);  
and [20-10-20/700 Installing upstands and bulkheads to demountable suspended ceilings](#).
- System completion: [20-10-20/840 Spares for demountable suspended ceilings](#).

### **System performance**

#### 20-10-10/215 Durability type A

- Standard: [To BS EN 13964](#).

#### 20-10-10/220 Fire performance to BS 476

- Fire resistance:
  - Fire resistance of ceiling system: [In accordance with Aecom's Grip 4 fire safety strategy document. In particular sections 5 - 7 of the report.](#)
  - Fire protection to structural beams: [In accordance with Aecom's Grip 4 fire safety strategy document.](#)
- Surface spread of flame: [Dependant of location of material within the building. Refer to Table 10 of Approved Document B and Aecom's Grip 4 fire safety strategy document. In particular section 7 of the report.](#)

#### 20-10-10/290 Compliance with performance requirements

- Purpose: [Proof of compliance with specified performance](#)
- General requirements: [Include details of performance related to the particular elements of construction.](#)
- Ceilings with integrated luminaires: [Test or assess with luminaires in place.](#)

### **Products**

#### 45-45-70/450 Flexible cavity barriers

- Manufacturer: [ROCKWOOL Limited](#).  
[Pencoed Bridgend CF35 6NY United Kingdom](#)  
[Tel: 01656 862 621](#)  
  
[or similar approved.](#)
- Product reference: [Fire barrier slab. To be used where any service void exceeds 20m in any direction.](#)
- Fire resistance rating: [In accordance with Aecom's Grip 4 fire safety strategy document. In particular sections 5 - 7 of the report.](#)
- Thickness (minimum): [50mm. 1/2 hour cavity barrier.](#)
- Installation requirements: [Continuous, with minimum joints.](#)
- Fasteners: [As recommended by the manufacturer.](#)

- Facing: [As recommended by the manufacturer.](#)
- Other requirements: [Accessories as required in accordance with manufacturers details. To be fixed between service void and underside of roof deck. Include for fire dampers for HVAC as per M&E details and drawings.](#)

#### 45-80-40/320 Metal infill ceiling units

- Manufacturer: [Hunter Douglas Architectural Projects](#)  
[Web: www.hunterdouglas.co.uk](#)  
[Address: Keys Park Road](#)  
[Hednesford](#)  
[Cannock, Staffordshire WS12 2FR](#)  
[United Kingdom](#)  
[Phone: +44 1543275757](#)  
  
[or similar approved.](#)
- Product reference: [Linear 84R metal ceiling.](#)
- Area / location: [Concourse, footbridge and staircases.](#)  
[As Drawing LSWH-EN31-EAR-DPL-BCK-00151 \[Reflected Ceiling Plan\].](#)
- Unit type: [Clip-in. In accordance with manufacturers recommendations.](#)
- Material: [Aluminium.](#)
- Unit size: [Panel length: \(Standard 12 feet\) \(minimum 3' - maximum 16'\) lengths.](#)  
[Panel module width: 4".](#)
- Surface pattern: [Plain / unperforated.](#)  
[As Drawing LSWH-EN31-EAR-DPL-BCK-00151 \[Reflected Ceiling Plan\].](#)
- Factory finish:
  - Finish: [Powder coating to BS 6496.](#)
  - Extent: [All surfaces of unit.](#)
  - Colour: [Light Grey.](#)  
[As Document LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\].](#)
- Unit depth: [Manufacturer's standard.](#)
- Edge profile: [Square. Allow for end caps to metal panels to match colour.](#)
- Suspension system: [Carrier: Type "V-7", V shaped, .038 inch roll-formed aluminum section with hook shaped tabs spaced to receive ceiling panels at 4 inch on center and 11/16 inch apart. Support holes spaced 4 inch on center.](#)  
[Finish: Factory applied black enamel.](#)  
[Hanger Wire: 12 gage galvanized carbon steel hanger wire.](#)
- Other requirements: [Note: No services to run above ceiling](#)  
[As Drawing LSWH-EN31-EAR-DPL-BCK-00151 \[Reflected Ceiling Plan\].](#)
- Accessories: [Allow for all accessories as recommended by the manufacturer including;](#)
  - [Perimeter trims.](#)
  - [End caps.](#)[Additional items: Pressed aluminium sections to perimeter of ceiling and behind linear lighting to the footbridge.](#)  
[Manufacturer: Contractors choice](#)  
[Product Specification: Contractors choice](#)
- Execution: [45-80-40/610 Installing metal infill units.](#)

#### 45-80-40/330 Mineral fibre infill units

- Manufacturer: [Armstrong Ceilings Ltd](#)  
[Building Products Division](#)  
[Armstrong House, 38 Market Square](#)  
[Uxbridge UB8 1NG](#)  
[United Kingdom](#)  
[Phone: 0800 371849](#)  
[Web: http://www.armstrong.co.uk/commclgeu/en-gb/ceilings/ultima/mineral/\\_/N-1z13zutZ1z141fe](#)  
  
[or similar approved.](#)
- Product reference: [Ultima+ Mineral Tile - 7664M.](#)
- Area / location: [Staff accommodation excluding area behind staff desk.](#)  
[As Drawing LSWH-EN31-EAR-DPL-BCK-00151 \[Reflected Ceiling Plan\].](#)

- Soffit height above FFL: [As Drawing LSWH-EN31-EAR-DPL-BCK-00151 \[Reflected Ceiling Plan\]](#).
- Modular size: [600 x 600 mm](#).
- Thickness: [19mm](#).
- Edge profile: [Tegular edge detail](#).
- Unit type: [Thick board tile](#).
- Material: [Mineral](#).
- Colour / finish: [White](#).  
[As Document LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\]](#).
- Suspension system: [Exposed 24mm Grid System - Universal Main Runners 24](#).
- Accessories: [Ceiling perimeter trims with shadowline detail](#).  
[Reference: BP T1506H](#)  
[Material: Aluminium](#)  
[Colour: White](#)
- Execution: [45-80-40/605 Installing demountable suspended ceiling infill units generally](#) and [45-80-40/615 Forming openings in demountable suspended ceiling infill units](#).

### **Execution**

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

- Standard: [To BS EN 13964](#)
- Height above finished floor level: [In accordance with BPR 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](#).
- Protective coverings: [Remove at completion](#).

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

- Appearance of completed ceiling: [Over the whole of the surface exposed to the room below, a continuous and even surface, jointed \(where applicable\) at regular intervals](#).
- 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](#).
- Infill and access units, integrated services: [Fit correctly and align](#).
- Edge or perimeter infill units size (minimum): [Half standard width or length](#).
- Corner infill units size (minimum): [Half standard width and length](#).
- Infill joints and exposed suspension members: [Straight, aligned and parallel to walls](#).

#### **20-10-20/685 Installing cavity fire barriers above demountable suspended ceilings**

- Maximum ceiling void dimension in any direction: [20 m](#).
- Position of barriers: [20 m \(maximum\) apart in any direction](#).
- Fixing: [Secure barrier at head and base using proprietary angle support system. Fix angle support system to timber framework with No. 10 woodscrews at 450 mm centres. Fix barriers securely to channels or angles at abutments to building structure](#).
- Fixing at perimeters and joints: [Secure, stable and continuous with no gaps to provide a complete barrier to smoke and flame](#).
- Joints: [Form to preserve integrity in fire](#).
- Service penetrations: [Cut barriers neatly to accommodate services. Fit fire resistant sleeves around flexible materials. Fill gaps around services to fire barrier manufacturer's recommendations to maintain barrier integrity. Independently support services passing through the barrier on both sides of the barrier so that no load is placed on the barrier in the event of a fire](#).
- Ceiling systems intended for fire protection: [Do not impair fire resisting performance of ceiling system](#).
- Ceiling systems not intended for fire protection: [Do not mechanically interlink barriers with ceiling system](#).

#### 20-10-20/700 Installing upstands and bulkheads to demountable suspended ceilings

- Vertical ceiling systems: [Support and brace to provide alignment and stability.](#)
- High upstands: [Provide support at base of upstand.](#)

#### 45-80-40/605 Installing demountable suspended ceiling infill units generally

- Perimeter infill units: [Trim, as necessary, to fully fill space between last grid member and perimeter trim. Prevent subsequent movement.](#)
- Deeply textured infill units: [Minimize variations in apparent texture and colour. In particular, avoid patchiness.](#)
- Concealed grids: [Install infill units uniformly, straight and aligned. Avoid dimension creep.](#)
- Infill units around recessed luminaires and similar openings: [Prevent movement and displacement.](#)

#### 45-80-40/610 Installing metal infill units

- Sound absorbing pads: [Fit to prevent upward air movement through infill units. Cut or fold pads in cut perimeter infill units to full unit size. Reseal cut pads.](#)
- Perimeter infill units: [Firmly wedge cut units into perimeter trim, or clip down.](#)

#### 45-80-40/615 Forming openings in demountable suspended ceiling infill units

- Openings: [Neat and accurate. To suit sizes and edge details of fittings. Do not distort ceiling system.](#)
- Lifiable tile access panels: [Cut adjacent flanges and add trim to form panels.](#)
- Downward removable tile access panels: [Cut back kerf and add access clips to form panels.](#)

### **System completion**

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

- Spares to be supplied: [One box infill units of each type used for project.](#)

Ω End of system

## **20-15-90/120 Flag and slab bound paving system**

### **System outline**

#### 20-15-90/120 Flag and slab bound paving system

- System performance: [20-15-90/251 Accessibility of unit pavements](#).
- Standard: [To BS 7533-12](#).
- Laying course: [20-15-90/751 Site mixed cement gauged mortar](#) and [45-55-50/335 Paving laying course mortar](#).
- Paving course:
  - Paving units: [45-20-64/325 Natural stone slabs type A](#);  
[45-20-64/325 Natural stone slabs type B](#);  
[45-20-64/325 Natural stone slabs type C](#);  
[45-20-64/330 Natural stone tactile pavers](#).
  - Jointing: [20-15-90/751 Site mixed cement gauged mortar](#).
  - Movement joints: [45-55-75/315 Movement joint sealants type A](#).
- Applied surface features: [45-20-62/350 Tactile paving studs](#);  
[45-35-88/340 Paving impregnator](#);  
and [45-20-62/340 Slip-resistant rebate inserts](#).
- Execution: [20-15-90/603 Protection of paving during works](#);  
[20-15-90/605 Adverse weather and unit paving construction](#);  
[20-15-90/609 Cutting paving units](#);  
[20-15-90/611 Permissible deviations from design levels for unit paving](#);  
[20-15-90/614 Regularity of finished paving surface for accessibility](#);  
[20-15-90/626 Laying subgrade improvement layers and sub-base](#);  
[20-15-90/633 Condition of sub-bases and bases before spreading laying course type A](#);  
[20-15-90/651 Laying bound flag and slab pavements](#);  
and [20-15-90/633 Condition of steelwork before spreading laying course type B](#).
- System completion: [20-15-90/801 Protection of completed pavements](#) and .

### **System performance**

#### 20-15-90/251 Accessibility of unit pavements

- Inclusive design: [Complete detailed design in accordance with BS 8300](#).
- Finished surfaces on accessible areas: [Free of irregularities capable of inflicting personal injury](#).

### **Products**

#### 45-20-62/340 Slip-resistant rebate inserts

- Manufacturer: [Gradus Ltd](#)  
[Park Green](#)  
[Macclesfield](#)  
[Cheshire](#)  
[SK11 7LZ](#)  
[Tel: 01625 428 922](#)  
[Web: <http://www.gradus.com/stairtile-slip-resistant-flooring>](#)
- Material: ['Stairtile' Rubber composite inserts](#).
- Format: [Pre-finished strip \(for insertion\) and fixed with epoxy adhesive and screws](#).
- Thickness (minimum): [6.5 mm](#).
- Slip resistance – water wet (minimum): [Refer to: Stairtile Slip Resistance and LSWH-EN31-EAR-REP-BCK-00259 \[Access and Maintenance Strategy\]](#).
- Colour: [Refer to: LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\]](#).

- Accessories: [Screw head cover plugs, colour matched.](#)
- Execution: [45-20-62/620 Applying rebate inserts to stairs.](#)

#### 45-20-62/350 Tactile paving studs

- Manufacturer: [Kent Stainless tactile warning stud](#)  
<http://www.kentstainless.co.uk/our-products/stainless-steel-street-furniture/studs/kent-tactile-warning-stud>  
[or similar approved](#)
- Material: [Stainless steel.](#)
- Area / location: [Concourse / Ballymore Annex level change.](#)  
[Refer to: LSWH-EN31-EAR-DPL-BCK-00152 \[Floor Finishes Plan\] and LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\].](#)
- Profile: [KTWS/25/5/FDG](#)
- Size: [25 mm diameter.](#)
- Height: [30 mm](#)
- Slip resistance – water wet (minimum): [To BS 7976-2, PTV of 40.](#)

#### 45-20-64/325 Natural stone slabs type A

- Type: [A](#)
- Supplied by: [Marshall's plc](#)  
[Web: http://www.marshall's.co.uk/commercial/natural-stone/products/scoutmoor-yorkstone](http://www.marshall's.co.uk/commercial/natural-stone/products/scoutmoor-yorkstone)  
[Tel: +44 \(0\)870 241 4725.](#)
- Product reference: [Yorkstone Paving](#)
- Area / location: [External pavement outside station.](#)  
[Refer to: LSWH-EN31-EAR-DPL-BCK-00152 \[Floor Finishes Plan\] and LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\].](#)
- Bond: [Regular.](#)
- Type: [Scoutmoor. Fine grained, hard Yorkstone.](#)
- Sizes:
  - Width: [600 mm.](#)
  - Thickness: [50 mm.](#)
  - Length: [1000mm](#)
- Finish: [Blend of 'Capital Finish' and 'Diamond Sawn'. Finished with Lithofin Stainstop 45-35-88/340.](#)
- Standard: [All materials produced to ISO 9001 Quality, ISO14001 Environmental and OHSAS 18001 Health and Safety Standards](#)  
[Tolerances to BS EN 1341, Class 2.](#)
- Performance requirements:
  - Slip resistance: [Refer to: LSWH-EN31-EAR-REP-BCK-00259 \[Access and Maintenance Strategy\] and Slip resistance Scoutmoor Paving CE 2014.](#)

#### 45-20-64/325 Natural stone slabs type B

- Supplied by: [Marshall's plc](#)  
[Web: http://www.marshall's.co.uk/commercial/natural-stone/products/scoutmoor-linear](http://www.marshall's.co.uk/commercial/natural-stone/products/scoutmoor-linear)  
[Tel: +44 \(0\)870 241 4725.](#)
- Product reference: [Yorkstone Paving](#)
- Area / location: [Concourse and footbridge.](#)  
[Refer to: LSWH-EN31-EAR-DPL-BCK-00152 \[Floor Finishes Plan\] and LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\].](#)
- Bond: [Irregular bond.](#)
- Type: [Scoutmoor linear. Fine grained, hard Yorkstone.](#)
- Sizes:
  - Width: [450mm](#)
  - Thickness: [50mm](#)

- Length: [Random](#).
- Finish: [Blend of 'Capital Finish' and 'Diamond Sawn'](#). Finished with Lithofin Stainstop 45-35-88/340.
- Standard: All materials produced to ISO 9001 Quality, ISO14001 Environmental and OHSAS 18001 Health and Safety Standards  
Tolerances to BS EN 1341, Class 2.
- Performance requirements:
  - Slip resistance: [Refer to: LSWH-EN31-EAR-REP-BCK-00259 \[Access and Maintenance Strategy\]](#) and Slip resistance Scoutmoor Paving CE 2014.

#### 45-20-64/325 Natural stone slabs type C

- Supplied by: [Marshalls plc](#)  
Web: <http://www.marshalls.co.uk/commercial/natural-stone/products/despina-grey-granite-flamed>  
Tel: +44 (0)870 241 4725.
- Product reference: [Granite Paving](#)
- Area / location: [Perimeter to concourse and footbridge, ticket areas, main stairs to platform.](#)  
[Refer to: LSWH-EN31-EAR-DPL-BCK-00152 \[Floor Finishes Plan\]](#) and [LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\]](#).
- Colour: [Despina granite](#).
- Sizes:
  - Width: [450mm](#)
  - Thickness: [50mm](#)
  - Length: [450mm](#)
- Finish: [Flamed](#). Finished with Lithofin Stainstop 45-35-88/340.
- Standard: [To BS EN 1341](#).
- Performance requirements:
  - Slip resistance: [Refer to: LSWH-EN31-EAR-REP-BCK-00259 \[Access and Maintenance Strategy\]](#) and Slip resistance - Despina Despina Granite 2015 CE.

#### 45-20-64/330 Natural stone tactile pavers

- Supplied by: [Marshalls plc](#)  
Web: <http://www.marshalls.co.uk/commercial/natural-stone/products/scoutmoor-yorkstone>  
Tel: +44 (0)870 241 4725
- Product reference: [Yorkstone Tactile Paving](#)
- Type: [Scoutmoor](#). Finished with Lithofin Stainstop 45-35-88/340.
- Style: [Hazard Warning](#). In accordance with Approved document M.
- Sizes: [In accordance with Approved document M.](#)  
[Refer to: LSWH-EN31-EAR-DPL-BCK-00152 \[Floor Finishes Plan\]](#).
- Thickness: [50mm](#)
- Performance requirements:
  - Slip resistance: [Refer to: LSWH-EN31-EAR-REP-BCK-00259 \[Access and Maintenance Strategy\]](#) and Slip resistance Scoutmoor Paving CE 2014.

#### 45-35-88/340 Paving impregnator

- Manufacturer: [LITHOFIN AG](#)  
[Heinrich-Otto-Str. 36](#)  
[73240 Wendlingen](#)  
[Germany](#)  
<http://www.lithofin.co.uk>
- Product reference: [Lithofin Stainstop](#)
- Composition: [Water based solvent free impregnator to prevent staining and assist in the maintenance of the paving.](#)
- Sheen: [As per manufacturers standard](#)



#### 45-55-50/335 Paving laying course mortar

- Manufacturer: [Instarmac](#)  
[Danny Morson Way](#)  
[Birch Coppice Business Park](#)  
[Dordon](#)  
[Tamworth](#)  
[B78 1SE](#)  
[Email: \[info@instarmac.co.uk\]\(mailto:info@instarmac.co.uk\)](#)  
[Phone: +44 \(0\) 1827 872 244](#)  
[Web: <http://www.instarmac.co.uk/ultracrete-products/resi-bed-resinous-mortar-formerly-ep-r9/>](#)
- Product: [Ultrascap EP-R9](#), two part high strength epoxy resin mortar and primer system. For bedding on steel substructure. Thickness in accordance with manufacturers recommendations.
- Standard: [To BS 7533-7 paragraph 5.1.2.](#)
- Characteristics: [As BS 7533-7 Table C.4.](#)
- Moisture content: [Manufacturer's standard.](#)
- Locations: [As per manufacturers standard. Locations as shown on BPR drawings \(locations with steel substructure\)](#)  
[Note: Cement gaged mortar to all other locations](#)

#### 45-55-75/315 Movement joint sealants type A

- Manufacturer: [Tremco Illbruck Coatings Limited](#)  
[Torrington Avenue](#)  
[West Midlands CV4 9TJ UK, Great Britain](#)  
[tel +44 \(0\) 24 7685 5000](#)
- Standard: [To BS EN ISO 11600.](#)
- Material: [Migutec FP85](#)
- Colour: [To match paving.](#)
- Execution: [45-55-75/610 Suitability of joints for sealant application](#) and [45-55-75/630 Applying joint sealants.](#)

### **Execution**

#### 20-15-90/603 Protection of paving during works

- Cleanliness: [Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.](#)
- Materials storage: [Do not overload pavings with stacks of materials.](#)
- Handling: [Do not damage paving unit corners, arrises, or previously laid paving.](#)
- Access: [Restrict access to paved areas to prevent damage from site traffic and plant.](#)

#### 20-15-90/605 Adverse weather and unit paving construction

- Standard: [In accordance with BS 7533-3.](#)
- General:
  - Temperature: [Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.](#)
  - Frozen materials: [Do not use. Do not lay bedding on frozen or frost covered bases.](#)
- Kerbs edgings, and channels: [Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.](#)
- Paving with mortar joints or bedding: [Protect from frost damage, rapid drying out and saturation until mortar has hardened.](#)
- Paving with fine aggregate bedding and joints:
  - Stockpiled laying course material: [Protect from saturation.](#)
  - Exposed areas of laying course material and uncompacted areas of unbound paving: [Protect from heavy rainfall.](#)
  - Saturated laying course: [Remove and replace, or allow to dry before proceeding.](#)

- Laying dry fine aggregate jointed paving in damp conditions: Brush in as much fine jointing aggregate as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

#### 20-15-90/607 Laying unit pavings generally

- Standard: In accordance with Highways England MCHW Volume 1: Specification for highway works (SHW).
- Setting out: Start from an edge restraint.
- Paving units: Free of mortar and sand stains. Interlocking units to be adequately connected
- Appearance: Smooth and even with regular joints. Accurate to line, level and profile.
- Cut edges: Turn inwards where possible. Do not position against edge restraints or other features.
- Laying course: Grade consistently and accurately. Spread and compact to produce uniform thickness and support for paving units.
- Bedding of paving units: Firm so that rocking or subsidence does not occur or develop.
- Falls: Prevent ponding.
- Laying on slopes: Lay paving units upwards from the bottom of slopes.

#### 20-15-90/609 Cutting paving units

- Generally: Cut units cleanly, accurately and vertically, without spalling, to give neat junctions with edgings and adjoining finishes. Do not mark or damage visible surfaces.
- Natural stone: In accordance with BS 7533-3. Cut setts with a disc cutter or masonry saw.
- Concrete flags: To Interpave Cutting paving. Cutting precast concrete blocks flags and kerbs - efficient design and managing the risk.

#### 20-15-90/611 Permissible deviations from design levels for unit paving

- Standard: To BS 7533-3.
- Permissible deviation from specified levels (mm):
  - Conventional pavements:
    - Sub-base: -10 to +5 mm.
    - Laying course: -5 to +10 mm.
    - Surface course:  $\pm 6$  mm.
- Height of finished paving above features:
  - At gullies: +6 to +10 mm.
  - At drainage channels and kerbs: +3 to +6 mm.

#### 20-15-90/614 Regularity of finished paving surface for accessibility

- Standard: In accordance with BS 8300.
- Method of measurement: Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).
- Maximum undulations in the pavement surface: 3 mm.
- Joints between paving units or utility access covers:
  - Joints flush with the surface: Difference in level between adjacent units to be no more than twice the joint width (with a 5 mm max difference in level).
  - Recessed, filled joints: Difference in level between adjacent units to be no greater than 2 mm; the recess to be no deeper than 5 mm.
  - Unfilled joints: Difference in level between adjacent units to be no greater than 2 mm.
- Sudden irregularities: Not permitted.

#### 20-15-90/626 Laying subgrade improvement layers and sub-base

- Standard: In accordance with Highways England MCHW Volume 1: Specification for highway works (SHW).
- Subgrade improvement layer compacted thickness (nominal):
- Granular sub-base:
  - Compacted thickness (nominal): In accordance with SE specification.

- Condition of sub-bases before spreading laying course:
  - Prepared sub bases: [Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.](#)
  - Levels and falls: [Accurate and within the specified tolerances.](#)
  - Drainage outlets: [Within 0–10 mm of the required finished level.](#)

#### 20-15-90/633 Condition of sub-bases and bases before spreading laying course type A

- Trenches and excavation of soft or loose spots in subgrade: [Fill. Compact thoroughly.](#)
- Granular surfaces: [Sound, clean, smooth and close-textured enough to prevent migration of laying course materials into the sub-base during compaction and use.](#)
- Prepared existing and new bound bases (roadbases): [Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.](#)
- Levels and falls: [Accurate and within the specified tolerances.](#)
- Drainage outlets: [Within 0–10 mm of the required finished level.](#)
- Features in unbound paving (including mortar bedded restraints and drainage ironwork): [Complete to required levels. Bed adequately. Haunch in mortar.](#)
- Sub-bases containing cement or hydraulic binder: [Cure for minimum times specified in BS 7533-4. Protect from moisture loss, if not covered by another pavement course within 2 hours of completion.](#)

#### 20-15-90/633 Condition of steelwork before spreading laying course type B

- Steelwork preparation: [Remove all loose materials and provide the metal structure with a texture \(via shot blasting or equivalent method\). Make sure the steelwork is not rusted and is free of treatments or coatings.](#)

#### 20-15-90/651 Laying bound flag and slab pavements

- General requirements: [20-15-90/607 Laying unit pavings generally.](#)
- Primer required on underside of units: [.](#)
- Standard: [In accordance with BS 7533-4.](#)
- Laying course thickness (nominal): [25 mm after compaction.](#)
- Laying and jointing: [Contractor's choice.](#)
- Joint width (nominal): [5-10 mm.](#)

#### 20-15-90/751 Site mixed cement gauged mortar

- Mortar type: [Site batched and mixed cement:sand.](#)
- Components: [Contractor's choice.](#)
- Mix: [Contractor's choice.](#)

#### 45-20-62/620 Applying rebate inserts to stairs

- Coverage:
  - To tread: [Full width of stair.](#)
  - To riser: [Full width, to full rise.](#)
  - Spacing: [In accordance with Approved document M.](#)

#### 45-55-75/610 Suitability of joints for sealant application

- Joint dimensions: [Within limits specified for the sealant.](#)
- Substrate quality: [Surfaces regular, undamaged and stable.](#)
- Joints not fit to receive sealant: [Submit proposals for rectification.](#)

#### 45-55-75/630 Applying joint sealants

- Substrate: [As recommended by sealant manufacturer.](#)
- 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: [Slightly concave](#).
  - Fillet joints: [Slightly convex](#).
- Protection: [Do not contaminate or damage finished joints](#).

### **System completion**

20-15-90/801 Protection of completed pavements

- Mortar bedded paving:
  - Protection: [Protect from pedestrian or vehicular traffic for the minimum required periods](#).
  - Traffic free periods (minimum):
    - Pedestrian traffic: [24 hours](#).

Ω End of system

## **20-50-30/170 Single layer warm roof covering system**

### **System outline**

#### 20-50-30/170 Single layer warm roof covering system

- System performance: [20-50-30/210 Roof covering design](#); [20-50-30/220 Structural design – resistance to wind uplift](#); and [20-50-30/270 Durability](#).
- Lower protection layer: [As recommended by manufacturer](#).
- Vapour control layer:
  - Type: [As recommended by manufacturer](#).
  - Attachment: [As recommended by manufacturer](#).
- Insulation:
  - Type: [45-45-65/430 Polyisocyanurate \(PIR\) foam board](#).
- Separating layer: [As recommended by manufacturer](#).
- Waterproof covering:
  - Type: [45-65-50/363 Polymeric membranes](#).
  - Attachment: [Adhesive bonded. As recommended by manufacturer](#).
  - Joints: [20-50-30/708 Welded jointing of waterproof membrane](#).
- System accessories: [45-65-50/390 Polymeric membrane walkways](#).
- Execution: [20-50-30/706 Adhesive bonding of waterproof membrane](#); [20-50-30/710 Adhesive jointing of waterproof membrane](#); [20-50-30/724 Laying membrane walkways](#); and [20-50-30/714 Securing perimeters of waterproof membrane](#).
- System completion: [20-50-30/810 Inspection of completed work](#); [20-50-30/840 Flood test](#); and [20-50-30/850 Completion](#).

### **System performance**

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

- General:
  - Waterproof covering: [Secure and weathertight](#).
  - Roof surfaces: [Free draining](#).

#### 20-50-30/220 Structural design – resistance to wind uplift

- Attachment to resist to wind loads: [Determine methods of attachment. Provide for the relative movement of materials and effects of vapour pressure. Do not reduce performance of vapour control layer](#).
- Design wind pressure:
  - Standard: [To BS EN 1991-1-4](#)

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

- System warranty: [In accordance with TFL requirements and roofing manufacturers guidance](#).

## **Products**

### 45-45-65/430 Polyisocyanurate (PIR) foam board

- Manufacturer: [Kingspan Insulation Ltd](#)  
[Pembridge](#)  
[Leominster](#)  
[Herefordshire](#)  
[HR6 9LA](#)  
T: +44 (0)1544 387384  
Web: [www.kingspaninsulation.co.uk](http://www.kingspaninsulation.co.uk)  
[technical@kingspaninsulation.co.uk](mailto:technical@kingspaninsulation.co.uk)

or similar approved. Any alternative product must achieve same level of U value.

- Product reference: [Thermarof TR27](#).  
[Designed for use beneath fully adhered single-ply non-bituminous roofing systems.](#)
- Insulation thickness: [Refer to BPR drawings.](#)
- Standard Falls: [Min. 1:80.](#)
- Standard: [To BS EN 13165.](#)
- Face size (length x width): [Length: 1.2 m.](#)  
[Width: 1.2 m.](#)
- Reaction to fire: [To BS EN 13501-1, class F.](#)
- Density: [32 kg/m³.](#)
- Facing: [Faced on both sides with a coated glass tissue based facing autohesively bonded to the insulation core during manufacture.](#)
- Edges: [Manufacturer's standard.](#)

### 45-65-50/363 Polymeric membranes

- Supplied by: [Sika Sarnafil](#)  
[Watchmead](#)  
[Welwyn Garden City](#)  
[Hertfordshire](#)  
[AL7 1BQ](#)  
Web: [http://gbr.sarnafil.sika.com/en/solutions\\_products/sarnafil-roofing-systems/adhered-roofs.html](http://gbr.sarnafil.sika.com/en/solutions_products/sarnafil-roofing-systems/adhered-roofs.html)

or similar approved.

- Product reference: [Single ply membrane to meet the performance requirements above.](#)
- Material: [Polyvinyl chloride \(PVC\). Fully adhered to directly to the substrate or a suitable thermal insulation board \(dependant on location\) with 'Sarnacol 2170'. Laps are then hot air welded to form seams which are stronger than the membrane itself.](#)
- Adhesive: [Sarnacol 2170.](#)
- Standard: [To MOAT56.](#)
- Performance criteria: [Manufacturer's standard.](#)
- Integral backing fleece: [Manufacturer's standard.](#)
- Width (minimum): [Manufacturer's standard.](#)
- Thickness (minimum): [Manufacturer's standard.](#)
- Colour: [TBC. Generally to match surrounding aluminium eaves profile.](#)
- Accessories: [All as required to successfully complete system.](#)

### 45-65-50/390 Polymeric membrane walkways

- Supplied by: [Hopton Park](#)  
[DEVIZES](#)  
[Wiltshire](#)  
[SN10 2JP](#)

UK  
Tel: +44 (0)1380 732700  
Web: <https://www.latchways.com/walksafe-walkways>

or similar approved.

- Product reference: [Walksafe](#). Lightweight walkway with anti-slip surface. Longways system on single-ply membrane roofing.  
Fixing method: Self weighted—panels are joined with toggle clamp.
- Material: [Manufactured from recycled PVCu](#).
- Finish: [Slip resistant](#).
- Width (minimum): [Manufacturer's standard](#).
- Thickness (minimum): [Manufacturer's standard](#).
- Colour: [To match roofing colour](#).
- New clause item 1: [To footbridge butterfly roof; BOH and retail unit. Refer to roof plans for details.](#)

## **Execution**

### 20-50-30/706 Adhesive bonding of waterproof membrane

- Adhesive: [Sarnacol 2170](#).
  - Application: [Continuous even coating over whole area of roof](#).
  - Surface coverage: [Contractor's choice](#).
- Membrane:
  - Setting out: [Contractor's choice](#).
  - Laying: [Do not wrinkle or stretch](#).
- Surface condition at completion: [Fully sealed, smooth, weatherproof and free draining](#).

### 20-50-30/708 Welded jointing of waterproof membrane

- Side and end laps:
  - Side laps (minimum): [Manufacturer's standard](#).
  - End laps (minimum): [Manufacturer's standard](#).
  - Preparation: [Clean and dry surfaces beyond full width of joint](#).
  - Sealing: [Weld together](#).
- Seam sealant: [Even bead to each joint](#).
- Surface condition at completion: [Fully sealed, smooth, weatherproof and free draining](#).

### 20-50-30/710 Adhesive jointing of waterproof membrane

- Side and end laps:
  - Side laps (minimum): [Manufacturer's standard](#).
  - End laps (minimum): [Manufacturer's standard](#).
  - Preparation: [Prime, clean and dry surfaces beyond full width of joint and lap](#).
  - Sealing: [Apply continuous even coverage of adhesive to both surfaces. Mate and roll together. Do not wrinkle or stretch membrane](#).
- Seam sealant: [Even bead of liquid PVC to each joint](#).
- Surface condition at completion: [Fully sealed, smooth, weatherproof and free draining](#).

### 20-50-30/714 Securing perimeters of waterproof membrane

- Upstands, edge trims, drips and kerbs: [Preformed profiles from waterproof membrane material](#).
- Roof membrane:
  - Laying: [Dress over perimeter profiles. Bond to substrate](#).
  - Sealing: [Bond with adhesive and weld at overlap](#).

#### 20-50-30/724 Laying membrane walkways

- Attachment: [All edges continuously welded to roof membrane and sealed with liquid PVC.](#)
- Weld width (minimum): [Manufacturer's standard.](#)
- Cross weld centres (maximum): [Manufacturer's standard.](#)

### **System completion**

#### 20-50-30/810 Inspection of completed work

- Waterproof coverings surfaces: [When complete or cured, check for discontinuities.](#)
- Defective areas: [Repair or apply additional coverings.](#)
- Interim and final roof inspections: [Submit reports.](#)
- Completion certificate: [Required.](#)

#### 20-50-30/840 Flood test

- Condition of roof before testing:
  - Waterproof covering: [Complete to a stage where integrity can be tested.](#)
  - Surface: [Clean.](#)
- Outlets: [Externally cover and seal. Protect against damage from water pressure using temporary kerbs. Do not use plugs to seal outlets.](#)
- Flood levels: [No higher than kerbs.](#)
- Inspection: [Regular to detect leaks.](#)
- Completion of test: [Slowly drain roof. Do not overload or flood outlets.](#)
- Test results: [Submit, on completion of testing.](#)
- Test certificate: [Required.](#)

#### 20-50-30/850 Completion

- Roof areas: [Clean.](#)
- Outlets: [Clear.](#)
- Flashings: [Dress into place.](#)
- Work necessary to provide a weathertight finish: [Complete.](#)
- Storage of materials on finished surface: [Not permitted.](#)
- Completed waterproof covering: [Do not damage. Protect from petroleum based solvents and other chemicals, traffic and adjacent or high level working.](#)

Ω End of system



## **20-55-05/195 Wood-based rigid sheet floating floor system**

### **System outline**

#### 20-55-05/195 Wood-based rigid sheet floating floor system

- System performance: [20-55-05/220 Permanent and imposed loads](#); [20-55-05/240 Resistance to moisture penetration](#); and [20-55-05/215 Design of wood flooring systems](#).
- Subfloor preparation: [In-situ concrete topping as per SE details and specification. Must be sound, rigid, even, smooth and dry.](#)
- Vapour control layer: [45-65-50/325 Plastics sheets](#).
- Resilient layer: [45-45-70/437 Resilient layer insulation](#).
- Flooring: [45-45-95/470 Particleboard](#).
- Fasteners: [Contractor's design](#).
- Bonding and jointing adhesive: [Contractor's design](#).
- Execution: [20-55-05/675 Installing thermal insulation in floating floor construction](#) and [20-55-05/680 Installing vapour control layers in floating floor construction](#).

### **System performance**

#### 20-55-05/215 Design of wood flooring systems

- Standard: [In accordance with BS 8201](#).
- Structural design:
  - Horizontal loads: [As per SE details](#)
  - Vertical loads: [As per SE details](#)
- Anticipated trafficking: [To BS 8201, Heavy pedestrian](#).

#### 20-55-05/220 Permanent and imposed loads

- Standard: [As per SE details](#)
- Permanent loads not discernable from drawings: [As per SE details](#)
- Imposed loads:
  - Loadings on floors: [As per SE details](#)
  - Exceptions: [As per SE details](#)
  - Allowance for future changes: [As per SE details](#)

#### 20-55-05/240 Resistance to moisture penetration

- Requirement: [Prevent the passage of ground moisture to the interior of the building](#).

### **Products**

#### 45-45-70/437 Resilient layer insulation

- Manufacturer: [Kingspan Insulation Ltd](#)  
[Pembroke](#)  
[Leominster](#)  
[Herefordshire](#)  
[HR6 9LA](#)  
[Tel: 01544 388 601](#)  
[Web: <http://www.kingspaninsulation.co.uk/Products/Therma/Thermafloor-TF70/Overview.aspx>](#)

or similar approved.

- Product reference: [Kingspan Thermafloor TF70](#).
- Material: [High performance rigid thermoset insulation core faced on both sides with a low emissivity composite foil facing](#).
- Recycled content: [Kingspan Thermafloor TF70 achieves a BRE Green Guide rating of A+](#).
- Thickness: [One layer 60mm insulation and one layer 25mm insulation as indicated on drawings](#).

#### 45-45-95/470 Particleboard

- Manufacturer: [Contractor's choice](#).
- Standards: [To BS EN 312 and BS EN 13986](#).
- Board type: [For use as flooring substrate able to take required dead and imposed loads and suitable resistance to moisture](#).
- Grade: [MR \(moisture resistant\) and FR \(fire retardant\)](#).
- Reaction to fire classification:
  - Flooring: [In accordance with Aecom grip 4 fire safety strategy report dated 12th May 2014](#).
- Thickness: [18 mm. TBC by SE](#).
- Recycled content: [To BS EN ISO 14021, 70%](#).
- Execution: [45-45-95/605 Environmental conditions for installing wood boards and wood based panels; 45-45-95/610 Moisture content and conditioning of wood-based boards and panels; and 45-45-95/620 Installing wood-based panels](#).

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

- Manufacturer: [Contractor's choice](#).
- Material: [300-500 gauge polythene fitted to the warm side \(the inner side\) of the insulation](#).
- Purpose: [Vapour control layer](#).
- Standard: [Manufacturer's standard](#).
- Execution: [45-65-50/610 Installing vapour control layers](#).

### **Execution**

#### 20-55-05/675 Installing thermal insulation in floating floor construction

- Position: [Immediately below floating layer](#).
- Criteria: [Do not lay over battens](#).
- Joints: [Tight, and break bonded where recommended by manufacturer. Tape joints where recommended](#).
- Insulation at perimeter of flooring and upstands: [Trim to give a tight fit, ensuring integrity of thermal resistant layer is maintained. Use a method approved by the strip/ board manufacturer. Insulate gaps between wall and battens/ joists](#).
- Excess material: [Trim off neatly prior to laying boarding. Recycle where applicable](#).
- Dust and debris: [Minimize](#).
- Condition of insulation before laying flooring: [Clean and dry](#).

#### 20-55-05/680 Installing vapour control layers in floating floor construction

- Installation: [Immediately below floating layer](#).
- Joints: [Overlap by minimum 150 mm. Seal with vapour resistant tape](#).
- Membrane at perimeter of flooring and upstands: [Turn up and seal to top face of flooring](#).
- Excess material: [Trim off neatly after fixing skirtings and cover beads](#).
- Condition of membrane before laying flooring: [Intact, clean and dry](#).

#### 45-45-95/605 Environmental conditions for installing wood boards and wood based panels

- General requirements prior to starting work specified in this section: [Building weathertight and watertight, wet trades completed and affected areas dried out before fixing boards or sheets internally.](#)
- Temperature and humidity before, during and after installing strips and boards: [Maintain at levels approximating to those prevailing while building is occupied.](#)
- Protection during and after installation: [Keep boards dry.](#)

#### 45-45-95/610 Moisture content and conditioning of wood-based boards and panels

- Moisture content: [Maintain within component's specified range during storage and manufacture.](#)
- Moisture content of boards at time of fixing: [In accordance with manufacturers recommendations.](#)
- Conditioning regime: [During delivery, storage, fixing and to handover maintain conditions to suit specified moisture contents of timber components.](#)
- Test regime and equipment: [When instructed, test components with approved moisture meter to manufacturer's recommendations.](#)

#### 45-45-95/620 Installing wood-based panels

- Number of layers: [Single layer.](#)
- Setting out of long edges: [Run across supports.](#)
- Gap between adjacent boards: [1–2 mm.](#)
- Fixing centres (maximum):
  - General: [Boards and sheets to be fixed securely to each support without distortion and true to line and level. Fixings to be evenly spaced in straight lines and, unless otherwise recommended by board manufacturer, in pairs across joints](#)
  - Around board edges: [200 mm.](#)
  - Along intermediate supports: [200 mm.](#)
- Fixing distance from edges (minimum): [Sufficient to prevent damage.](#)
- Joints: [Contractor's choice.](#)

#### 45-65-50/610 Installing vapour control layers

- Continuity: [No breaks. Minimize joints.](#)
- Penetrations and abutments: [Tape to vapour control membrane. Prime substrates to achieve full bond.](#)
- Joints and edges: [Overlap joints 150 mm and seal with vapour resistant adhesive tape. Perimeter edges sealed. Prime substrates to achieve full bond.](#)
- Sheet repairs and punctures: [Fix and seal lapped patch of vapour control membrane with continuous band of tape on edges.](#)

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

### **System outline**

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

- System performance: [20-55-15/250 Surface regularity](#); [20-55-15/260 Durability](#); and [20-55-15/240 Abrasion resistance](#).
- Preparation: [20-55-15/602 Assess suitability of substrate](#) and [20-55-15/612 Preparation of substrate for unbonded construction](#).
- Movement joints:
  - Components: [45-75-50/410 Strip movement joints](#).
- Separation layer: [45-65-50/356 Self- Adhesive bitumen damp proofing/ tanking](#).
- Screed: [In-situ concrete topping as per SE details and specification](#).
- Execution: [20-55-15/636 Site mixed cementitious surfacing layer](#); [20-55-15/646 Laying cementitious levelling/ wearing screeds](#); [20-55-15/676 Installing strip movement joints](#); [20-55-15/650 Checking surface regularity of floor screeds](#); [20-55-15/658 Screeding to ramps](#); and [20-55-15/698 Curing](#).

### **System performance**

#### 20-55-15/240 Abrasion resistance

- Abrasion resistance:
  - Standard: [In accordance with BS 8204-2, Table 4](#).
  - Classification: [AR2/ WS](#).

#### 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): [50 years](#).

### **Products**

#### 45-65-50/356 Self- Adhesive bitumen damp proofing/ tanking

- Manufacturer: [RIW](#)  
[Arc House,](#)  
[Terrace Road South,](#)  
[Binfield, Berkshire](#)  
[RG42 4PZ](#)  
Call Technical: 01344 397777  
Email Technical: [technical@riw.co.uk](mailto:technical@riw.co.uk)  
Web: <http://www.riw.co.uk/>

[or similar approved](#).

- Product: Refer to BPR drawings for damp proofing details. Manufacturer to advise on any additional products that may be required in order to successfully complete the system.

- Area / location: [Under concourse ground bearing slab.](#)
- Number of layers: [One](#)
- Standard: [To BS EN 13967, type A.](#)
- Recycled content (maximum): [Manufacturer's standard.](#)
- Bonding: [Full. Smooth out to exclude air.](#)
- Physical properties:
  - Thickness: [1.5mm \( applied \)](#)
  - Water vapour resistance (minimum): [In line with BS 5427-1.](#)
  - Width (minimum): [Manufacturer's standard.](#)
  - Colour: [Manufacturer's standard.](#)
  - Performance criteria: [High resistance to lateral deformation and a low coefficient of friction.](#)
  - Joints: - [Surfaces to be joined : Clean and dry beyond full width of joint.](#)
    - [Laps \( minimum \) : 50mm, side and 100mm end / cut rolls.](#)
    - [Sealing : Roll to fully adhere.](#)

#### 45-75-50/410 Strip movement joints

- Manufacturer: [In accordance with SE details and specification.](#)
- Joint width: [To match underlying structural movement joint.](#)
- Insert:
  - Material: [Manufacturer's standard. In accordance with SE specification.](#)
  - Colour: [Manufacturer's standard.](#)

### **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.](#)

#### 20-55-15/636 Site mixed cementitious surfacing layer

- General requirements: [20-55-15/640 Batching with lightweight aggregates.](#)
- Constituents: [Fine general aggregates and Portland cement.](#)
- 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.](#)

#### 20-55-15/640 Batching with lightweight aggregates

- Standard: [In accordance with BS 8204-1, Annex A.](#)
- Mix proportions: [Specified by volume.](#)
- Batching: [Use accurate gauge boxes.](#)

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

- Standard: [In accordance with BS 8204-1.](#)
- Thickness:
  - Nominal: [75mm thk.](#)

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

- Standard: [To BS 8204-1, Table 2.](#)
- Test: [To BS 8204-1, 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.](#)

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

- Screed cover: [Maintain consistent screed depth to graduated substrate \(where the falls are created within the concrete substrate\).](#)
- 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.](#)

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

- 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.](#)

Ω End of system

## **20-55-75/165 Resilient sheet flooring system**

### **System outline**

#### 20-55-75/165 Resilient sheet flooring system

- Preparation:
  - Base: [20-55-75/655 Preparation of particleboard flooring.](#)
  - Prior to flooring: [20-55-75/615 Conditioning of flooring prior to laying type A.](#)
  - Environmental conditions: [20-55-75/620 Environmental conditions before, during and after laying.](#)
- Sheet:
  - Type: [45-20-70/335 PVC sheet.](#)
- Seams: [Welded or sealed.](#)
- System accessories: [45-20-35/355 Threshold strips](#) and [45-75-95/330 PVC cove skirtings.](#)
- Execution: [20-55-75/680 Layout – setting out seams;](#)  
[20-55-75/725 Welded or sealed seams;](#)  
[20-55-75/745 Joints at doorways;](#)  
[and 20-55-75/765 Installing coved skirtings.](#)
- System completion: [20-55-75/800 Trafficking after laying.](#)

### **Products**

#### 45-20-35/355 Threshold strips

- Manufacturer: [Schlüter-Systems Ltd](#)  
[Units 3-5 Bardon 22](#)  
[Beveridge Lane](#)  
[Coalville](#)  
[Leicestershire](#)  
[LE67 1TE](#)  
[Phone: +44 \(0\) 1530 813396](#)  
[Web: <http://www.schluter.co.uk/reno-t-material.aspx>](#)  
  
[or similar approved.](#)
- Profile: [T bar.](#) Suitable for transition between adjoining floor coverings.
- Material: [Stainless steel.](#)
- Colour: [Natural.](#)
- Width: [Manufacturer's standard.](#)
- Matching fasteners: [Required.](#)

#### 45-20-70/335 PVC sheet

- Manufacturer: [Forbo Flooring Systems UK Ltd](#)  
[High Holborn Road Ripley](#)  
[Derbyshire England](#)  
[DE5 3NT](#)  
[Tel: 01773 744 121](#)  
[Email: \[info.flooring.uk@forbo.com\]\(mailto:info.flooring.uk@forbo.com\)](#)  
[Web: <http://www.forbo.com/flooring/en-uk/products/step-safety-vinyl-wetroom/safestep-safety-vinyl/safestep-r11/bup2js#174262>](#)  
  
[or similar approved.](#)
- Area / location: [As Drawing LSWH-EN31-EAR-DPL-BCK-00152 \[Floor Finishes Plan\].](#)
- Product reference: [Safestep R11.](#) Heterogeneous PVC to BS EN ISO 10582 and BS EN 13845.
- Standard: [To BS EN ISO 10582 for Heterogeneous PVC sheet.](#)

- Use class: [Manufacturer's standard](#).
- Slip potential:
  - Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum): [Pendulum test value \(wet\): Slider 96: > 40](#).
  - Surface roughness (Rz) (minimum): [to BS 1134: ≥20 \(wet\)](#).
- Recycled content: [Manufacturer's standard](#).
- Width: [2000 mm](#).
- Thickness: [2.0 mm](#).
- Colour and pattern: [174262 Umber](#).  
[As Document LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\]](#).
- Adhesive (and primer if recommended by manufacturer): [Eurocol 540 Eurosafe Special - acrylic dispersion solvent-free floor covering adhesive with a high initial grab](#).
- Seam welding: [Hot welding with matching coloured rod](#).
- Accessories: [Contractor to make allowance for](#);
  - [Edging and cover strips](#)
  - [PVC cove skirtings](#)[and all other accessories as recommended by manufacturer](#).

#### 45-75-95/330 PVC cove skirtings

- Manufacturer: [Forbo Flooring Systems UK Ltd](#)  
[High Holborn Road Ripley](#)  
[Derbyshire England](#)  
[DE5 3NT](#)  
[Tel: 01773 744 121](#)  
[Email: \[info.flooring.uk@forbo.com\]\(mailto:info.flooring.uk@forbo.com\)](#)  
[Website: \[www.forbo-flooring.co.uk\]\(http://www.forbo-flooring.co.uk\)](#)

[As floor covering manufacturer above](#).

- Skirting type: [Cove former](#).
- Upstand: [100 mm](#).
- Finish: [As flooring](#).
- Colour: [To match flooring](#).
- Top edge seal: [Matching capping seal](#). Securely bond to background using contact adhesive, with top edge straight and parallel with floor.
- Notes: [Turn flooring material up wall, securely bond to cove former and background using adhesive specified for fixing to base, and ease top of material into edge trim. Accurately mitre at corners. All joints to be hot welded in accordance with the manufacturer's instructions.](#)

### **Execution**

#### 20-55-75/615 Conditioning of flooring prior to laying type A

- Standards: [To BS 8203 and BS 5325](#).
- General:
  - Before laying: [Condition materials by unpacking and separating in spaces where they are to be laid](#).
  - Resilient flooring rolls: [Maintain in an upright position](#).
  - Carpet: [Unroll and keep flat on a supporting surface](#).
- Conditioning time and temperature (minimum):
  - Generally: [As recommended by manufacturer](#).
  - Materials stored or transported at a temperature below 10°C immediately before laying: [Extend time by a factor of two](#).

#### 20-55-75/620 Environmental conditions before, during and after laying

- Temperature and humidity: [Maintain approximately at levels which will prevail after building is occupied](#).



- Ventilation: [Adequate](#).
- Underfloor heating before laying: [Turn off at least 48 hours before start of laying](#).

#### 20-55-75/655 Preparation of particleboard flooring

- Base: [Fix boards securely, level and free from surface sealers and contaminants](#).
  - Gaps between boards (maximum): [1 mm](#).
  - Priming: [As required by covering adhesive manufacturer](#).
- Equilibrium moisture content at time of laying covering: [As in service conditions](#).
- Base condition after preparation: [Rigid, dry, sound, smooth and free from grease, dirt and other contaminants](#).

#### 20-55-75/680 Layout – setting out seams

- Setting out of seams: [Contractor's choice](#).

#### 20-55-75/725 Welded or sealed seams

- Materials: [Hot welding rods](#).
- Commencement (minimum): [24 hours after laying, or after adhesive has set](#).
- Joints: [Neat, smooth. Strongly bond. Flush with finished surface](#).

#### 20-55-75/745 Joints at doorways

- Joint location: [On centre line of door leaf](#).

#### 20-55-75/765 Installing coved skirtings

- Installing: [Dress sheet up over cove former and bond to background](#).

### **System completion**

#### 20-55-75/800 Trafficking after laying

- Covering: [PVC Sheet](#).
- Traffic free period (minimum): [Until adhesive is set](#).

Ω End of system

## **20-55-75/170 Resilient tile flooring system**

### **System outline**

#### 20-55-75/170 Resilient tile flooring system

- Preparation:
  - Base: [20-55-75/655 Preparation of particleboard flooring.](#)
  - Prior to flooring: [20-55-75/615 Conditioning of flooring prior to laying type A.](#)
  - Environmental conditions: [20-55-75/620 Environmental conditions before, during and after laying.](#)
- Tiles:
  - Type: [45-20-70/430 PVC tiles.](#)
- System accessories: [45-20-35/355 Threshold strips](#) and [45-75-95/330 PVC cove skirtings.](#)
- Execution: [20-55-75/680 Layout – setting out seams;](#)  
[20-55-75/745 Joints at doorways;](#)  
and [20-55-75/765 Installing coved skirtings.](#)
- System completion: [20-55-75/800 Trafficking after laying.](#)

### **Products**

#### 45-20-35/355 Threshold strips

- Manufacturer: [Schlüter-Systems Ltd](#)  
[Units 3-5 Bardon 22](#)  
[Beveridge Lane](#)  
[Coalville](#)  
[Leicestershire](#)  
[LE67 1TE](#)  
[Phone: +44 \(0\) 1530 813396](#)  
[Web: <http://www.schluter.co.uk/reno-t-material.aspx>](#)  
  
[or similar approved.](#)
- Profile: [T bar.](#) Suitable for transition between adjoining floor coverings.
- Material: [Stainless steel.](#)
- Colour: [Natural.](#)
- Width: [Manufacturer's standard.](#)
- Matching fasteners: [Required.](#)

#### 45-20-70/430 PVC tiles

- Manufacturer: [Forbo Flooring Systems UK Ltd](#)  
[High Holborn Road Ripley](#)  
[Derbyshire England](#)  
[DE5 3NT](#)  
[Tel: 01773 744 121](#)  
[Email: \[info.flooring.uk@forbo.com\]\(mailto:info.flooring.uk@forbo.com\)](#)  
[Web: \[http://www.forbo.com/flooring/en-uk/products/esd-cleanroom-flooring/colorex-ec/colorex-ec/bo9rcl#EC\\\_\\\_250207\]\(http://www.forbo.com/flooring/en-uk/products/esd-cleanroom-flooring/colorex-ec/colorex-ec/bo9rcl#EC\_\_250207\)](#)  
  
[or similar approved.](#)
- Area / location: [As Drawing LSWH-EN31-EAR-DPL-BCK-00152 \[Floor Finishes Plan\].](#)
- Product reference: [ColoRex EC.](#) Electrostatic and conductive vinyl.
- Standard: [To BS EN ISO 10582 for Heterogeneous PVC sheet.](#)
- Use class: [Manufacturer's standard.](#)
- Recycled content: [Manufacturer's standard.](#)

- Size: 615 x 615 mm.
- Thickness: 2 mm.
- Colour and pattern: EC 250207 quartz.  
As Document LSWH-EN31-EAR-SCH-BCK-00257 [Finishes Schedule].

#### 45-75-95/330 PVC cove skirtings

- Manufacturer: Forbo Flooring Systems UK Ltd  
High Holborn Road Ripley  
Derbyshire England  
DE5 3NT  
Tel: 01773 744 121  
Email: info.flooring.uk@forbo.com  
Website: www.forbo-flooring.co.uk

As floor covering manufacturer above.

- Skirting type: Cove former.
- Upstand: 100 mm.
- Finish: As flooring.
- Colour: To match flooring.
- Top edge seal: Matching capping seal. Securely bond to background using contact adhesive, with top edge straight and parallel with floor.
- Notes: Turn flooring material up wall, securely bond to cove former and background using adhesive specified for fixing to base, and ease top of material into edge trim. Accurately mitre at corners. All joints to be hot welded in accordance with the manufacturer's instructions.

### **Execution**

#### 20-55-75/615 Conditioning of flooring prior to laying type A

- Standards: To BS 8203 and BS 5325.
- General:
  - Before laying: Condition materials by unpacking and separating in spaces where they are to be laid.
  - Resilient flooring rolls: Maintain in an upright position.
  - Carpet: Unroll and keep flat on a supporting surface.
- Conditioning time and temperature (minimum):
  - Generally: As recommended by manufacturer.
  - Materials stored or transported at a temperature below 10°C immediately before laying: Extend time by a factor of two.

#### 20-55-75/620 Environmental conditions before, during and after laying

- Temperature and humidity: Maintain approximately at levels which will prevail after building is occupied.
- Ventilation: Adequate.
- Underfloor heating before laying: Turn off at least 48 hours before start of laying.

#### 20-55-75/655 Preparation of particleboard flooring

- Base: Fix boards securely, level and free from surface sealers and contaminants.
  - Gaps between boards (maximum): 1 mm.
  - Priming: As required by covering adhesive manufacturer.
- Equilibrium moisture content at time of laying covering: As in service conditions.
- Base condition after preparation: Rigid, dry, sound, smooth and free from grease, dirt and other contaminants.

#### 20-55-75/680 Layout – setting out seams

- Setting out of seams: Contractor's choice.

20-55-75/745 Joints at doorways

- Joint location: [On centre line of door leaf.](#)

20-55-75/765 Installing coved skirtings

- Installing: [Dress sheet up over cove former and bond to background.](#)

### **System completion**

20-55-75/800 Trafficking after laying

- Covering: [PVC Sheet.](#)
- Traffic free period (minimum): [Until adhesive is set.](#)

Ω End of system

## **25-05-75/110 Point-fixed structural glass wall system**

### **System outline**

#### 25-05-75/110 Point-fixed structural glass wall system

- System performance: [25-05-75/208 Structural glass wall system design](#); [25-05-75/214 Structural performance](#); and [25-05-75/228 Thermal movement](#).
- Assembly fixings: [45-50-35/330 Stainless steel point connectors](#).
- Glass: [45-65-40/301 Structural Glass Assembly](#)
- Joints: [45-55-75/362 Bonding sealants for structural sealant/ bonded glazing](#).
- Execution: [25-05-75/630 Preliminary installation](#); [25-05-75/640 Erecting glass – tolerances](#); and [25-05-75/650 Structural glazing](#).
- System completion: [25-05-75/820 Preventing rotation and adjustment of assembly fixings](#) and [25-05-75/840 Operation and maintenance manual](#).

### **System performance**

#### 25-05-75/208 Structural glass wall system design

- Design requirements: [Complete the detailed design of the structural glass assembly in accordance with the general arrangement drawings and this specification](#).
- Design load information provided to the Contractor: [Select worst condition from computer printout provided by Employer's Engineer](#).
- Standard: [In accordance with the CWCT Standard for systemised building envelopes](#).
- Appearance and fit: [Position and align parts and features as shown on preliminary design drawings. Accommodate deviations in the primary support structure](#).
- Related works: [Coordinate in the detailed design](#).
- Detailed design: [Complete and Submit proposals for approval before fabrication](#).

#### 25-05-75/214 Structural performance

- Standard: [In accordance with the CWCT Standard for systemised building envelopes](#).
- Loads: [Resist wind loads, dead loads and design live loads](#).
- Deflections and movements: [Accommodate without damage](#).
- General movement: [Accommodate anticipated building movements](#).
- Imposed loads:
  - Standard: [In accordance with BS EN 1991-1-1](#).

#### 25-05-75/228 Thermal movement

- Service temperature range: [Temperature range within CWCT Standard for systemised building envelopes, clause 2.7.2, Tables 2.2 and 2.3](#).

### **Products**

#### 45-50-35/330 Stainless steel point connectors

- Manufacturer: [Pilkington Architectural, Alexandra Works, Borough Road, St. Helens](#),

England  
WA10 3WA  
Tel:01744 692 378  
Fax: 01744 451 326.

Email. [Jason.Eggerton@nsg.com](mailto:Jason.Eggerton@nsg.com)  
Mob. +44 (0) 7817 200350  
Web. [www.pilkington.co.uk/planar](http://www.pilkington.co.uk/planar)

- Material: [Stainless steel to BS EN 10088-1, grade 1.4401 \(316\).](#)
- Finish: [Manufacturer's standard.](#)
- Connection:
  - Type: [Fixed head. 100x75x12mm steel angle with M16 bolts. Arrangement of bolt fixings to main structure dependant upon conditions pertaining to particular contract.](#)
  - Number of legs: [Manufacturer's standard.](#)

#### 45-55-75/362 Bonding sealants for structural sealant/ bonded glazing

- Manufacturer: [Dow Corning 791 or other equal and approved.](#)
- Standard: [To BS EN ISO 11600.](#)
- Sealant type: [Silicone to BS 5889, type A or B, neutral curing where in contact or close proximity to other products and finishes which may be adversely affected by acetox curing.](#)
- Colour: [Black.](#)
- Compatibility: [Compatible with contact and close proximity products and finishes.](#)
- Execution: [45-55-75/610 Suitability of joints for sealant application and 45-55-75/620 Joint preparation for sealant application.](#)

#### 45-65-40/301 Structural Glass Assembly

- Manufacturer: [Pilkington Architectural, Alexandra Works, Borough Road, St. Helens, England WA10 3WA](#)

Email. [Jason.Eggerton@nsg.com](mailto:Jason.Eggerton@nsg.com)  
Mob. +44 (0) 7817 200350  
Web. [www.pilkington.co.uk/planar](http://www.pilkington.co.uk/planar)

- Product reference: [Pilkington Planar System.](#)
- Area / location: [High level at the eastern end of the concourse and low level at the western end of the concourse. Refer to bpr window schedules for further details.](#)  
[Refer to:](#)  
[LSWH-EN31-EAR-SCH-BCK-00262 \[Window Schedule - Concourse High Level \(North\)\];](#)  
[LSWH-EN31-EAR-SCH-BCK-00261 \[Window Schedule - Concourse High Level \(East \\_ West\)\];](#)  
[LSWH-EN31-EAR-SCH-BCK-00260 \[Window Schedule - Concourse Low Level\];](#)  
[LSWH-EN31-EAR-SCH-BCK-00263 \[Window Schedule - Concourse High Level \(South\)\].](#)
- Assembly fixings:
  - Material: [905 Fitting incorporating countersunk bolt and socket. Stainless steel to BS 1449 Part 2.](#)
  - Finish: [Brushed 2J to BS EN 10088-2](#)
- Assembly supports:
  - Material: [Internal CHS structural columns. Location and number to be developed with sub-contractor.](#)
- Glass: [Planar insulating double glazed units with toughened glass comprising of:](#)
  - [10mm Optifloat Clear Toughened and Heat Soak Tested Inner Glass](#)
  - [1.52mm PVB Interlayer](#)
  - [6mm Optifloat Clear Toughened and Heat Soak Tested Inner Glass](#)
- Glass to glass jointing: [Silicone sealant as 45-55-75/362.](#)
- Nominal joint width: [12 mm.](#)

## **Execution**

### 25-05-75/630 Preliminary installation

- Installation:
  - Purpose: [For inspection and approval of appearance and To validate tolerances.](#)
  - Location: [Contractor's choice.](#)
  - Timing: [Construct during preliminary installation. Obtain approval of appearance before proceeding.](#)

### 25-05-75/640 Erecting glass – tolerances

- Joint width (nominal): [10 mm.](#)
- Permitted deviation in glass joint width (maximum): [Contractor's choice.](#)

### 25-05-75/650 Structural glazing

- Setting out: [Orientate panes and units to ensure uniformity of appearance.](#)
- Assembly supports and fixings:
  - Connections to glass: [Isolate to prevent direct contact with metal.](#)

### 45-55-75/610 Suitability of joints for sealant application

- Joint dimensions: [Within limits specified for the sealant.](#)
- Substrate quality: [Surfaces regular, undamaged and stable.](#)
- Joints not fit to receive sealant: [Submit proposals for rectification.](#)

### 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.](#)
- Cleaning: [Use materials and methods recommended by sealant manufacturer.](#)
- Vulnerable surfaces adjacent to joints: [Mask.](#)

## **System completion**

### 25-05-75/820 Preventing rotation and adjustment of assembly fixings

- Threaded assembly fixings and assembly support fixings: [Lock or pin at completion of structural glazing to prevent rotation due to building movement and unauthorized adjustment.](#)

### 25-05-75/840 Operation and maintenance manual

- Schedule for maintenance and replacement of sealants and secondary components: [Submit.](#)
- Information to be included: [Recommendations for safe dismantling and recycling or disposal of products.](#)
- Timing: [On completion of structural glass system.](#)

Ω End of system

## **25-05-75/120 Stacked structural glass wall system**

### **System outline**

#### 25-05-75/120 Stacked structural glass wall system

- System performance: [25-05-75/208 Structural glass wall system design](#); [25-05-75/214 Structural performance](#); [25-05-75/228 Thermal movement](#); [25-05-75/245 Watertightness](#); [25-05-75/255 Fire performance](#); and [25-05-75/265 Aesthetic performance](#).
- Glass: [45-65-40/315 Heat strengthened glass - to retail unit](#).
- Joints: [45-55-75/362 Bonding sealants for structural sealant/ bonded glazing](#).
- Openings:
  - Type: [45-25-28/322 Frameless glass door leaves - to retail unit](#).
- Execution: [25-05-75/630 Preliminary installation](#); [25-05-75/640 Erecting glass – tolerances](#); and [25-05-75/650 Structural glazing](#).
- System completion: [25-05-75/820 Preventing rotation and adjustment of assembly fixings](#) and [25-05-75/840 Operation and maintenance manual](#).

### **System performance**

#### 25-05-75/208 Structural glass wall system design

- Design requirements: [Complete the detailed design of the structural glass assembly in accordance with the general arrangement drawings and this specification](#).
- Design load information provided to the Contractor: [Select worst condition from computer printout provided by Employer's Engineer](#).
- Standard: [In accordance with the CWCT Standard for systemised building envelopes](#).
- Appearance and fit: [Position and align parts and features as shown on preliminary design drawings. Accommodate deviations in the primary support structure](#).
- Related works: [Coordinate in the detailed design](#).
- Detailed design: [Complete and Submit proposals for approval before fabrication](#).

#### 25-05-75/214 Structural performance

- Standard: [In accordance with the CWCT Standard for systemised building envelopes](#).
- Loads: [Resist wind loads, dead loads and design live loads](#).
- Deflections and movements: [Accommodate without damage](#).
- General movement: [Accommodate anticipated building movements](#).
- Imposed loads:
  - Standard: [In accordance with BS EN 1991-1-1](#).

#### 25-05-75/228 Thermal movement

- Service temperature range: [Temperature range within CWCT Standard for systemised building envelopes, clause 2.7.2, Tables 2.2 and 2.3](#).

#### 25-05-75/245 Watertightness

- Amount of rainwater leakage (maximum): [None](#).
- Test criteria: [In accordance with CWCT 'Standard for systemised building envelopes', Standard test methods - section 6](#).



- Test results: [Submit](#).

#### 25-05-75/255 Fire performance

- Standard: [To BS 476-22](#).
- Fire resistance (minimum): [In accordance with Aecom grip 4 fire safety strategy report dated 12th May 2014](#).

#### 25-05-75/265 Aesthetic performance

- Visual clarity: [Maximize](#).
- Secondary structure: [Minimize width of secondary structure where possible, to increase visual clarity](#).
- Fixings on exterior surface: [Not permitted - flush appearance to external surface of glazing](#).

### **Products**

#### 45-25-28/322 Frameless glass door leaves - to retail unit

- Manufacturer: [Submit proposals to BPR for review](#).
- Format: [Double leaf, single action](#).
- Standards: [Design of glass shopfront in accordance with TFL retail design idiom](#).
- Thickness: [Refer to BPR retail unit package of information for details](#).
- Door leaf size: [Refer to BPR retail unit package of information for details](#).
- Performance:
  - Strength and durability: [To BS EN 1192, Class 3. Heavy to severe duty](#).
  - Impact resistance: [To BS EN 12600](#).
- Leaf:
  - Material: [12mm toughened safety glass. In accordance with approved document K](#).
  - Colour: [Clear](#).
  - Manifestation: [Glazing to have permanent manifestation at two heights between 850-1000mm and between 1400-1600mm from the ground. Refer to BPR retail unit package of information for further details](#).
- Hardware:
  - Door rails and patch fittings:
    - Type: [Top patch with pivot](#).
    - Material and finish: [TBC](#).
  - Lock:
    - Type: [Profile double cylinder. TBC](#).
    - Position: [Centrally in opening edge of door](#).
  - Floor springs: [Single swing with 90° retention](#).
  - Pull handles:
    - Size: [Refer to BPR retail unit package of information for details](#).
    - Material and finish: [TBC](#).
- Accessories: [Letter plate](#).

#### 45-55-75/362 Bonding sealants for structural sealant/ bonded glazing

- Manufacturer: [Dow Corning 791 or other equal and approved](#).
- Standard: [To BS EN ISO 11600](#).
- Sealant type: [Silicone to BS 5889, type A or B, neutral curing where in contact or close proximity to other products and finishes which may be adversely affected by acetox curing](#).
- Colour: [Black](#).
- Compatibility: [Compatible with contact and close proximity products and finishes](#).

- Execution: [45-55-75/610 Suitability of joints for sealant application](#) and [45-55-75/620 Joint preparation for sealant application](#).

#### 45-65-40/305 Glass standards generally

- Selection standards: [In accordance with BS 5516-2 for sloping glazing](#). To BS 6262-1 for vertical glazing.
- Classification standard and product labelling: [To BS 952-1 and BS 952-2](#).
- Definition and product standards:
  - Toughened or strengthened glasses:
    - Heat strengthened soda lime silicate glass: [To BS EN 1863-1 and BS EN 1863-2](#).
    - Thermally toughened soda lime silicate safety glass: [To BS EN 12150-1 and BS EN 12150-2](#).
    - Chemically strengthened soda lime silicate glass: [To BS EN 12337-1 and BS EN 12337-2](#).
    - Thermally toughened borosilicate safety glass: [To BS EN 13024-1 and BS EN 13024-2](#).
    - Heat soaked thermally toughened soda lime silicate safety glass: [To BS EN 14179-1 and BS EN 14179-2](#).
    - Thermally toughened alkaline earth silicate safety glass: [To BS EN 14321-1 and BS EN 14321-2](#).
  - Laminated glasses: [To BS EN ISO 12543-1, BS EN ISO 12543-2, BS EN ISO 12543-3, BS EN ISO 12543-4, BS EN ISO 12543-5 and BS EN ISO 12543-6, and BS EN 14449](#)
- Panes and sheets:
  - Dimensions: [Manufacturer's standard](#).
  - Glass quality: [Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects](#).
  - Glass edges: [Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across surface are acceptable if ground out](#).

#### 45-65-40/315 Heat strengthened glass - to retail unit

- General requirements: [45-65-40/305 Glass standards generally](#).
- Manufacturer: [Submit proposals](#).
- Third party accreditation: [Third party accredited by UKAS approved/ recognized body](#).
- Composition: [TBC](#).
- Thickness: [TBC](#).
- Body colour: [Clear](#).
- Applied detail: [Glazing to have permanent manifestation at two heights between 850-1000mm and between 1400-1600mm from the ground. Refer to BPR retail unit package of information for further details](#).

### **Execution**

#### 25-05-75/630 Preliminary installation

- Installation:
  - Purpose: [For inspection and approval of appearance and To validate tolerances](#).
  - Location: [Contractor's choice](#).
  - Timing: [Construct during preliminary installation. Obtain approval of appearance before proceeding](#).

#### 25-05-75/640 Erecting glass – tolerances

- Joint width (nominal): [10 mm](#).
- Permitted deviation in glass joint width (maximum): [Contractor's choice](#).

#### 25-05-75/650 Structural glazing

- Setting out: [Orientate panes and units to ensure uniformity of appearance](#).
- Assembly supports and fixings:
  - Connections to glass: [Isolate to prevent direct contact with metal](#).

#### 45-55-75/610 Suitability of joints for sealant application

- Joint dimensions: [Within limits specified for the sealant.](#)
- Substrate quality: [Surfaces regular, undamaged and stable.](#)
- Joints not fit to receive sealant: [Submit proposals for rectification.](#)

#### 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.](#)
- Cleaning: [Use materials and methods recommended by sealant manufacturer.](#)
- Vulnerable surfaces adjacent to joints: [Mask.](#)

### **System completion**

#### 25-05-75/820 Preventing rotation and adjustment of assembly fixings

- Threaded assembly fixings and assembly support fixings: [Lock or pin at completion of structural glazing to prevent rotation due to building movement and unauthorized adjustment.](#)

#### 25-05-75/840 Operation and maintenance manual

- Schedule for maintenance and replacement of sealants and secondary components: [Submit.](#)
- Information to be included: [Recommendations for safe dismantling and recycling or disposal of products.](#)
- Timing: [On completion of structural glass system.](#)

Ω End of system

## **25-10-55/160 Masonry wall system**

### **System outline**

#### 25-10-55/160 Masonry wall system

- System performance: [25-10-55/200 Accuracy of brick and block walling](#); [25-10-55/204 Design supervision and checking for masonry systems](#); and [25-10-55/235 Design of masonry walling](#).
- NOTE: System to be read in conjunction with following drawings:  
LSWH-EN31-EAR-DDE-BCK-00092 [CONCOURSE WALL TYPE SECTIONS]  
LSWH-EN31-EAR-DDE-BCK-00091 [CONCOURSE WALL TYPE REFERENCE DRAWING].
- Mortar: [Site mixed cement gauged mortar](#).
- Masonry units:
  - Primary: [45-80-50/300 Aggregate concrete blocks](#);  
[45-80-50/316 Clay bricks type A](#);  
[45-80-50/316 Clay bricks type B](#).
  - Below dpc: [45-80-50/316 Clay bricks type C](#).
- Movement joint components: [45-75-90/345 Expanded polyethylene foam strip](#).
- Vapour Control Layer: [As per clause 45-65-50/325](#)
- Dpc:
  - Primary: [45-25-20/337 Plastics damp proof courses and/ or cavity trays](#).
- Cavity accessories:
  - Concrete fill: [45-55-20/340 Concrete infill to base of cavity wall](#).
  - Wall ties:
    - Primary: [45-25-95/315 Cavity wall ties](#).
  - Insulation: [45-45-65/420 Insulation board](#).
  - Cavity fire barriers: [Contractor's design](#).
  - Cavity closers: [45-25-20/455 Plastics cavity closers](#).
- Termination unit: [45-25-75/326 Aluminium coping units](#)
- System accessories: [45-25-95/420 Wall starters and connectors](#);  
[45-80-50/370 Airbricks](#);  
[45-80-50/384 Perpend joint plastics weep holes](#).
- Execution: [25-10-55/600 Adverse weather](#);  
[25-10-55/601 Cleanliness](#);  
[25-10-55/603 Concrete fill to base of cavity](#);  
[25-10-55/605 Execution Standards for masonry structures](#);  
[25-10-55/757 Laying walling below ground level](#);  
and [25-10-55/741 Fixing brick slips](#).

### **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:  
[± 10 mm](#).
  - Straightness in any 5 m length: [± 5 mm](#).
  - Verticality up to 3 m height: [± 10 mm](#).
  - Verticality up to 7 m height: [± 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.

#### 25-10-55/204 Design supervision and checking for masonry systems

- Required level of design supervision: [To BS EN 1990, DSL 1.](#)
- Design supervision personnel: [Contractor's choice.](#)

#### 25-10-55/235 Design of masonry walling

- Standard: [To BS EN 1996-1-1.](#)

### **Products**

#### 45-25-20/337 Plastics damp proof courses and/ or cavity trays

- Manufacturer: [Visqueen Building Products](#)  
[Heanor Gate](#)  
[Heanor](#)  
[Derbyshire](#)  
[DE75 7RG](#)  
[Web: http://www.visqueenbuilding.co.uk/](#)  
  
[or similar approved.](#)
- Material: [Polyethylene damp proof course. Form to provide a free draining and watertight installation. Seal laps.](#)
- Standard: [To BS 6515.](#)
- Colour: [Manufacturer's standard.](#)
- Execution: [45-25-20/605 Installing vertical dpcs generally;](#)  
[45-25-20/635 Installing horizontal dpcs;](#)  
[and 45-25-20/655 Installing stepped dpcs in external walls.](#)

#### 45-25-20/455 Plastics cavity closers

- Manufacturer: [Kingspan Insulation Ltd](#)  
[Pembroke](#)  
[Leominster](#)  
[Herefordshire](#)  
[HR6 9LA](#)  
[Tel: 01544 388 601](#)  
[Web: http://www.kingspaninsulation.co.uk/Products/Kooltherm/Kooltherm-Cavity-Closer/Overview.aspx](#)  
  
[or similar approved.](#)
- Product reference: [Kooltherm Cavity Closer.](#)
- Accessories: [Standard flange clip, reveal clip, jointing strips and all other associated items. Refer to manufacturers details for information.](#)
- Execution: [45-25-20/605 Installing vertical dpcs generally.](#)

#### 45-25-75/326 Aluminium coping units

- Manufacturer: [Contractor's choice.](#)
- Material: [BS EN 515, BS EN 573-3, BS EN 485-1 and BS EN 485-2.](#)
- Finish: [Polyester Powder coated Graphite Grey: NCS-S-7010-R90B / RAL 7024](#)
- Material thickness (minimum): [Manufacturer's standard.](#)
- Dimensions: [As shown on drawings.](#)
- Fixings: [Coping bracket at 1.5m centres](#)

#### 45-25-95/315 Cavity wall ties

- Manufacturer: [Ancon Building Products](#)  
[President Way](#)  
[President Park](#)  
[Sheffield](#)  
[S4 7UR](#)  
[United Kingdom](#)  
[Tel: +44 \(0\) 114 275 5224](#)  
[Web: https://www.ancon.co.uk/products/wall-ties-restraint-fixings](#)  
  
[or similar approved.](#)
- Standard: [To BS EN 845-1.](#)
- Tie type: [Contractor's choice. To suit wall type.](#)
- Material: [Stainless steel.](#)
- Length: [To suit cavity width of wall which varies dependant on wall type.](#)
- Design embedment length (minimum): [50 mm.](#)
- Movement: [Tolerant.](#)
- Tie-mounted insulation retaining clips: [Required.](#)
- Execution: [45-25-95/610 Fixing ties in masonry cavity walls.](#)

#### 45-25-95/420 Wall starters and connectors

- Manufacturer: [Ancon Building Products](#)  
[President Way](#)  
[President Park](#)  
[Sheffield, S4 7UR](#)  
[United Kingdom](#)  
[Tel: +44 \(0\) 114 275 5224](#)  
[Web: https://www.ancon.co.uk/products/wall-ties-restraint-fixings/the-staifix-range/wall-starter-systems](#)  
  
[or similar approved.](#)
- Material: [Austenitic stainless steel.](#)
- Tie type: [Channel and ties.](#)
- Sizes:
  - Channel slot tie length: [To achieve 50 mm minimum embedment length. And to suit wall type.](#)
- Accessories: [Debonding sleeves for slot ties.](#)
- Execution: [45-25-95/620 Fixing wall starters and connectors.](#)

#### 45-45-65/420 Insulation board

- Manufacturer: [Kingspan Insulation Ltd](#)  
[Pembroke](#)  
[Leominster](#)  
[Herefordshire](#)  
[HR6 9LA](#)  
[Tel: 01544 388 601](#)  
[info@kingspantek.co.uk](#)  
  
[or similar approved.](#)
- Product reference: [Kooltherm® K8 Cavity Board](#)
- Location / area: [To cavity walls situated adjacent to West End Lane.](#)
- Green guide rating: [Kingspan Kooltherm® K8 Cavity Board achieves a 2008 BRE Green Guide Summary Rating of A+.](#)
- Insulation thickness: [50mm. TBC.](#)  
[U values in accordance with approved document L2A.](#)
- Standard: [To BS EN 13166.](#)
- Face size (length x width): [1200 x 450 mm.](#)

- Edges: [Square](#).
- Facing: [Faced on both sides with a low emissivity composite foil, autohesively bonded to the insulation core during manufacture](#).

#### 45-55-20/340 Concrete infill to base of cavity wall

- Manufacturer: [Contractor's choice](#). In accordance with SE specification and details.

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

- Manufacturer: [Contractor's choice](#).
- Standard: [To Highways England Specification for Highway Works, clause 1015](#).
- Location / area: [Foam filler used within movement joints](#).
- Weathering test: [No disintegration](#).
- Recovery: [Greater than 70%](#).
- Material: [Crosslinked closed cell polyethylene foam](#).
- Density: [33 kg/m<sup>3</sup>](#).
- Compression in joint (minimum): [25%](#).
- Size:
  - Thickness: [10 mm](#).
- Colour: [Filler colour as manufacturers standard. External sealant colour TBC](#).
- Execution: [45-75-90/620 Installing movement joint fillers in masonry](#).

#### 45-80-50/300 Aggregate concrete blocks

- Manufacturer: [Contractor's choice](#).
- Standard: [To BS EN 771-3](#).
- Area / location: [Inner leaf of cavity wall to station front facade and wall North of retail unit](#).
- Block description: [Standard common block](#).
- Compressive strength:
  - Mean value: [In accordance with SE specification and details](#).
  - Characteristic value: [In accordance with SE specification and details](#).
  - Category: [In accordance with SE specification and details](#).
- Thermal resistance: [Adequate to achieve U values in accordance with approved document L2A](#).
- Work sizes (length x width x height): [440 x 100 x 215 mm](#).
- Density:
  - Gross dry density: [Manufacturer's standard](#).
  - Net dry density: [Manufacturer's standard](#).
- Reaction to fire: [Class A1](#).

#### 45-80-50/316 Clay bricks type A

- Manufacturer: [Blockleys  
Michelmersh Brick Holdings PLC  
Freshfield Lane  
Danehill  
Sussex  
RH17 7HH  
t: 0844 931 0022](#)
- Standard: [To BS EN 771-1](#).
- Brick type: [Facing brickwork](#).
- Product reference: [Contractor to allow for a blend of the following two brick types;](#)
  - [Hadley Red Smooth](#)
  - [Hadley Brindle Smooth](#)

NOTE: Allow for plinth detail to station front facade and wall to North of retail unit. Allow for 2no. recessed courses to station front facade and around entire retail unit. Allow for bricks on edge detail to top of all walls. Any alternative product suggested by the contractor must be able to work as a facing brick, brick slip and sawtooth brick for continuity across the project.

- Area / location: Facing brick to station front facade, retail unit, street facing walls.
- Finish: Wirecut.
- Brickwork bond: Stretcher bond.
- Wall type reference: As Drawing LSWH-EN31-EAR-DDE-BCK-00091 [CONCOURSE WALL TYPE REFERENCE DRAWING].
- Work size (length x width x height): 215 x 102 x 65 mm.
- Joints: Bucket handle.
- Tolerances:
  - Mean value: T2.
  - Range: R2.
- Compressive strength:
  - Mean compressive strength (minimum): 50 N/mm<sup>2</sup>
- Density:
  - Gross dry: 1770 kg/m<sup>3</sup>
- Configuration: Manufacturer's standard.
- Thermal conductivity: 0.67 W/m.K-50%  
0.74 W/m.K-90%
- Reaction to fire: Class A1.
- Other requirements: Contractor to allow for brick specials as indicated in the following clause reference 45-80-50/332.

#### 45-80-50/316 Clay bricks type B

- Manufacturer: Ibstock Brick Ltd,  
Leicester Road,  
Ibstock,  
Leicestershire  
LE67 6HS  
t: 01530 261999 f: 01530 257457  
Email: enquiries@ibstock.co.uk
- Product reference: Ibstock White Glazed Facing Brick
- Standard: To BS EN 771-1.
- Brick type: Facing brickwork.
- Area / location: Southern customer support zone/ Ballymore Area
- Wall type reference: Refer to BPR drawings for full details.
- Brick description: Glazed White Facing brick.
- Appearance: Wirecut - Smooth.
- Finish: Glazed
- Work size (length x width x height): 215 x 102 x 65 mm.
- Other requirements: Mortar colour: Grey
- Compressive strength:
  - Mean compressive strength (minimum): MIN. 75N/mm<sup>2</sup>.
  - Water absorption: MAX. 6%.
  - Durability: F2.
  - Gross density: 1700Kg/m<sup>3</sup> (D1).
- Configuration: Vertically Perforated – Max 35%.
- Reaction to fire: Class A1.



#### 45-80-50/316 Clay bricks type C

- Manufacturer: [Contractor's choice](#).
- Standard: [To BS EN 771-1](#).
- Brick type: [HD](#).
- Brick description: [Engineering brickwork below DPC level](#).
- Appearance: [To match the adjoining brickwork where visible](#).
- Work size (length x width x height): [215 x 102 x 65 mm](#).
- Compressive strength:
  - Mean compressive strength (minimum): [75 N/mm2. In accordance with SE specification and details](#).
- Durability designation: [F2](#).
- Configuration: [Manufacturer's standard](#).
- Reaction to fire: [Class A1](#).

#### 45-80-50/384 Perpend joint plastics weep holes

- Manufacturer: [Rytons Building Products Ltd](#)  
[Kettering Business Park](#)  
[Orion Way](#)  
[Kettering](#)  
[NN15 6NL](#)  
Web: <http://rts.vents.co.uk/blog/product-details/rytons-rytweep-cavity-weep-rytweep/>  
  
[or similar approved](#).
- Product reference: [Rytons rytweep](#).
- Colour: [To match adjoining masonry](#).
- Location / area: [Through outer leaf immediately above base of cavity, at cavity trays, stepped dpcs and external openings 75 mm above top of cavity fill at base of cavity](#).
- Provision: [At not greater than 1000 mm centres and not less than two over each opening](#).
- Execution: [45-80-50/600 Installing perpend joint plastics weep holes](#).

### **Execution**

#### 25-10-55/600 Adverse weather

- Freezing conditions: [Do not use frozen materials or lay on frozen surfaces](#).
- Air temperature:
  - Cement gauged mortars: [Do not lay units at or below 3°C and falling or below 1°C and rising. \(unless mortar has a temperature of not less than 4°C when laid and walling is thoroughly protected\)](#).
  - Hydraulic lime: sand mortars: [Do not lay units at or below 5°C and falling or below 3°C and rising](#).
  - Thin joint mortar glue: [Do not lay units outside the temperature limits set by the mortar manufacturer](#).
- Temperature of masonry during curing: [Above freezing until mortar hardens/ has fully set](#).
- Newly erected walling:
  - Protect from precipitation: [At all times](#).
  - Protect from drying out too rapidly: [At all times in hot conditions and in drying winds](#).

#### 25-10-55/601 Cleanliness

- Cavity base and faces, ties, insulation and exposed dpcs: [Free from mortar and debris](#).

#### 25-10-55/603 Concrete fill to base of cavity

- Extent: [Maintain 75 mm between top of fill and external ground level and a minimum of 225 mm between top of fill and ground level dpc](#).
- Placement: [Compact to eliminate voids](#).

#### 25-10-55/605 Execution Standards for masonry structures

- Standard: [To BS EN 1996-2](#).

#### 25-10-55/710 Site mixed cement gauged mortar

- Mortar type: [Site batched and mixed cement:sand](#).
- Components: [Contractor's choice](#).
- Mix: [Contractor's choice](#).
- Colour: [TBC](#).

#### 25-10-55/741 Fixing brick slips

- Concrete substrate:
  - Preparation: [Remove laitance and expose aggregate](#).
  - Substrate surface: [Clean and free of loose material](#).
- Slips:
  - Preparation of slips: [Clean and free of loose material](#).
  - Contact area: [Fully bonded](#).
- Movement joints in substrate: [Do not bridge](#).
- Pointing: [Allow adhesive bedding to set](#). Use same mortar as adjacent facework and finish to same profile.

#### 25-10-55/757 Laying walling below ground level

- Commencement of facework: [Not less than 150 mm below finished level of adjoining ground or external works level](#).

#### 45-25-20/605 Installing vertical dpcs generally

- Form: [In one piece wherever possible](#).
- Joints: [Upper part overlapping lower at least 100 mm](#).

#### 45-25-20/635 Installing horizontal dpcs

- Placement: [In continuous lengths on full even bed of fresh mortar, with 100 mm laps at joints and full laps at angles](#).
- Width: [At least full width of leaf unless otherwise specified](#). Do not cover edges of dpc with mortar or project into cavity.
- Overlying construction: [Immediately cover dpc with full even bed of mortar to receive next masonry course](#).
- Overall finished joint thickness: [As close to normal as practicable](#).

#### 45-25-20/655 Installing stepped dpcs in external walls

- External walls on sloping ground: [Install dpcs not less than 150 mm above adjoining finished ground level](#).
- External walls above pitched roof abutment: [Install dpcs not less than 150 mm above adjoining finished roof level](#).

#### 45-25-95/610 Fixing ties in masonry cavity walls

- Wall arrangement: [With partial fill cavity insulation](#).
- Embedment in mortar beds (minimum): [50 mm](#).
- Placement: [Sloping slightly downwards towards outer leaf, without bending](#). Centre drip in the cavity and pointing downwards.
- Spacing:
  - Pattern: [Stagger in alternate courses](#).
  - Horizontal centres: [900 mm](#).
  - Vertical centres: [450 mm](#).
  - Centres of top row: [Not more than 450 mm](#).

- Additional ties:
  - Provision: [Within 225 mm of reveals of unbonded openings and at the vertical reveals of unsupported masonry.](#)
  - Spacing: [At not more than 300 mm centres vertically.](#)

#### 45-25-95/620 Fixing wall starters and connectors

- Requirement: [Securely fix to substrate.](#)
- Fasteners: [Through fixed.](#)

#### 45-75-90/620 Installing movement joint fillers in masonry

- Application: [Movement joints that use sealant.](#)
- Filler placement: [Build in as work proceeds filling joint with no projections into cavities, and to correct depth to receive sealant system.](#)

#### 45-80-50/600 Installing perpend joint plastics weep holes

- Placement: [Through outer leaf immediately above base of cavity, at cavity trays, stepped dpcs and external openings. 75 mm above top of concrete fill at base of cavity.](#)
- Spacing (maximum): [At not greater than 1000 mm centres and not less than two over each opening.](#)

#### 45-80-50/605 Installing air bricks, gratings and ventilators in walling

- Placement: [Build in with no gaps at joints.](#)

#### 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: [Half lap stretcher.](#)

#### 45-80-50/635 Brickwork and blockwork pointing

- Joint preparation: [Remove debris. Dampen surface.](#)
- Profile: [Bucket handle.](#)

#### 45-80-50/645 Coursing brickwork

- Gauge: [Four brick courses including bed joints to 300 mm.](#)

#### 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 and adhesive 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: [Allow to dry before removing with stiff bristled brush.](#)

- Removal of marks and stains: [Rubbing and other abrasive or chemical cleaning methods not permitted.](#)

Ω End of system

## **25-15-25/135 Gypsum board partition system**

### **System outline**

#### 25-15-25/135 Gypsum board partition system

- System performance: [25-15-25/207 Framed partition system design requirements](#); [25-15-25/250 Airtightness performance of partition systems](#); and [25-15-25/220 Fire performance to BS 476](#).
- Framing: [45-70-30/390 Steel frames for dry linings](#).
- Insulation: [45-45-70/355 Mineral wool insulation](#).
- Cavity fire barriers: [45-45-70/450 Flexible cavity barriers](#).
- Linings:
  - Face layer: [45-45-50/465 Fibre-reinforced gypsum board](#).
- Joint treatment: [45-75-90/400 Paper jointing tape](#).
- Finish: [45-55-60/370 Finish plaster](#).
- Partition locations: As Drawing LSWH-EN31-EAR-DDE-BCK-00143 [Typical Internal Partition Details].
- System accessories: All as required to complete the system. Including but not limited to; rigid beads / firestrips / angles / sealant / support clips. For secure partitions 1 layer of flattened expanded security mesh, 50-76MF by Expamet O.S.A, installed between Gyproc plasterboard and frames and fixed to framing with staggered drywall screws as necessary to secure flattened mesh and prevent rattling on both sides.
- 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](#); [25-15-25/660 Installing plasterboard to metal framing](#); and [25-15-25/695 Installing insulation and cavity barriers in framed partitions](#).

### **System performance**

#### 25-15-25/207 Framed partition system design requirements

- Standard: [To BS 8000-0 and BS 8212](#).
- Materials, components and details: [Use only the same as those tested and identified in assessment reports](#).

#### 25-15-25/220 Fire performance to BS 476

- Fire resistance: [In accordance with Aecom grip 4 fire safety strategy report dated 12th May 2014](#).

#### 25-15-25/250 Airtightness performance of partition systems

- Air permeability: [In accordance with M&E specification](#).
- Air leakage rate (m3/hr): [In accordance with M&E specification](#).
- Design pressure (maximum): [In accordance with M&E specification](#).

### **Products**

#### 45-45-50/465 Fibre-reinforced gypsum board

- Manufacturer: [British Gypsum Ltd](#)  
[Head Office Gotham Road](#)  
[East Leake](#)  
[Loughborough](#)  
[Leicestershire](#)

LE12 6HX  
T: 0115 945 1000  
Web: <http://www.british-gypsum.com/product-range/plasterboards>

or similar approved.

- Standard: To BS EN 15283-2.
- Board type: 1no. layer of 15mm 'Duraline' board either side of inner layer with skim coat plaster finish. Allow for additional layer of 18mm plywood fixed within metal studs where additional support is required for fixtures and fittings.
- Fire rating: To BS EN 13501-1, Class A1 reaction to fire.
- Thickness: 15 mm.
- Edges: Square.
- Colour and finish: Manufacturer's standard.
- Execution: [45-45-50/605 Installing gypsum based board](#) and [45-45-50/650 Seamless jointing to gypsum boards](#).

#### 45-45-70/355 Mineral wool insulation

- Manufacturer: Saint-Gobain Isover  
White House Industrial Estate  
Runcorn  
Cheshire  
WA7 3DP  
Web: <https://www.isover.co.uk/products/acoustic-partition-roll-apr-1200>

or similar approved.

- Form: Isover APR 1200 Acoustic Partition Roll.
- Standard: To BS EN 13162.
- Thermal conductivity (maximum): 0.039 W/m·°K.
- Thickness (minimum): 50 mm.
- Recycled content: Isover glass mineral wool insulation is manufactured from up to 86% recycled glass. Isover APR corresponds to the BRE Global Green Guide online generic specification 'Glass wool insulation - density 12 kg/m³' ref: 815320001 which achieves a summary rating of A+ within Domestic, Health, Industrial, Commercial, Retail, Education.

#### 45-45-70/450 Flexible cavity barriers

- Manufacturer: ROCKWOOL Limited.  
Pencoed Bridgend CF35 6NY United Kingdom  
Tel: 01656 862 621

or similar approved.

- Product reference: Fire barrier slab. To be used where any service void exceeds 20m in any direction.
- Fire resistance rating: In accordance with Aecom's Grip 4 fire safety strategy document. In particular sections 5 - 7 of the report.
- Thickness (minimum): 50mm. 1/2 hour cavity barrier.
- Installation requirements: Continuous, with minimum joints.
- Fasteners: As recommended by the manufacturer.
- Facing: As recommended by the manufacturer.
- Other requirements: Accessories as required in accordance with manufacturers details. To be fixed between service void and underside of roof deck. Include for fire dampers for HVAC as per M&E details and drawings.

#### 45-55-60/370 Finish plaster

- Manufacturer: British Gypsum Ltd  
Head Office Gotham Road  
East Leake  
Loughborough  
Leicestershire

LE12 6HX  
T: 0115 945 1000

- Type: [Thistle Multi Finish](#).
- Primer / Sealer: [As recommended by board manufacturer for vapour control](#).
- Standard: [To BS EN 13279-1](#).
- Classification: [B1/20/2](#).
- Execution: [45-55-60/685 Plaster thickness](#).

#### 45-70-30/390 Steel frames for dry linings

- Manufacturer: [British Gypsum Ltd](#)  
[Head Office Gotham Road](#)  
[East Leake](#)  
[Loughborough](#)  
[Leicestershire](#)  
[LE12 6HX](#)  
[T: 0115 945 1000](#)
- Standard: [To BS EN 14195](#).
- Material: [Galvanized lightweight cold rolled steel](#).
- Component types:
  - Partitions: [92mm Gypframe C stud @ 600mm centres](#).
- Execution: [45-70-30/610 Installing steel frames for linings](#).

#### 45-75-90/400 Paper jointing tape

- Manufacturer: [British Gypsum Ltd](#)  
[Head Office Gotham Road](#)  
[East Leake](#)  
[Loughborough](#)  
[Leicestershire](#)  
[LE12 6HX](#)  
[T: 0115 945 1000](#)
- Product reference: [Gyproc Joint Tape](#)

### **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: [U/side of soffit](#).
- 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](#).
- Fixing perimeter framing to supporting structures: [Fix at maximum 600 mm centres](#).
- 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: [Exposed deflection head.](#)
- Head movement allowance: [In accordance with SE details and specification.](#)
- 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.](#)

#### 25-15-25/695 Installing insulation and cavity barriers in framed partitions

- Insulation:
  - Fitting: [Secure with closely butted joints and no gaps.](#)
  - Rigid insulation: [Fit tightly between studs.](#)
  - Non rigid insulation: [Fix at head of frame using timber battens or metal clips.](#)
- Cavity barriers:
  - Generally: [Form accurately with no gaps at joints and perimeters. Mechanically fix securely across full width of cavity.](#)
  - Fire rated partitions: [Include cavity barriers to ceiling or floor void above, below or between partitions. Provide same rating for barrier as partition.](#)
  - Junctions: [Seal perimeter abutments, service penetrations, etc. Prevent penetration of smoke and flame.](#)

#### 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.](#)

#### 45-45-50/650 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.

#### 45-55-60/685 Plaster thickness

- Final coat: 2-5 mm.

#### 45-70-30/610 Installing steel frames for linings

- Setting out:
  - General: Accurately align framing, setting studs vertically.
  - Frame centres (maximum): 600 mm.
  - At openings: Maintain sequence.
  - Additional frames: At corners and board edges.
- Openings:
  - General: Form accurately.
  - 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.

Ω End of system

## **25-20-30/111 Composite board or palisade fencing system**

### **System outline**

25-20-30/111 Composite board or palisade fencing system

- System fabricator: [Procter Fencing Systems](#)  
1 Beaconsfield Court  
Garforth  
Leeds  
LS25 1QH  
Web:<https://www.fencing-systems.co.uk/products/palisade-fence>  
  
or similar approved.
- Product description: [Palisade fencing system to Platform SME areas.](#)  
Refer to:  
[LSWH-EN31-EAR-DDE-BCK-00175 \[SME stair details - Platform 1\]](#)  
[LSWH-EN31-EAR-DDE-BCK-00174 \[SME stair details - Platform 2\].](#)
- Posts: [Galvanised Carbon Steel Posts](#)
- Post foundations: [As per SE details.](#)
- Pales or boards: [2mm 'W' section pales, 1800mm high. Fencing to meet BS 1722 part:12 1990.](#)
- Finish: [Palisade fence to be standard galvanised with pointed head detail.](#)
- System accessories: [Gates, Ironmongery and hinges.](#)  
[As Drawing LSWH-EN31-EAR-DDE-BCK-00144 \[External Door Details\].](#)
- Execution: [25-20-30/607 Fencing work generally type A.](#)
- System completion: [25-20-30/870 Inspection of fencing systems.](#)

### **Execution**

25-20-30/607 Fencing work generally type A

- Metal fixings: [Protect from corrosion.](#)
- Treatment of minor damage to galvanized surfaces:
  - Repairs to areas of damage less than 40 mm<sup>2</sup>:  
Method: [At least two coats of zinc-rich paint.](#)  
Zinc coating thickness (minimum): [Thickness of the original layer.](#)
- Site applied finishes:
  - Timing: [Prepare surfaces and apply finishes as soon as possible after fixing.](#)

### **System completion**

25-20-30/870 Inspection of fencing systems

- Timing: [Two weeks prior to date when principal contractor expects work to be practically complete.](#)
- Period of notice (minimum): [Three working days.](#)

Ω End of system

## **25-20-30/115 Wood close boarded fencing system**

### **System outline**

#### 25-20-30/115 Wood close boarded fencing system

- Standard: [To BS 1722-5](#).
- Location / area: [Timber close board fencing to platform level. Refer to: LSWH-EN31-EAR-DDE-BCK-00144 \[External Door Details\]](#)  
[LSWH-EN31-EAR-DGA-BCK-00062 \[GA PLATFORM PLAN\]](#).
- Posts: [45-25-62/375 Softwood posts](#).
- Post foundations: [As per SE details](#)
- Rails: [45-60-90/450 Softwood rails for fencing](#).
- Pales or boards: [45-60-90/360 Softwood sections](#).
- Site applied finishes: [45-35-84/410 Clear varnishes](#). - TBC by TfL
- Execution: [25-20-30/607 Fencing work generally type B](#);  
[25-20-30/643 Erecting close boarded fencing system](#);  
and [25-20-30/649 Fixing rectangular wood rails](#).
- System completion: [25-20-30/870 Inspection of fencing systems](#).

### **Products**

#### 45-25-62/375 Softwood posts

- Manufacturer: [Procter Fencing Systems](#)  
[1 Beaconsfield Court](#)  
[Garforth](#)  
[Leeds](#)  
[LS25 1QH](#)  
[Web: https://www.fencing-systems.co.uk/products/timber-fencing/timber-closeboard](#)  
  
[or similar approved](#).
- Standards: [BS 1722](#).
- Posts:
  - Type: [Corner](#);  
[End](#);  
and [Intermediate](#).
  - Section: [Square sawn](#).
  - Length: [1800 mm](#).
- Timber:
  - Species: [Manufacturer's standard](#).
- Post top: [Flat top](#).
- Finish as delivered:
  - Applied finish: [Varnished](#).

#### 45-35-84/410 Clear varnishes

- Manufacturer: [Contractor's choice](#).
- Composition: [Manufacturer's standard](#). To provide a transparent, hard, protective finish.
- Sheen: [Matt](#).
- Execution: [45-35-84/725 Varnishing wood](#).

#### 45-60-90/360 Softwood sections

- Supplied by: [Procter Fencing Systems](#)  
[1 Beaconsfield Court](#)  
[Garforth](#)  
[Leeds](#)  
[LS25 1QH](#)  
Web: <https://www.fencing-systems.co.uk/products/timber-fencing/timber-closeboard>  
  
or similar approved.
- Timber:
  - Species: [Manufacturer's standard](#).
  - Quality: [Free from decay, through splits and insect attack \(including ambrosia beetle damage, unless permitted in the class or grade specified\)](#).
  - Warping (maximum): [To BS EN 14081-1 and BS 4978](#).
- Treatment:
  - Preservative: [To Wood Protection Association Commodity Specification C3](#).
- Applied finish: [Varnished](#).
- Dimensions and tolerances:
  - Width: [Manufacturer's standard](#).
  - Depth: [Manufacturer's standard](#).
- Execution: [45-60-90/600 Treatment of timber cut on site](#).

#### 45-60-90/450 Softwood rails for fencing

- Supplied by: [Procter Fencing Systems](#)  
[1 Beaconsfield Court](#)  
[Garforth](#)  
[Leeds](#)  
[LS25 1QH](#)  
Web: <https://www.fencing-systems.co.uk/products/timber-fencing/timber-closeboard>  
  
or similar approved.
- Standards: [To BS 1722-5](#).
- Section: [Arris or Rectangular](#).
- Dimensions:
  - Section size: [Manufacturer's standard](#).
  - Length: [Manufacturer's standard](#).
- Timber:
  - Species: [Manufacturer's standard](#).
  - Quality class: [To BS EN 942, J40](#).
  - Strength class: [Manufacturer's standard](#).
  - Straightness: [Round fence posts and struts shall be sufficiently straight to provide at least one face to which wires can be fixed](#).
- Finishes:
  - Applied: [Varnish](#).

### **Execution**

#### 25-20-30/607 Fencing work generally type B

- Site cutting of wood:
  - Components generally: [Minimize cutting](#).
  - Wood below or near ground level: [Do not cut](#).

- Treatment of surfaces exposed by minor cutting and drilling:
  - Method: [Apply sufficient material to provide a coating equal to the original preservative.](#)
  - Number of coats: [As per manufacturers recommendations](#)
- Site applied finishes:
  - Timing: [Prepare surfaces and apply finishes as soon as possible after fixing.](#)

#### 25-20-30/643 Erecting close boarded fencing system

- Standard: [To BS 1722-5.](#)
- Fence height: [1800 mm.](#)
- Number of main rails: [Three.](#)
- Post centres (maximum): [Contractor's choice. In accordance with manufacturers panel width recommendations.](#)
- Fixing rails: [Contractor's choice. In accordance with manufacturers panel width recommendations.](#)
- Fixing feather edged boards:
  - With gravel board: [Lap boards by approximately 18 mm. Rest boards on gravel board. Attach to each main rail with 50 x 2.65 mm nails.](#)
  - Without gravel board: [Align top of boards. Ensure clearance between bottom of boards and ground level. Attach to each main rail with 50 x 2.65 mm nails.](#)
- Fasteners and fittings: [Contractor's choice.](#)

#### 25-20-30/649 Fixing rectangular wood rails

- Standard: [To BS 1722-7.](#)
- Length (maximum): [Two bays, with joints in adjacent rails staggered.](#)
- Fixing: [Fix to each post with two 100 mm galvanized nails.](#)

#### 45-35-84/725 Varnishing wood

- Thinner: [Brush well in and lay off. Avoid aeration.](#)
- Subsequent coats: [Rub down lightly along the grain between coats.](#)

#### 45-60-90/600 Treatment of timber cut on site

- Requirement:
  - Cutting and machining: [Carry out as much as possible before full treatment of raw material.](#)
  - Extensively processed timber: [Retreat timber sawn lengthways, thickened, planed, ploughed, etc.](#)
  - Minor cutting drilling: [Treat exposed timber surfaces with two flood coats of a solution recommended by main treatment solution manufacturer.](#)

### **System completion**

#### 25-20-30/870 Inspection of fencing systems

- Timing: [Two weeks prior to date when principal contractor expects work to be practically complete.](#)
- Period of notice (minimum): [Three working days.](#)

Ω End of system

## **25-20-85/110 Bollard system**

### **System outline**

#### 25-20-85/110 Bollard system

- System performance: [25-20-85/209 Operational requirements](#).
- Foundations: [In accordance with SE information and details](#).
- Bollard type: [45-25-15/313 Stainless steel bollards](#).
- Execution: [25-20-85/625 Fixing base plates of vehicle restraint posts to concrete pads and strips](#); [25-20-85/623 In situ concrete pad or strip foundation dimensions for vehicle restraint systems](#); and [25-20-85/711 Installing bollards used as vehicle security barriers](#).
- System completion: [25-20-85/810 Certificates for vehicle restraint systems](#).

### **System performance**

#### 25-20-85/209 Operational requirements

- Standards:
  - Traffic management: [In accordance with PAS 69](#).
  - Traffic calming: [In accordance with PAS 69](#).
- Finished surfaces on accessible areas: [Free of irregularities capable of inflicting personal injury](#).

### **Products**

#### 45-25-15/313 Stainless steel bollards

- Manufacturer: [MARSHALLS PLC](#)  
[LANDSCAPE HOUSE](#)  
[LOWFIELD BUSINESS PARK](#)  
[ELLAND](#)  
[HX5 9HT](#)  
Web: <http://www.marshalls.co.uk/commercial/street-furniture/products/rhinoguard-75-40-steel-pas-68-bollard-rg-bl-10443>

[or similar approved](#). We note any alternative bollard proposed by the contractor MUST BE PAS 68 or equal approved.

- Product reference: [Rhinoguard 75/40 Protective Bollard](#).
- Area / Location: [To external pavement at approx. 3m centres. \(approx. 15no. in total\).](#)  
[As Drawing LSWH-EN31-EAR-DGA-BCK-00063 \[GA CONCOURSE PLAN\]](#).
- Design:
  - Type: [Flat top single groove](#). NOTE: Specification is subject to change following comments and guidance from Camden Council.
  - Sleeve finish: [Stainless steel bright polished](#).
  - Foundations: [In accordance with SE information and details](#).
  - Height: [1100mm above external FFL](#).
  - Diameter: [Core diameter 168mm](#).
- Groove: [1No. Red visibility band](#).
- Standard: [In accordance with PAS 68](#).
- Top profile: [Flat](#).
- Base: [Manufacturer's standard](#).

## **Execution**

### 25-20-85/601 Work on or adjacent to highways

- Requirement: [Comply with the Department for Transport \(DfT\) 'Safety at street works and road works - a code of practice'](#). Retain a copy of this document on site during the course of the works.

### 25-20-85/607 Site work on vehicle restraint systems

- General requirements: [25-20-85/601 Work on or adjacent to highways](#).
- Standard: [To BS 7669-3](#).
- Requirement: [All vehicle restraint systems to be installed by qualified personnel in accordance with NH Sector Scheme 2B and NH Sector Scheme 5B](#).
- Metal fixings: [Protect from corrosion](#).
- In situ welding: [Not permitted](#).
- Setting of posts: [In accordance with SE details and document PAS 68](#).
- Fixings: [Securely fix components](#).
- Site applied finishes:
  - Timing: [Prepare surfaces and apply finishes as soon as possible after fixing](#).
- Disposal of arisings:
  - Tree roots and stumps: [Remove from site](#).
  - Litter and nonbiodegradable arisings: [Remove from site](#).

### 25-20-85/611 Alignment of vehicle restraints

- Alignment of fences and barriers: [Straight lines or smoothly flowing curves, following profile of the ground](#).
- Tops of posts: [Follow ground profile](#).
- Verticality: [Plumb](#).
- Tolerances: [±30 mm of prescribed alignment and, within any 10 m length, ±15 mm from the straight or required radius](#).
- Changes of direction: [Obtuse angles such that no angle is less than 130°](#).

### 25-20-85/623 In situ concrete pad or strip foundation dimensions for vehicle restraint systems

- Hole plan size (minimum): [In accordance with SE details and specification](#).
- Hole depth (minimum): [In accordance with SE details and specification](#).

### 25-20-85/625 Fixing base plates of vehicle restraint posts to concrete pads and strips

- Fasteners: [In accordance with SE details and specification](#).
- Cast-in or drilled anchorages within 80 mm of the upper surface of any plinth or coping: [Stainless steel](#).
- Drilled holes: [Avoid concrete reinforcement. Size within tolerance specified by anchorage manufacturer. Clean out before inserting fixings. Do not use expansion anchors in drilled holes](#).
- Packers under base plates: [Corrosion resistant metal. Support parapet with aluminium packers. Remove before grouting](#).
- Voids: [Prevent the collection of water. Fill with a non-setting passive filler](#).

### 25-20-85/711 Installing bollards used as vehicle security barriers

- General requirements: [25-20-85/611 Alignment of vehicle restraints and 25-20-85/607 Site work on vehicle restraint systems](#).
- Standard: [In accordance with PAS 69](#).

## **System completion**

25-20-85/810 Certificates for vehicle restraint systems

- Standard: [To BS EN 1317-5](#).

Ω End of system



## **25-25-10/110 Balustrade and guarding system**

### **System outline**

#### 25-25-10/110 Balustrade and guarding system

- System performance: [25-25-10/220 Structural performance of handrails, balustrade and guarding systems](#) and [25-25-10/210 Design of balustrade and handrail systems generally](#).
- Rails:
  - Handrails: [45-70-70/465 Aluminium handrails - to new stairs](#).
- Execution: [25-25-10/610 Preconstruction survey](#); [25-25-10/620 Control inspections of balustrade and handrail systems](#); and [25-25-10/640 Installation of handrail, balustrade and guarding systems generally](#).
- System completion: [25-25-10/810 Inspection of handrail, balustrade and guarding systems](#).

### **System performance**

#### 25-25-10/210 Design of balustrade and handrail systems generally

- Detailed design: [Design to meet structural and safety requirements of BS 6180 and in accordance with BS 8300](#).

#### 25-25-10/220 Structural performance of handrails, balustrade and guarding systems

- Structure and associated features: [Complete the detailed design in accordance with BS 8300](#).
- Horizontal uniformly distributed line loads on balustrade or handrail (maximum): [In accordance with approved document A](#).

### **Products**

#### 45-70-70/465 Aluminium handrails - to new stairs

- Manufacturer: [Submit proposals](#). TFL approved.  
[Refer to BPR stair setting out drawings](#) for details regarding layout of handrails and guarding.
- Diameter: [Circular handrail with a diameter between 32-50mm](#).
- Cross section: [Circular](#). The handrail should be between 900mm and 1000mm above the pitch line of the stair.
- Secondary handrail: [Allow for a second circular handrail to be installed with its top surface 600mm from the pitch line of the stair](#).
- Finish: [Nylon coated finish in orange to meet cold to touch requirements as per ADM](#)
- Accessories:
  - Materials generally: [To match handrail](#).
  - Adapters and panel clips: [Allow for side fixing of handrail to footbridge steelwork](#).
  - Infill Panels: [Perforated stainless steel metal infill panels, satin finish to be included to SME stairs between intermediate posts which are face fixed to the treads with bolts and a cover rose. Refer to bpr drawings for details](#).

### **Execution**

#### 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](#).
- Primary support structure: [Carry out survey sufficient to verify that required accuracy and security of erection can be achieved](#).

- Timing: [Before fabrication.](#)

25-25-10/640 Installation of handrail, balustrade and guarding systems generally

- Standard: [In accordance with BS 6180.](#)

### **System completion**

25-25-10/810 Inspection of handrail, balustrade and guarding systems

- Timing: [Two weeks prior to date when principal contractor expects work to be practically complete.](#)

Ω End of system

## **25-50-20/120 Doorset system**

### **System outline**

#### 25-50-20/120 Doorset system

- System performance: [25-50-20/210 Performance requirements generally](#); [25-50-20/220 Fire performance requirements to BS 476](#); [25-50-20/225 Weathertightness performance to BS 6375-1](#); [25-50-20/245 Door assembly durability to BS 6375-2](#); [25-50-20/260 Doorset security performance](#); and [25-50-20/265 Inclusive design](#).
- Doorset:
  - Type: [45-25-28/344 Metal doorsets - Internal and External](#) and [45-25-28/348 Wood doorsets](#).
- Hardware: [25-90-20/120 Door hardware system](#).
- System accessories: [Signage in accordance with Merson Signage schedule](#).
- Execution: [25-50-20/642 Installing external doorsets or frames](#); [25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors](#); [25-50-20/655 Fixing hardware generally](#); and [25-50-20/660 Fixing hardware to fire resisting door assemblies](#).
- System completion: [25-50-20/810 Documentation relating to doors, door assemblies and doorsets](#).

### **System performance**

#### 25-50-20/210 Performance requirements generally

- Requirement: [Complete the design of the door system in accordance with TFL requirements relating to security / access control and aesthetics](#).

#### 25-50-20/220 Fire performance requirements to BS 476

- Standards: [In accordance with BS 8214](#), and in line with Aecom grip 4 fire safety strategy report dated 12th May 2014.

#### 25-50-20/225 Weathertightness performance to BS 6375-1

- Standard: [BS 6375-1](#)

#### 25-50-20/245 Door assembly durability to BS 6375-2

- Door assembly:
  - Operation and strength characteristics: [To BS 6375-2](#).
  - Category of duty: [To BS 6375-2, Heavy duty](#).
  - Operating forces: [To BS 6375-2, table 4](#).
  - Mechanical strength: [As dictated by UK category of duty](#).
  - Load bearing capacity of safety devices: [In accordance with requirements of BS EN 14351-1](#).

#### 25-50-20/260 Doorset security performance

- Threat sources: [In accordance with TFL risk assessments and requirements](#).
- Intruder resistance: [In accordance with TFL risk assessments and requirements](#).
- Explosion resistance:
  - Standard: [In accordance with TFL risk assessments and requirements](#).

#### 25-50-20/265 Inclusive design

- Design standards: [Building Regulations \(E&W\) Approved Document M and DFT code of practice design guide for disabled people](#).
- Best practice design:
  - Manifestation of glazing: [Provide two zones: 850 - 1000 mm and 1400 - 1600 mm from ffl. Manifestation to cover 10% of each zone and to contrast visually with background under both natural and artificial lighting.](#)
  - Door furniture:
    - Operability: [Knobs not permitted. Operable with clenched fist.](#)
    - Projection: [70 mm maximum.](#)

### **Products**

#### 45-25-28/344 Metal doorsets - Internal and External

- Manufacturer: [Assa Abloy](#)  
[School Street](#)  
[Willenhall](#)  
[West Midlands](#)  
[WV13 3PW](#)  
Phone: [+44 \(0\)1902 366911](#)  
Web: <http://www.assaabloy.co.uk/en/local/uk/product/all-products/security-doors1/powershield-steel-doorsets/>  
[or similar approved.](#)
- Third party accreditation: [Third party accredited by UKAS External link approved / recognized body.](#)
- Configuration: [As door schedule.](#)
- Doorset size: [In accordance with BPR door schedule.](#)  
  
[Generally the minimum effective clear widths of the doors should comply with Table 2 located in approved document M - volume 2. Please also refer to 'ACoP Version 4 Accessible Railway Station Guide' for additional guidance.](#)
- Performance:
  - Fire performance:
    - Fire integrity: [Refer to BPR door schedule for details. Fire ratings in accordance with Aecom fire strategy document.](#)
  - Acoustic performance: [To BS EN ISO 10140-2, sound reduction index Rw 44 dB minimum. TBC pending review of TFL requirements.](#)
  - Strength and durability: [In accordance with DD 171, Heavy duty. TBC pending review of TFL requirements.](#)
  - Intruder resistance:
    - Minimum requirement: [In accordance with TFL requirements.](#)
    - Conformity: [Certification by accredited third party certification body. Type testing not permitted.](#)
- Frame:
  - Material: [Steel.](#)
  - Threshold: [Manufacturer's standard.](#)
  - Perimeter seals or inserts: [EPDM weatherseal and Fire and smoke seal \(to fire rated doors\).](#)
  - Finish:
    - Coating: [Powder coating to BS 6496.](#)
    - Colour: [RAL Colour 7024 Graphite Grey.](#)
- Door leaf:
  - Thickness: [Manufacturer's standard.](#)
  - Material: [Steel.](#)
  - Glazing:

Manifestation: Not required. Any fixed signage to door leaf in accordance with Merson signage schedule.

- Finish:
  - Coating: Powder coating to BS 6496.
  - External colour: RAL Colour 7024 Graphite Grey.
  - Internal colour: RAL Colour 7024 Graphite Grey.
- Door accessories: Refer to:
  - LSWH-EN31-EAR-DDE-BCK-00144 [External Door Details]
  - LSWH-EN31-EAR-SCH-BCK-00145 [Internal Door Details & Door Schedule].
- Hardware: Refer to door hardware system ref: [25-90-20](#) for further details.
- Architraves:
  - Material: Dependant on location, refer to BPR door schedule for further details.
  - Finish: Dependant on location, refer to BPR door schedule for further details.
- Description: Powershield security doorset with multipoint locking system.
- Area / location: All doors directly located off concourse. All external doors (lift motor room and storeroom at platform level / electrical intake room and bin store to side of retail unit).  
Specification clause to be read in conjunction with BPR door schedules below:  
[LSWH-EN31-EAR-DDE-BCK-00144](#) [External Door Details]  
[LSWH-EN31-EAR-SCH-BCK-00145](#) [Internal Door Details & Door Schedule].
- Other requirements: Allow for spyholes in each door and any other required accessories to meet the desired performance requirements. Louvres to doors with ventilation requirements, in accordance with M&E specification.

#### 45-25-28/348 Wood doorsets

- Manufacturer: Leaderflush and Shapland  
[Magma House](#)  
[16 Davy Court,](#)  
[Castle Mound Way](#)  
[Rugby](#)  
[Warwickshire](#)  
[CV23 0UZ](#)  
Web: <http://www.leaderflushshapland.co.uk/Integrated-doorsets/Doorset-solutions/Designer>

or similar approved.

- Standard: In accordance with BS 8214.
- Wood in joinery standard: To BS EN 942.
- Configuration: Single leaf, single action.
- Doorset size: In accordance with BPR door schedule.

Generally the minimum effective clear widths of the doors should comply with Table 2 located in approved document M - volume 2. Please also refer to 'ACoP Version 4 Accessible Railway Station Guide' for additional guidance.

- Format: As Drawing [LSWH-EN31-EAR-SCH-BCK-00145](#) [Internal Door Details & Door Schedule].
- Performance:
  - Fire performance:
    - Fire integrity: Refer to BPR door schedule for details. Fire ratings in accordance with Aecom fire strategy document.
  - Acoustic performance: To BS EN ISO 10140-2, sound reduction index Rw 44 dB minimum. TBC pending review of TFL requirements.
  - Strength and durability: In accordance with DD 171, Heavy duty. TBC pending review of TFL requirements.
  - Intruder resistance:
    - Minimum requirement: In accordance with BS 6375-3, Basic security. Pending review of TFL requirements.
    - Conformity: Certification by accredited third party certification body. Type testing not permitted.
  - Accessibility: In accordance with BS 8300. Approved document M - volume 2. Please also refer to 'ACoP Version 4 Accessible Railway Station Guide' for additional guidance.

- Frame:
  - Species: [Softwood](#).
  - Appearance class: [Manufacturer's standard](#).
  - Finish: [Painted](#). RAL Colour 7024 Graphite Grey.
- Door leaf:
  - Thickness: [44 mm](#).
  - Core: [Manufacturer's standard](#).
  - Appearance class: [Manufacturer's standard](#).
  - Lippings: [10 mm hardwood lipping all round](#).
  - Perimeter seals: [Refer to BPR door schedule for details. Allow for Acoustic and Fire and smoke](#).
  - Glazing:
    - Type: [Clear single safety glazing in accordance with BS 6262-4. Or to manufacturers standard to satisfy British Standard requirements](#).
    - [Vision panels locations and sizes within doors in accordance with BPR door schedule drawing](#).
    - Manifestation: [Not required](#).
  - Colour:
    - External: [Full paint system, RAL ref 7024 Graphite Grey](#).
    - Internal: [Full paint system, RAL ref 7024 Graphite Grey](#).
  - Door accessories: [All as required to meet the desired performance requirements](#).
- Planted stops:
  - Wood species: [To match door frame](#).
  - Finish: [To match door frame](#).
- Hardware: [In accordance with BPR door schedule](#).
- Architraves:
  - Material: [Softwood architraves](#).
  - Finish and colour:
    - External: [TBC. Pending review of TFL requirements](#).
    - Internal: [TBC. Pending review of TFL requirements](#).
- Accessories: [All as required to meet the desired performance requirements](#).
- Description: [Designer Range, Solid core timber doors. 44mm thk](#).
- Area / location: [All internal doors NOT directly facing the public domain. Specification clause to be read in conjunction with BPR door schedule for location / configuration details. As Drawing LSWH-EN31-EAR-SCH-BCK-00145 \[Internal Door Details & Door Schedule\]](#).
- 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**

### 25-50-20/642 Installing external doorsets or frames

- Standard: [In accordance with BS 8213-4](#).
- Fixings and fasteners: [Door frames to be factory-prepared for fixings](#).

### 25-50-20/645 Installing fire resisting and smoke control doorsets, door assemblies or doors

- Standard: [In accordance with BS 8214](#).
- 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: Fill as necessary in accordance with requirements for certification and, or door and doorset manufacturer's instructions.
- Labelling: To include manufacturer's name, fire rating and traceable serial number.

#### 25-50-20/655 Fixing hardware generally

- Holes for components: No larger than required for satisfactory fit and operation.
- Adjacent surfaces: Do not damage.

#### 25-50-20/660 Fixing hardware to fire resisting door assemblies

- General: Fix in accordance with door leaf manufacturer's recommendations.
- Integrity of the assembly, as established by testing: Do not compromise.
- Holes for through fixings and components:
  - Cutting: Cut accurately.
  - Clearances (maximum): 8 mm, unless protected by intumescent paste or similar.
- Lock and latch cases for fire doors requiring >60 minutes integrity performance: Coat with intumescent paint or paste before installation.
- Hinges for fire resisting doors: Position in accordance with door leaf manufacturer's recommendations.

#### 45-25-28/605 Moisture content of wood products

- Standard: To BS EN 942.
- Moisture content on delivery: 13–19% for external joinery.  
12–16% for unheated buildings.  
9–13% for buildings with heating providing room temperatures in the range 12–21°C.  
6–10% for buildings with heating providing room temperatures in excess of 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 performance evidence: Provide third party certification of product conformity for 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.

## **25-50-20/135 Hatch system**

### **System outline**

#### 25-50-20/135 Hatch system

- NOTE: System to be read in conjunction with: LSWH-EN31-EAR-REP-BCK-00259 [Access and Maintenance Strategy].
- Hatch: [45-25-28/422 Roof hatches](#).  
System to be read in conjunction with 'Permanently fixed vertical ladder system' reference [30-05-30/165](#).
- Execution: [25-50-20/610 Preconstruction survey](#);  
[25-50-20/680 Frame sealant joints](#);  
and [25-50-20/695 Protection of components](#).

### **Products**

#### 45-25-28/422 Roof hatches

- Manufacturer: [Bilco UK Ltd.](#)  
[Park Farm Business Centre](#)  
[Fornham St. Genevieve, Bury St. Edmunds](#)  
[Suffolk, IP28 6TS, United Kingdom](#)  
[Tel 01284 701696](#)  
[bilcoulk@bilco.com](mailto:bilcoulk@bilco.com)  
[Web: http://www.bilco.com/BilcoInternational/Foundations/Store/shopdetail.asp?product=roof-hatch-S50TB](http://www.bilco.com/BilcoInternational/Foundations/Store/shopdetail.asp?product=roof-hatch-S50TB)  
  
or similar approved.
- Product reference: Type S-50TB Roof Access Hatch  
915mm x 760mm, one-hand operation to the fully open or close position provides the ladder user with the security of having one hand firmly on the ladder at all times.
- Area / location: Furnish and install where indicated on BPR plans metal roof hatch Type S-50TB, size 915mm wide x 760mm long. Length denotes hinge side. The roof hatch shall be single leaf. The roof hatch shall be pre-assembled from the manufacturer.  
Refer to: LSWH-EN31-EAR-DGA-BCK-00064 [GA ROOF PLAN].
- Third party accreditation: Third party accredited by UKAS External link approved / recognized body.
- Format: Thermally broken cover and frame design.  
Cover: Shall be 2.3mm aluminium with a 127mm beaded flange with formed reinforcing members. Interior and exterior surfaces shall be thermally broken to minimize heat transfer and to resist condensation. Cover shall have a heavy extruded EPDM rubber gasket bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.
- Fire performance: In accordance with Aecom fire strategy report.
- Door:
  - Orientation: [Horizontal](#).
  - Position: [Cover when closed will sit above flat roof level](#).
  - Material: [Cover and frame are 2.3mm aluminium](#).
- Operation:
  - Mode: [Manual](#).
  - Control: [Compression spring operators enclosed in telescopic tubes. Automatic hold-open arm with grip handle release](#).
- Accessories: Ladder (fixed) sold by others. System to be read in conjunction with 'Permanently fixed vertical ladder system' reference [30-05-30/165](#).



## **Execution**

### 25-50-20/610 Preconstruction survey

- 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.

### 25-50-20/680 Frame sealant joints

- Application: Prepare joints. Form triangular fillets finished to a flat or slightly convex profile.

### 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.

Ω End of system

## **25-50-20/145 Internal security system**

### **System outline**

#### 25-50-20/145 Internal security system

- System performance: .
- Doorset type: [45-25-28/414 Roller shutter](#).
- Execution: [25-50-20/610 Preconstruction survey](#) and [25-50-20/685 Timing of fixing of doorsets](#).
- System completion: [25-50-20/810 Documentation relating to doors, door assemblies and doorsets](#).

### **Products**

#### 45-25-28/414 Roller shutter

- Manufacturer: [UK Security Shutters Limited](#)  
[Security House](#)  
[342. Waterloo Road](#)  
[Cobridge](#)  
[Stoke-on-Trent](#)  
[Staffordshire](#)  
[ST1 5EH](#)  
[Tel: 01782 285888](#)  
[Web: http://www.securityshutters.co.uk/securityshutters.php](#)  
  
[or similar approved.](#)
- Standard: [To BS EN 13241-1.](#)
- Product reference: [Commercial C1 security shutter system, which contains a mix of SeceuroShield 3800 and SeceuroVision 3800 profile slat steel security shutter. Extruded aluminium bottom slat and guide channels with brush and rubber weather seals.](#)
- Area / location: [Between concourse and North ticket area, and in front of the ticket gates on the concourse. Refer to BPR drawings for exact locations and sizes.](#)
- Arrangement: [Vertical, reveal fixed. Mechanism to be hidden in ceiling void. Box sizes: 400mm](#)
- Enclosure: [Roll-formed aluminium box enclosure with pressuremoulded aluminium alloy end caps.](#)
- Product weight: [9.34kg per square meter](#)
- Guides:
  - Colour: [Polyester powder coating. Graphite Grey: NCS-S-7010-R90B OR RAL 7024](#)
  - Size: [Guide rails 100mm x 32mm x 3mm](#)  
[Curtain: As per drawings. Maximum width 10 metres](#)
  - Shutter curtain: [Polyester powder coating. Graphite Grey: NCS-S-7010-R90B OR RAL 7024](#)  
[Pneumatic bottom safety edge](#)
- Operation: [3 phase industrial motors with thermal cut out and low level hand chain over-ride.](#)
- Other requirements: [Remote access software facility. Connection into the system at Swiss Cottage](#)
- Shutter curtain.:
  - Lath material: [76mm curved, galvanised solid 22 gauge lath](#)

### **Execution**

#### 25-50-20/610 Preconstruction survey

- 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.

#### 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.

### **System completion**

#### 25-50-20/810 Documentation relating to doors, door assemblies and doorsets

- Fire performance evidence: Provide third party certification of product conformity for 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.

Ω End of system

## **25-50-95/125 Window system**

### **System outline**

#### 25-50-95/125 Window system

- System performance: [25-50-95/211 Weathertightness by UK exposure category](#); [25-50-95/216 Air permeability](#); [25-50-95/220 Thermal transmittance \(U-value\)](#); and [25-50-95/265 Security performance](#).
- System manufacturer: A firm currently registered under a third party quality assurance scheme.
- Window unit:
  - Material: [45-25-99/310 Aluminium window units type A](#); [45-25-99/310 Aluminium window units type B](#); and [45-25-99/310 Aluminium window units type C](#).
- Additional features:
  - Connecting members, aprons, flashings, etc.: [45-75-35/330 Metal flashings](#).
- Execution: [25-50-95/610 Preconstruction survey](#); [25-50-95/615 Workmanship generally](#); [25-50-95/630 Protection of components](#); [25-50-95/640 Corrosion protection](#); [25-50-95/645 Building in](#); [25-50-95/655 Window installation generally](#); [25-50-95/665 Fixing of aluminium frames](#); [25-50-95/700 Frame sealant joints type A](#); [25-50-95/705 Fixing window hardware](#); and .
- System completion: [25-50-95/810 Documentation relating to windows systems](#).

### **System performance**

#### 25-50-95/211 Weathertightness by UK exposure category

- Window performance: Fulfil classification parameters given in BS 6375-1 for weathertightness relating to specified UK exposure category.

#### 25-50-95/216 Air permeability

- Air permeability: [To BS EN 12207](#).

#### 25-50-95/220 Thermal transmittance (U-value)

- Standards:
  - Calculation: [In accordance with BS EN 673](#).
  - Measurement: [In accordance with BS EN ISO 8990](#).
  - U-value (maximum): [2.0 W/m<sup>2</sup>·K](#).

#### 25-50-95/265 Security performance

- Threat sources: [In accordance with TFL requirements](#).
- Risk assessment: [Required to establish appropriate security measures and implications. To be cross referenced with fire prevention, accessibility and egress measures. Submit for agreement.](#)
- Security performance: [In accordance with TFL requirements](#).

## **Products**

### 45-25-99/310 Aluminium window units type A

- **Manufacturer:** [Kawneer UK Ltd](#)  
[Astmoor Road](#)  
[Astmoor Industrial Estate](#)  
[Runcorn, Cheshire](#)  
[WA7 1QQ](#)  
[Web: \[http://www.kawneer.com/kawneer/united\\\_kingdom/en/product\\\_category.asp?cat\\\_id=585\]\(http://www.kawneer.com/kawneer/united\_kingdom/en/product\_category.asp?cat\_id=585\)](#)
- **Contact:**  
[Alan Bagshaw](#)  
[Proposals Engineer](#)  
[tel 07766 027756](#)  
[e-mail. \[alan.bagshaw@alcoa.com\]\(mailto:alan.bagshaw@alcoa.com\)](#)
- **Third party accreditation:** [Third party accredited by UKAS approved / recognized body. Fixing: The AA543 Window shall be fabricated and installed in complete accordance with the information published by Kawneer, exclusively by authorised dealers.](#)
- **Configuration:** [Vertical axis side hung inwards opening single casement.](#)
- **Dimensions:**
  - **Standard:** [To BS EN 12519.](#)
  - **Width and height:** [Varies - refer to BPR drawings for dimensions.](#)
- **Product reference:** [AA543 side hung inward opening window.](#)
- **Weather performance:**
  - **Air permeability:** [EN 12207, Class 3 - 4.](#)
  - **Watertightness:** [EN 12208 Class 7A - E1200.](#)
  - **Resistance to wind load:** [EN 12210, Class AE2400.](#)
- **Whole window U value:** [2.2W/m2K In accordance with approved document L2A.](#)  
[G-Value: 0.4 - TBC by M&E](#)
- **Acoustic performance rating:** [Manufacturer's standard.](#)
- **Security level:** [To Secured by Design standard.](#)
- **Frame:**
  - **Finish as delivered:**  
[Coating: Painted as BS 6496 Minimum film thickness 40 Microns.](#)  
[Colour: RAL 7035 Light Grey.](#)
  - **Ventilator:** [Allow for trickle vents to each window unit.](#)
- **Glazing or infill:**
  - **Standard:** [Relevant parts of BS EN 1279.](#)
  - **Composition:** [Safety glass to BS EN 12600. Allow for anti glare glazing to outer pane.](#)
  - **Note:** [Glazing in critical areas to be designed in accordance with approved document K.](#)
- **Hardware:**
  - **Hinges:** [Pivot hinges.](#)
  - **Securing devices:** [Windows to be fitted with face mounted pivots where openable with built in restrictor for additional safety and removable handles. Opening of windows strictly for cleaning purposes only.](#)
- **Operation:** [Manual.](#)
- **Accessories:** [All as required to meet the specified performance requirements.](#)
- **Location / area:** [Staff accommodation, retail unit platform facing side, footbridge.](#)  
[As Drawing LSWH-EN31-EAR-SCH-BCK-00260 \[Window Schedule - Concourse Low Level\].](#)
- **Window material specification:** [TheAA@543 corresponds to the BRE Global Green Guide online specification for windows and achieves a summary rating of A or A+ for non domestic schemes \(\[www.thegreenguide.org.uk\]\(http://www.thegreenguide.org.uk\) Element numbers 1231500007, 1231500008 and 1231500011\).](#)

- Execution: [45-25-99/630 Window installation generally](#) and [45-25-99/635 Fixing of aluminium frames](#).

#### 45-25-99/310 Aluminium window units type B

- Manufacturer: [Kawneer UK Ltd](#)  
Astmoor Road  
Astmoor Industrial Estate  
Runcorn, Cheshire  
WA7 1QQ  
Web: [http://www.kawneer.com/kawneer/united\\_kingdom/en/product\\_category.asp?cat\\_id=585](http://www.kawneer.com/kawneer/united_kingdom/en/product_category.asp?cat_id=585)  
  
Contact:  
Alan Bagshaw  
Proposals Engineer  
tel 07766 027756  
e-mail. [alan.bagshaw@alcoa.com](mailto:alan.bagshaw@alcoa.com)
- Product Reference: AA541 casement window.
- Location/ area: Concourse, Low Level at end of bespoke seat.  
As Drawing LSWH-EN31-EAR-SCH-BCK-00260 [Window Schedule - Concourse Low Level].
- Third party accreditation: Third party accredited by UKAS approved / recognized body. Fixing: The AA541 Window shall be fabricated and installed in complete accordance with the information published by Kawneer, exclusively by authorised dealers.
- Configuration: Fixed glazing. Internal window.
- Dimensions:
  - Width and height: Refer to BPR drawings and window schedule for exact dimensions.
- Weather performance:
  - Air permeability: EN 12207, Class 3 - 4.
  - Watertightness: EN 12208 Class 7A - E1200.
  - Resistance to wind load: EN 12210, Class AE2400.
- Whole window U value: 2.2W/m<sup>2</sup>K In accordance with approved document L2A.  
G-Value: 0.4 - TBC by M&E
- Acoustic performance rating: Manufacturer's standard.
- Security level: To Secured by Design standard.
- Frame:
  - Finish as delivered:
    - Coating: Painted as BS 6496 Minimum film thickness 40 Microns.
    - Colour: RAL 7035 Light Grey.
- Glazing or infill:
  - Standard: Relevant parts of BS EN 1279.
  - Composition: Safety glass to BS EN 12600. Allow for anti glare glazing to outer pane.
  - Note: Glazing in critical areas to be designed in accordance with approved document K.
- Accessories: All as required to meet the specified performance requirements.
- Execution: [45-25-99/630 Window installation generally](#) and [45-25-99/635 Fixing of aluminium frames](#).

#### 45-25-99/310 Aluminium window units type C

- Manufacturer: [Kawneer UK Ltd](#)  
Astmoor Road  
Astmoor Industrial Estate  
Runcorn, Cheshire  
WA7 1QQ  
Web: [http://www.kawneer.com/kawneer/united\\_kingdom/en/product\\_category.asp?cat\\_id=585](http://www.kawneer.com/kawneer/united_kingdom/en/product_category.asp?cat_id=585)  
  
Contact:  
Alan Bagshaw  
Proposals Engineer  
tel 07766 027756  
e-mail. [alan.bagshaw@alcoa.com](mailto:alan.bagshaw@alcoa.com)

- Product reference: AA100 curtain walling system with AA543 side hung inward opening window inserted.
- Location/ area: Concourse at High Level.
- Third party accreditation: Third party accredited by UKAS approved / recognized body. Fixing: The AA100/ AA® 543 Window shall be fabricated and installed in complete accordance with the information published by Kawneer, exclusively by authorised dealers.
- Configuration: Curtain walling system with a mix of fix panes and vertical axis side hung inwards opening single casement.
- Dimensions:
  - Width and height: Varies - refer to BPR drawings and window schedule for exact dimensions.
- Weather performance:
  - Air permeability: EN 12207, Class 3 - 4.
  - Watertightness: EN 12208 Class 7A - E1200.
  - Resistance to wind load: EN 12210, Class AE2400.
- Operation and strength characteristics:
  - Standard: To BS 6375-2.
- Whole window U value: 2.2W/m<sup>2</sup>K In accordance with approved document L2A.  
G-Value: 0.4 - TBC by M&E
- Acoustic performance rating: Manufacturer's standard.
- Security level: To Secured by Design standard.
- Frame:
  - Finish as delivered:
    - Coating: Painted as BS 6496 Minimum film thickness 40 Microns.
    - Colour: RAL 7035 Light Grey.
- Glazing or infill:
  - Standard: Relevant parts of BS EN 1279.
  - Composition: Safety glass to BS EN 12600. Allow for anti glare glazing to outer pane.
  - Note: Glazing in critical areas to be designed in accordance with approved document K.
- Hardware:
  - Hinges: Pivot hinges to AA543 inserts
  - Securing devices: AA543 window inserts to be fitted with face mounted pivots where openable with built in restrictor for additional safety and removable handles. Strictly for window cleaning purposes only.
- Operation: Manual.
- Accessories: All as required to meet the specified performance requirements.
- Execution: 45-25-99/630 Window installation generally and 45-25-99/635 Fixing of aluminium frames.

#### 45-75-35/330 Metal flashings

- Manufacturer: Eltherington Group Ltd
- Product reference: R1
- Design: As per bpr external envelope package drawings. Location: To cill of the high level windows on the concourse.  
Note: Cill line to be level with the aluminium coping to concourse wall above the back of house.
- Material: Aluminium, polyester powder coated.
- Thickness: Manufacturers standard.
- Finish: Graphite Grey: NCS-S-7010-R90B / RAL 7024.

## **Execution**

### 25-50-95/610 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.

### 25-50-95/615 Workmanship generally

- Standard: In accordance with BS 8000-7 generally.
- Integrity: 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.

### 25-50-95/630 Protection of 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.

### 25-50-95/640 Corrosion protection

- Surfaces to be protected: Surfaces of aluminium components, which will come into contact with mortar, concrete or plaster, or treated timber.
- Protective coating: Two coats of bitumen solution, or a mastic impregnated tape.
- Timing of application: Before fixing components.

### 25-50-95/645 Building in

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

### 25-50-95/655 Window installation generally

- Installation: Into prepared openings.
- Standard:
  - Generally: In accordance with BS 8213-4.
  - Aluminium windows: In accordance with AWA (CAB) publication 'Guidance in the handling, care, protection, fixing and maintenance: aluminium windows and doors'.
- Filler: In accordance with manufacturers recommendations.
- Distortion: Install windows without twist or diagonal racking.

### 25-50-95/665 Fixing of aluminium frames

- Fasteners spacings: When not predrilled or specified otherwise, position fasteners not more than 250 mm from ends of each jamb, adjacent to each hanging point of opening lights, and at maximum 600 mm centres.

### 25-50-95/700 Frame sealant joints type A

- Siting: Contractors design.



- Application: Finish triangular fillets to a flat or slightly convex profile.

#### 25-50-95/705 Fixing window hardware

- Fixing: Assemble and fix carefully and accurately using recommended fasteners and methods. Do not damage hardware and adjacent surfaces.

#### 45-25-99/630 Window installation generally

- Standard: In accordance with BS 8213-4.
- Gap between frame edge and surrounding construction:
  - Minimum: 3mm.
  - Maximum: 10mm.

#### 45-25-99/635 Fixing of aluminium frames

- Fasteners:
  - Type: Contractor's choice.
  - Spacings: When not predrilled or specified otherwise, position fasteners not more than 250 mm from ends of each jamb, adjacent to each hanging point of opening lights, and at maximum 600 mm centres.

### **System completion**

#### 25-50-95/810 Documentation relating to windows systems

- Performance evidence:
  - Generally: Test evidence must be in the name of the window unit or system manufacturer, or approved installer.
  - Acoustic attenuation: Provide third party certification of product conformity for specified acoustic performance for each sound attenuating window system installation.
  - Fire: Provide third party certification of system conformity for specified fire and smoke performance for each applicable window system installation.
  - Weathertightness: Provide third party certification of system conformity for specified weathertightness performance for each applicable window system installation.

Ω End of system

## **25-60-35/109 Hinged gate system**

### **System outline**

#### 25-60-35/109 Hinged gate system

- System performance: [25-60-35/210 Accessibility](#); and [25-60-35/230 Inclusive design](#).
- Method of operation: [Manual](#).
- Gate assembly: [45-25-35/305 Steel / timber external gates](#).
- Post foundations: [In accordance with SE details](#).
- Site applied finishes: [45-35-84/410 Clear varnishes](#).
- System accessories: [Electromagnetic locks linked to the fire alarm - details in accordance with M&E specification](#). [Signage in accordance with TFL requirements and Merson signage schedule](#).
- Execution: [25-60-35/602 Alignment](#); [25-60-35/617 Fixing base plates to concrete pads and strips](#); and [25-60-35/605 Work on gates generally](#).

### **System performance**

#### 25-60-35/210 Accessibility

- Standard: [To BS 5709](#).

#### 25-60-35/230 Inclusive design

- Inclusive design: [Complete design in accordance with recommendations in E&W Approved Document M and Submit proposals](#).
- Best practice design:
  - Operability: [Operable with clenched fist](#).  
Handle projection (minimum): [45mm between gate and handle](#).  
Hand grip zone (minimum): [95mm](#).  
Visual contrast between gate panel and hardware (minimum): [LRV 15](#).

### **Products**

#### 45-25-35/305 Steel / timber external gates

- Manufacturer: [Western red cedar sawn timber](#).  
Preferred manufacturer: [Silva London \(South\)](#):  
Tel: [01895 271 300](#)  
Web: <http://www.silvatimber.co.uk/enquiries@silvatimber.co.uk>  
  
[or similar approved](#).
- Configuration: [Steel frame and structure \(To contractors design\) with western red cedar cladding](#).  
[Hinged gate operation with electromagnetic lock system](#).
- Area / location: [At the top and bottom of the SME stairs from platform level](#).  
[Refer to: LSWH-EN31-EAR-DGA-BCK-00063 \[GA CONCOURSE PLAN\]](#).
- Dimensions:
  - Span: [As Drawing LSWH-EN31-EAR-DDE-BCK-00144 \[External Door Details\]](#).
  - Height: [As Drawing LSWH-EN31-EAR-DDE-BCK-00144 \[External Door Details\]](#).
- Posts: [Steel posts](#).

- Gate leaves: [Western red cedar sawn timber](#).
- Finishing: [Clear varnish to gate leaves. To provide a transparent, hard, protective finish.](#)  
[Steel to be polyester powder coated in graphite grey RAL 7024](#)
- Hardware:
  - Hinges: [Required](#).
  - Securing: [Electromagnetic locks linked to the fire alarm - details in accordance with M&E specification. Push bars required for manual operation as per drawings and ironmongery schedule.](#)
  - Operating: [Gate closers](#).
- Other requirements: [Signage in accordance with TFL requirements and Merson signage schedule.](#)

#### 45-35-84/410 Clear varnishes

- Manufacturer: [Contractor's choice](#).
- Composition: [Manufacturer's standard. To provide a transparent, hard, protective finish.](#)
- Sheen: [Matt](#).
- Execution: [45-35-84/725 Varnishing wood](#).

### **Execution**

#### 25-60-35/602 Alignment

- Alignment of gates: [Following profile of surrounding fence or barrier](#).
- Verticality: [Plumb](#).
- Tolerances: [±30 mm of prescribed alignment and, within any 10 m length, ±15 mm from the straight or required radius](#).

#### 25-60-35/605 Work on gates generally

- Metal fixings: [Protect from corrosion](#).
- In situ welding: [Not permitted](#).
- Treatment of minor damage to galvanized surfaces:
  - Repairs to areas of damage less than 40 mm<sup>2</sup>:  
Method: [At least two coats of zinc-rich paint](#).  
Zinc coating thickness (minimum): [Thickness of the original layer](#).
- Site cutting of wood:
  - Components generally: [Minimize cutting](#).
  - Wood below or near ground level: [Do not cut](#).
  - Treatment of surfaces exposed by minor cutting and drilling:  
Method: [Apply sufficient material to provide a coating equal to the original preservative](#).  
Number of coats: [Contractor's choice](#).
- Site applied finishes:
  - Timing: [Prepare surfaces and apply finishes as soon as possible after fixing](#).
- Disposal of arisings:
  - Tree roots and stumps: [Remove from site](#).
  - Litter and nonbiodegradable arisings: [Remove from site](#).

#### 25-60-35/617 Fixing base plates to concrete pads and strips

- Post fasteners: [In accordance with SE specification](#).
- Fixings: [Securely fix components](#).
- Additional requirements: [Grease threads](#).

#### 45-35-84/725 Varnishing wood

- Thinner: Brush well in and lay off. Avoid aeration.
- Subsequent coats: Rub down lightly along the grain between coats.

Ω End of system

## **25-80-15/175 Modular wall system**

### **System outline**

#### 25-80-15/175 Modular wall system

- Framing:
  - Frame members: [45-70-30/305 Framing members - to modular wall](#) and [25-80-15/510 Aluminium framing channels](#).
- Cladding units:
  - Glass units: [45-65-40/310 Back painted glass - to modular wall](#)
- Execution: [25-80-15/610 Preconstruction survey](#) and [25-80-15/620 Execution tolerances](#).
- System completion: [25-80-15/810 Maintenance and replacement](#).

### **Products**

#### 45-65-40/305 Glass standards generally

- Selection standards: [In accordance with BS 5516-2 for sloping glazing](#). To BS 6262-1 for vertical glazing.
- Classification standard and product labelling: [To BS 952-1 and BS 952-2](#).
- Definition and product standards:
  - Toughened or strengthened glasses:
    - Heat strengthened soda lime silicate glass: [To BS EN 1863-1 and BS EN 1863-2](#).
    - Thermally toughened soda lime silicate safety glass: [To BS EN 12150-1 and BS EN 12150-2](#).
    - Chemically strengthened soda lime silicate glass: [To BS EN 12337-1 and BS EN 12337-2](#).
    - Thermally toughened borosilicate safety glass: [To BS EN 13024-1 and BS EN 13024-2](#).
    - Heat soaked thermally toughened soda lime silicate safety glass: [To BS EN 14179-1 and BS EN 14179-2](#).
    - Thermally toughened alkaline earth silicate safety glass: [To BS EN 14321-1 and BS EN 14321-2](#).
  - Laminated glasses: [To BS EN ISO 12543-1, BS EN ISO 12543-2, BS EN ISO 12543-3, BS EN ISO 12543-4, BS EN ISO 12543-5 and BS EN ISO 12543-6, and BS EN 14449](#)
- Panes and sheets:
  - Dimensions: [Manufacturer's standard](#).
  - Glass quality: [Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects](#).
  - Glass edges: [Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across surface are acceptable if ground out](#).

#### 45-65-40/310 Back painted glass - to modular wall

- Manufacturer: [Gx Glass](#)  
[Units 1 & 2](#)  
[Brunswick Road](#)  
[Cobbs Wood Industrial Estate](#)  
[Ashford](#)  
[Kent](#)  
[TN23 1EL](#)  
[Tel: 01233 642220](#)  
[Email: \[info@gxglass.com\]\(mailto:info@gxglass.com\)](#)  
[Web: <http://www.gxglass.com/products/colourx-backpainted-glass/>](#)  
  
[or similar approved](#)
- Product reference: [ColourX Backpainted Glass](#)
- Area / location: [Modular wall forming enclosure to ticket vending machines. Area of wall surrounding the staff ticket desk. Refer to customer support zone drawings for layout of glass](#).

- **Material:** Back painted toughened glass - Strong and safe so it has high resistance to impacts and scratches.
- **Colour:** High quality paint industrially applied onto the glass - Uniform and glossy appearance.  
3 Colours:  
Orange: NCS-S-0585-Y50R  
White: NCS-S 0500-N  
Light Grey: NCS-S-1502Y
- **Thickness:** The thickness of the ColourX Backpainted Glass must be defined on the basis of the size and shape of each panel, the substrate and related requirements. Contractor to confirm.
- **Third party accreditation:** Third party accredited by UKAS approved/ recognized body.
- **Composition:** Manufacturer's standard.

#### 45-70-30/305 Framing members - to modular wall

- **Manufacturer:** Submit proposals.
- **Standard:** To relevant parts of BS EN 515, BS EN 573, BS EN 755 and BS EN 12020.
- **Product description:** Aluminium curtain wall style stick system to frame back painted glass enclosing ticket vending machines.
- **Size:** Refer to BPR details for framing member sizes and layout.
- **Finish:**
  - Coating: Powder coating to BS 6496.
  - Colour: RAL colour 7024 Graphite Grey.

### **Custom made products**

#### 25-80-15/510 Aluminium framing channels

- **Supplied by:** Eltherington Group Ltd  
Dansom Lane South  
Hull  
HU8 7LA  
East Yorkshire  
United Kingdom  
Tel: +44 (0)1482 320336.  
Web: <http://www.eltherington.co.uk/stockholding.html>  
  
or similar approved.
- **Standard:** To relevant parts of BS EN 515, BS EN 573, BS EN 755 and BS EN 12020.
- **Area / location:** Concourse and ticket area interior, concourse exterior, staff accommodation exterior.  
High and Low level aluminum framing channels. Sizes vary depending on location.
- **Material:** Aluminium.
- **Product reference:** Aluminium stockholding (various).
- **Finish:**
  - Coating: Powder coating to BS 6496.
  - Colour: As Document LSWH-EN31-EAR-SCH-BCK-00257 [Finishes Schedule].
- **Size:** - 150x75x8mm unequal angles to wall skirtings.  
- 150x75x8mm horizontal channel between lower red brick panel and white glazed brick panel.  
- 75x75x8mm horizontal channel between white glazed brick panel and upper red brick panel.  
- 260x75x8mm PFC connection between wall and column.  
Refer to BPR external envelope package of drawings for further details / sizes.

### **Execution**

#### 25-80-15/610 Preconstruction survey

- **Primary support structure:** Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.

- Notification: [Submit details of non-compliant structure.](#)

#### 25-80-15/620 Execution tolerances

- Standard: [In accordance with the CWCT Standard for systemised building envelopes, Section 7.](#)
- Accuracy of erection:
  - Line:  $\pm 2$  mm of any line expressed by the framing or panels in any one storey height, or structural bay width, and  $\pm 5$  mm overall.
  - Level:  $\pm 2$  mm of horizontal in any one structural bay width, and  $\pm 5$  mm overall.
  - Plumb:  $\pm 2$  mm of vertical in any one storey height, and  $\pm 5$  mm overall.
  - Plane:  $\pm 2$  mm of the principal plane in any one storey height, or structural bay width, and  $\pm 5$  mm overall.

### **System completion**

#### 25-80-15/810 Maintenance and replacement

- Curtain wall maintenance manual contents: [Contact details for subcontractors and suppliers.](#)  
[Design criteria for the curtain wall system.](#)  
[Product information for components and materials including manufacturers' literature, COSHH data sheets and recommendations for cleaning maintenance and repair.](#)  
[Copies of material, components and finishes certification and test report.](#)  
[A full set of construction drawings, updated to include any changes made up to the time of completion.](#)  
[The terms and conditions of any guarantee.](#)  
[Method statement for means of access for maintenance and for use of any permanent equipment.](#)  
[Method statement covering the procedures for replacement of parts that have a design life less than the design life of the curtain wall system.](#)  
[Recommendations for routine maintenance and cleaning, including suitable cleaning agents and lubrication/adjustments to working parts.](#)  
[Record book for listing defects, maintenance and repairs](#)
- Dismantling: [Submit recommendations for safe dismantling and recycling or disposal of curtain walling system and products.](#)

Ω End of system

## **25-80-35/130 Glass fibre reinforced concrete (GRC) cladding system**

### **System outline**

25-80-35/130 Glass fibre reinforced concrete (GRC) cladding system

- System performance: [25-80-35/210 Design of GRC cladding systems](#) and [25-80-35/250 Avoidance of condensation](#).
- Cladding panels and facade components: [25-80-35/510 Custom-made large GRC cladding units](#).
- Execution: [25-80-35/610 Pre-construction survey](#); [25-80-35/630 Installing GRC cladding panels](#); and [25-80-35/645 Accuracy of erection](#).

### **System performance**

25-80-35/210 Design of GRC cladding systems

- Design:
  - Requirements: Complete the design of the GRC cladding systems in accordance with the BPR performance requirements below.
  - Standards: To GRCA Specification for the manufacture, curing and testing of GRC products., BS EN 1169 and BS EN 15191.
- Dimensional accuracy: Within the permissible deviations given in BS 8297, Table 11.

25-80-35/250 Avoidance of condensation

- Interstitial condensation: Minimize the risk of condensation forming on building interior surfaces of framing members or any part of infill panels or facings under notional psychrometric conditions.
- Risk of interstitial condensation: Determine risk in accordance with BS 5250, Annex D and provide effective vapour control.
- Notional outdoor psychrometric conditions: As BS 6229, Table A1.

### **Custom made products**

25-80-35/510 Custom-made large GRC cladding units

- Manufacturer: [Hering Bau architectural concrete facade](#)  
Neuländer 1  
D-57299 Burbach  
Fon: +49-2736-27-0  
Fax: +49-2736-27-109  
[gruppe@hering-bau.de](mailto:gruppe@hering-bau.de)  
Web: <https://www.heringinternational.com/en/products-services/architectural-concrete/material-concepts/textile-reinforced-concrete/classic/>

or similar approved.

- Standard: To GRCA Specification for the manufacture, curing and testing of GRC products, BS EN 1169 and BS EN 15191.
- Area / location: Platform facing sheet piled walls as indicated on wall types reference drawing.

Refer to drawings below for details:

[LSWH-EN31-EAR-DDE-BCK-00094 \[SHEET PILE CLADDING DETAIL - PLATFORM 1\]](#)  
[LSWH-EN31-EAR-DDE-BCK-00095 \[SHEET PILE CLADDING DETAIL - PLATFORM 2\]](#).

- Product reference: betoShell FLEX30 reinforced concrete fixing system.
- Material: Fair faced concrete panels.
- Finish / colour: Natural grey.



- **Form:** Single skin panels. 2400x1200mm with a panel thickness of 40mm. Recessed jointing between adjacent panels. Panels to be removable for access and maintenance requirements.
- **Other requirements:** Allow for vertical shadow gap detail at approx. 2000mm centres.  
Allow for horizontal shadow gap at approx. 1000mm centres.  
Allow for TFL roundel recess in 4no. panels.
- **Integral accessories:** Fixing system using aluminium substructure comprising anchor bolts; thermal separation for fastening angle; wall brackets; vertical support profile; bracket with height adjustment; cast in socket; bracket; horizontal profile and wall brackets (fixed and sliding). Anti-graffiti coating as recommended by manufacturer.

## **Execution**

### 25-80-35/610 Pre-construction survey

- **Primary support structure:** Carry out survey to verify that required accuracy of and security of erection can be achieved.
- **Notifications:** Submit details of non-compliant structure.

### 25-80-35/630 Installing GRC cladding panels

- **Identification:** Mark or tag products. Do not mark surfaces visible in the complete installation.
- **Installation of interfaces:** Locate flashings, closers etc. correctly with neat overlaps to cladding to form weatherproof junctions.
- **Electrolytic corrosion:** Isolate dissimilar metals with suitable plastic washers, sleeves etc..
- **Covering up loadbearing fixings:** Give notice.
- **In situ welding:** Not permitted.

### 25-80-35/645 Accuracy of erection

- **Joint widths:**
  - Accuracy requirement: Within joint lengths, including in-line continuations across transverse joints.
  - Variations: Evenly distribute, with no sudden changes.
- **Offset in elevation:**
  - Location: Between nominally in-line edges across transverse joints.
  - Offset (maximum): 10% width of joint.
- **Finished work:** Square, regular, true to line and plane with satisfactory fit at junctions.

Ω End of system

## **25-80-70/120 Rainscreen cladding system**

### **System outline**

#### 25-80-70/120 Rainscreen cladding system

- System performance: [25-80-70/210 Rainscreen cladding system design](#); [25-80-70/285 Durability](#); [25-80-70/225 Structural performance – permanent and imposed loads](#); and [25-80-70/250 Avoidance of condensation](#).
- Breather membrane:
  - Material: [45-65-50/322 Building paper](#).
- Secondary support structure:
  - Carriers: [Softwood battens or steel carrier rails](#). Contractors choice.
- Cladding panels:
  - Material: [45-65-52/320 Aluminium rainscreen cladding type A](#); [45-65-52/320 Aluminium sheet cladding type B](#); [25-80-70/302 Brick slip cladding system](#).
- System accessories: [45-45-00/310 Access panels type B](#).
- Execution: [25-80-70/615 Rainscreen assembly and erection](#); [25-80-70/620 Execution tolerances](#); and [25-80-70/625 Erecting rainscreen cladding](#).

### **System performance**

#### 25-80-70/210 Rainscreen cladding system design

- Design requirements: [Complete the design of the rainscreen cladding system and associated features](#).
- Standard: [In accordance with the CWCT Standard for systemised building envelopes](#).
- Appearance and fit: [Ensure position and alignment of parts and features as shown on preliminary design drawings](#). [Accommodate deviations in the primary support structure](#).
- Related works: [Coordinate in the detailed design](#).
- Comparison or type testing: [To CWCT Standard for systemised building envelopes, Part 8](#).
- Detailed design: [Complete and Submit proposals for approval before fabrication for BPR review](#).

#### 25-80-70/225 Structural performance – permanent and imposed loads

- Standard: [In accordance with the CWCT Standard for systemised building envelopes](#).
- Loads: [Resist wind loads, dead loads and design live loads](#).
- Deflections and movements: [Accommodate without damage](#).
- General movement: [Anticipated building movements to be accommodated](#).

#### 25-80-70/250 Avoidance of condensation

- Interstitial condensation: [Reduce risk of forming on building interior surfaces, framing members or any part of infill panels or facings under notional psychrometric conditions](#).
- Risk of interstitial condensation: [Determine risk in accordance with BS 5250, Annex D and provide effective vapour control](#).
- Notional outdoor psychrometric conditions: [As BS 6229, Table A1](#).

#### 25-80-70/285 Durability

- Primary components:

- Components: Cladding panels;  
Cladding panel fasteners;  
Secondary support structure;  
and Supports fasteners.  
Note: Lockable removable panels required to white brick slips service zone on concourse. Centres TBC on site in accordance with bpr and MMD drawings and specifications.
- Design life duration (minimum): In accordance with TFL design life criteria.
- Secondary components:
  - Design life duration: Submit details for each product together with required maintenance regime, replacement periods and methods of replacement.
- Electrolytic corrosion: Prevent.

## **Products**

### 25-80-70/302 Brick slip cladding system

- Manufacturer: [Advanced Construction Systems Ltd](#)  
Fastclad Building  
Granite Close  
Enderby  
Leicester  
LE19 4AE  
info@fastclad.co.uk  
Web: <http://advancedconstructionsystems.co.uk/products/fast-clad-2/>  
  
or similar approved.
- Product reference: [FastClad brick slip system](#).
- Location / area: [Concourse and external staff accommodation walls, interior and exterior](#).
- Wall type reference: [Refer to masonry wall system for summary of wall types](#).
- Rainscreen panel:
  - Type: [Brick slip](#).
  - Finish / colour: [Brick slips required for the following types:](#)
    - [Hadley Red Smooth](#) (both in slips and sawtooth as per bpr drawings, supplier Blockleys from [Michelmersh](#)).
    - [Hadley Brindle Smooth](#) (both in slips and sawtooth as per bpr drawings, supplier Blockleys from [Michelmersh](#)).
    - [White glazed brick](#) (supplier Ibstock - same product as facing bricks cut down). Lockable removable panels required in white brick slips. Refer to bpr drawings for details.

[Generally to match facing brickwork within Masonry wall system clause 25-10-55. NOTE: Any alternative product suggested by the contractor must be able to work as a facing brick / brick slip / and a sawtooth brick.](#)

  - Fixing system: [Brick slips bonded using specially formulated \(moisture and fire resistant\) to high impact back board. Mechanically fixed to secondary support through flange.](#)
  - Overall thickness: [32mm \(Standard\). Back board and brick slips.](#)
  - Length: [1125mm.](#)
  - Maximum height: [Maximum height as vertical cladding – 42m.](#)
  - Weight: [Typically 53kg/m2 including mortar.](#)
- Secondary support:
  - Materials: [Treated timber battens 50 x 50mm or galvanised steel channels. Contractors preference.](#)
  - Support: [Self drill screw with self-countersunk head. 400mm centres \(max\). Stud centres may decrease depending on brickwork setting out.](#)
- Accessories:
  - Breather Membrane: [Allow for Kingspan nilvent 17 breathable membrane within wall construction. Refer to bpr drawings for details.](#)
- Accessories: [Lintels, cills, quoins and returns.](#)

- Other requirements: Allow for applying mortar with a pointing system for speed and ease.

#### 45-45-00/310 Access panels type B

- Manufacturer: Submit proposals.
- Description: Contractor to allow for removable panel of brickwork slips for service route maintenance. Approx 4no. secure lock fittings to be turned in order to demount panel from wall. Detail to be developed by specialist in line with design team proposals.

As Drawing LSWH-EN31-EAR-DDE-BCK-00086 [TYPICAL SIP DETAILS 01].

- Fire rating: To match adjacent construction.
- Position: External, wall mounted. Note: Access panel to maintain min.10mm ventilation gap for cavity.
- Size: As Drawing LSWH-EN31-EAR-DDE-BCK-00086 [TYPICAL SIP DETAILS 01].
- Panel:
  - Material: Brick slips.
- Latch or lock type: Contractor's choice.
- Operation: Lift out.

#### 45-65-50/322 Building paper

- Manufacturer: Kingspan Insulation Ltd  
 Pembridge  
 Leominster  
 Herefordshire  
 HR6 9LA  
 Tel: 01544 388 601  
 Web: <http://www.kingspaninsulation.co.uk/Products/Nilvent/nilvent/Overview.aspx>  
 or similar approved.
- Material: Kingspan nilvent 17 breathable membrane. All joints in the membrane should be properly sealed with tape so as to prevent accidental air-leakage.
- Colour: Manufacturer's standard.

#### 45-65-52/320 Aluminium rainscreen cladding type A

- Manufacturer: Eltherington Group Ltd  
 Dansom Lane South  
 Hull  
 HU8 7LA  
 East Yorkshire  
 United Kingdom  
 Tel: +44 (0)1482 320336.  
 Web: <http://www.eltherington.co.uk/rainscreen-cladding-secret.html>  
 or similar approved.
- Standard: BS EN 573.
- Product reference: Rainscreen Cladding - Secret Fix SFS1
- Area / location: Lift shaft entrance and rear walls (walls perpendicular to platform edge).
- Design: In accordance with BPR drawings.
- Material: Aluminium. Solid horizontal panels.
- Size of panels: Panel widths approx. 2900mm  
 Panel heights to match proposed concrete cladding dimensions located on the platform.
- Thickness: In accordance with manufacturers guidance.
- Colour / finish: PPC. Colour: Light Grey: NCS-S-1502Y
- Fixing: Mechanical secret fix system for a shear facade that is uncluttered by visible fixings.
- Other requirements: Any alternative product suggested by the contractor must allow for shadow gap detail between panels.

#### 45-65-52/320 Aluminium sheet cladding type B

- Manufacturer: [Eltherington Group Ltd](#)  
[Dansom Lane South](#)  
[Hull](#)  
[HU8 7LA](#)  
[East Yorkshire](#)  
[United Kingdom](#)  
Tel: +44 (0)1482 320336.  
Web: <http://www.eltherington.co.uk/perforated.html>

[or similar approved.](#)

- Standard: [BS EN 573.](#)
- Product reference: [Perforated panel cladding system. Perforation type: Special 5](#)
- Area / location: [Footbridge to main stairs.](#)
- Design: [In accordance with BPR drawings.](#)
- Material: [Aluminium perforated panels, backed onto solid panel.](#)
- Size of panels: [Manufacturer's standard.](#)
- Thickness: [Manufacturer's standard.](#)
- Colour / finish: [PPC. Colour: Light Grey: NCS-S-1502Y / RAL 7035](#)  
[Note: Backing panel to be Graphite Grey: NCS-S-7010-R90B / RAL 7024](#)
- Fixing: [Mechanical secret fix system for a shear facade that is uncluttered by visible fixings.](#)
- Other requirements: [Contractor to allow for all additional items to successfully complete the design of the cladding system.](#)

### **Execution**

#### 25-80-70/615 Rainscreen assembly and erection

- Accuracy: [As specified in CWCT Standard for systemised building envelopes, clause 2.20 for fabrication and erection.](#)
- Assembly works: [Carry out as much assembly as possible in the workshop prior to installation on site.](#)
- Joints, other than movement joints and designed open joints: [Secure rigidly, reinforce where necessary and fix with hairline abutments.](#)
- Identification of products: [When marking or tagging products to facilitate identification during assembly, handling, storage and installation, do not mark surfaces visible in the completed installation.](#)
- Protective coverings: [Remove at completion.](#)
- Installation of interfaces: [Locate flashings, closers, etc. correctly. Neatly overlap to form a weathertight junction.](#)
- In situ welding: [Not permitted.](#)

#### 25-80-70/620 Execution tolerances

- Standard: [In accordance with the CWCT Standard for systemised building envelopes, section 7.](#)
- Accuracy of erection:
  - Line: [Manufacturer's standard.](#)
  - Level: [Manufacturer's standard.](#)

#### 25-80-70/625 Erecting rainscreen cladding

- Secondary support structure arrangement: [Vertical rail and brackets.](#)
- Thermal insulation: [Attach to outer face or support within the backing wall so as not to bulge, sag, delaminate or detach during installation or in situ during the life of the rainscreen cladding.](#)
- Fire barriers: [Locate fire barriers at fire separating walls and floors and around openings and penetrations. Spacing \(maximum\): 20 m.](#)
- Rainscreen cladding fixing:

- Fasteners: [Secret](#).
  - Number and position: [Manufacturer's standard](#).
  - Centres: [Manufacturer's standard](#).
- Tightening mechanical fasteners: [To manufacturer's recommended torque figures. Do not overtighten fasteners intended to permit differential movement.](#)
- Protective coverings: [Remove only where necessary to facilitate installation and from surfaces which will be inaccessible on completion.](#)

Ω End of system

## **25-85-97/140 Internal wall tiling system**

### **System outline**

#### 25-85-97/140 Internal wall tiling system

- System performance: [25-85-97/220 Suitability of backgrounds for wall tiling systems](#) and [25-85-97/250 Aesthetic performance of wall tiling systems](#).
- Substrate preparation: [45-35-64/340 Primers for plaster](#).
- Tiles:
  - Types: [45-80-95/310 Ceramic tiles type A](#);  
[45-80-95/310 Ceramic tiles type B](#);  
and [45-80-95/310 Ceramic tiles type C](#).
- Grout: [45-55-50/405 Cementitious grout](#).
- System accessories: [45-80-95/410 Tile spacers](#).
- Execution: [25-85-97/620 Suitability of backgrounds \(minimum drying times\)](#); and [25-85-97/797 Grouting](#).
- System completion: [25-85-97/805 Cleaning and maintenance of wall tiling systems](#) and [25-85-97/810 Spares for wall tiling systems](#).

### **System performance**

#### 25-85-97/220 Suitability of backgrounds for wall tiling systems

- Background tolerances: [To permit specified flatness and regularity of finished surfaces given the permissible minimum and maximum thickness of bedding](#).

#### 25-85-97/250 Aesthetic performance of wall 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 use](#).
- Final appearance: [Tiles and joints to have true, regular appearance when viewed under final lighting conditions](#).

### **Products**

#### 45-35-64/340 Primers for plaster

- Manufacturer: [Contractor's choice](#).
- Composition: [Suitable for application to background](#).

#### 45-55-50/405 Cementitious grout

- Manufacturer: [Contractor's choice](#).
- Third party product certification: [BBA certificate](#).
- Colour: [White](#).

#### 45-80-95/310 Ceramic tiles type A

- Manufacturer: [Grestec Tiles Limited](#),  
[Unit 4 – 6 Marley Farm Business Estate](#)  
[Headcorn Road](#)  
[Smarden](#)  
[Kent](#)  
[TN27 8PJ](#)

T: 0345 130 2241  
mail@grestec.co.uk  
Web: <http://www.grestec.co.uk/product/travino/>

or similar approved.

- Area / location: Wall tiling to WC area. Refer to BPR drawings for details and layout.
- Product reference: Travino (GV2101)
- Base preparation: Plasterboard backgrounds: Ensure that sheets are dry, securely fixed and rigid with no protruding fixings and the face intended to receive the decorative finish is exposed. Do not skim with plaster.
- Adhesive bedding: Thin bed as per adhesive manufacturers guidelines. Joint width minimum 3mm.
- Colour: White.
- Finish: Glazed.
- Size: 200x200mm.
- Thickness: Manufacturer's standard.
- Accessories: Stainless steel trim to all exposed vertical and horizontal edges of tiles.
- Execution: [45-80-95/610 Fixing tiles](#).

#### 45-80-95/310 Ceramic tiles type B

- Manufacturer: Grestec Tiles Limited,  
Unit 4 – 6 Marley Farm Business Estate  
Headcorn Road  
Smarden  
Kent  
TN27 8PJ  
T: 0345 130 2241  
mail@grestec.co.uk  
Web: <http://www.grestec.co.uk/product/travino/>

or similar approved.

- Area / location: Splashback wall tiling to staff teapoint. Refer to BPR drawings for details and layout.
- Product reference: Travino (GV2101)
- Base preparation: Plasterboard backgrounds: Ensure that sheets are dry, securely fixed and rigid with no protruding fixings and the face intended to receive the decorative finish is exposed. Do not skim with plaster.
- Adhesive bedding: Thin bed as per adhesive manufacturers guidelines. Joint width minimum 3mm.
- Colour: White.
- Finish: White.
- Size: 100x200mm. Brickwork bonded.
- Thickness: Manufacturer's standard.
- Accessories: Stainless steel trim to all exposed vertical and horizontal edges of tiles.
- Execution: [45-80-95/610 Fixing tiles](#).

#### 45-80-95/310 Ceramic tiles type C

- Manufacturer: Grestec Tiles Limited,  
Unit 4 – 6 Marley Farm Business Estate  
Headcorn Road  
Smarden  
Kent  
TN27 8PJ  
T: 0345 130 2241  
mail@grestec.co.uk  
Web: <http://www.grestec.co.uk/product/travino/>

or similar approved.

- Area / location: Wall tiling to WC area (border tile to top). Refer to BPR drawings for details and layout.
- Product reference: Travino



- Base preparation: Plasterboard backgrounds: Ensure that sheets are dry, securely fixed and rigid with no protruding fixings and the face intended to receive the decorative finish is exposed. Do not skim with plaster.
- Adhesive bedding: Thin bed as per adhesive manufacturers guidelines. Joint width minimum 3mm.
- Colour: Orange: NCS-S-0585-Y50R
- Finish: Glazed.
- Size: 100x200mm.
- Thickness: Manufacturer's standard.
- Accessories: Stainless steel trim to all exposed vertical and horizontal edges of tiles.
- Execution: 45-80-95/610 Fixing tiles.

#### 45-80-95/410 Tile spacers

- Manufacturer: Contractor's choice.
- Size: Contractor's choice. Joint width minimum 3mm.
- Material: Plastics.

### **Execution**

#### 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:
  - Gypsum plaster: Four weeks.

#### 25-85-97/797 Grouting

- Sequence: Grout when bed/ adhesive has set sufficient 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 tile surfaces free from blemishes and residues.

#### 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 width: Joint width minimum 3mm.
  - 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.](#)

### **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.](#)

#### 25-85-97/810 Spares for wall tiling systems

- Spares to be supplied: [Ten tiles of each design, including variations in colour, finish or special forms.](#)
- Timing: [On completion of system.](#)

Ω End of system

## **25-90-20/120 Door hardware system**

### **System outline**

#### 25-90-20/120 Door hardware system

- System performance: [25-90-20/210 Inclusive design](#) and [25-90-20/205 Design submittals](#).
- Hanging: [45-25-42/340 Door hinges](#).
- Automatic hardware: [90-75-05/440 Door controllers](#).
- Operating: [45-25-60/305 Controlled door closers](#);  
[45-25-60/315 Door lever handle sets](#);  
[45-25-60/365 Pull handles](#);  
and [45-25-60/370 Push plates](#).
- Securing: [45-25-18/310 Door and window locks and latches](#) and [45-25-18/340 Door privacy indicator bolts](#).
- Emergency and panic operation: [45-25-18/350 Emergency exit devices](#).
- Plates and stops: [45-25-38/320 Door stops](#);  
[45-25-38/325 Escutcheons](#);  
and [45-25-38/340 Kick plates](#).
- Furniture: [45-25-38/310 Coat hooks](#) and [45-25-38/360 Security viewers](#).
- Execution: [25-90-20/610 Installing door hardware](#).

### **System performance**

#### 25-90-20/205 Design submittals

- Submittals: Drawings, schedules, technical information, calculations and manufacturer's literature. All in accordance with TFL requirements and BPR ironmongery schedule.

Items to include but not limited to;

- Door and window locks and latches
- Door privacy indicator bolts
- Emergency exit devices
- Coat hooks
- Door stops
- Escutcheons
- Kick plates
- Security viewers
- Door hinges
- Controlled door closers
- Door lever handle sets
- Pull handles
- Push plates
- Door controllers (access control).

- Timing: Before manufacture.
- Format: Drawings and specification.

#### 25-90-20/210 Inclusive design

- Inclusive design: Complete design in accordance with recommendations in BS 8300 and Submit proposals.
- Best practice design:
  - Door controls:
    - Operability: Operable with clenched fist.
    - Handle projection (minimum): 45 mm between door and handle.
    - Hand grip zone (minimum): 95 mm.
    - Visual contrast between door panel and hardware (minimum): LRV 15.

- Height (finished floor level to underside of equipment):
  - Lever and horizontal pull handles: 800–1050 mm.
  - Vertical pull handles: 700–1000 mm for base and 1300 mm for top.

### **Execution**

25-90-20/610 Installing door hardware

- Location of information: In accordance with BPR ironmongery schedule.  
As Drawing LSWH-EN31-EAR-SCH-BCK-00145 [Internal Door Details & Door Schedule].

Ω End of system

## **30-05-30/160 Permanently-fixed external stair system**

### **System outline**

#### 30-05-30/160 Permanently-fixed external stair system

- System performance: [30-05-30/210 Design of permanently fixed external stair systems](#) and [30-05-30/280 Slip resistance of fixed ladder, working platform, walkway and industrial stair systems](#).
- System manufacturer: [Elefant Gratings](#)  
Enterprise Drive  
Four Ashes  
Wolverhampton  
Staffordshire  
WV10 7DF  
Tel.: 01902 797 110  
Web: <http://www.elefantgratings.com/product/stair-treads/>

or similar approved.

- Locations: Treads to external stair between lift roof and footbridge roof and SME stairs, platform 1 & 2.
- Strings: Required. Supporting steelwork stair structure in accordance with SE details and specification.
- Steps:
  - Material: Galvanised 05-M Perforated Stair Treads, 2mm thick galvanised steel to BS 1461:2009. Antislip: 5mm diameter raised hole, 5mm diameter depressed hole (PTV79)
  - Size: As Drawings:  
[LSWH-EN31-EAR-DDE-BCK-00175 \[SME stair details - Platform 1\]](#)  
[LSWH-EN31-EAR-DDE-BCK-00174 \[SME stair details - Platform 2\]](#).
- Handrail system: Required as shown on drawings.  
Note: Perspex required as well alongside the handrail to SME staircase on platform 01.

Refer to the following drawing for perspex detail:

[LSWH-EN31-EAR-DDE-BCK-00175 \[SME stair details - Platform 1\]](#)

- Assembly connectors: As recommended by the manufacturer
- Superstructure connectors: As recommended by the manufacturer
- System accessories: [30-05-30/510 Custom made external stair components type C](#).
- Execution: [30-05-30/620 Control inspections of fixed ladder, working platforms, walkways and industrial stair systems](#);  
[30-05-30/640 Installing permanently fixed ladders, working platforms and walkways generally](#);  
and [30-05-30/660 Installing permanently fixed roof ladder systems](#).
- System completion: [30-05-30/810 Inspection of fixed ladders, working platforms, walkway and industrial stair systems](#).

### **System performance**

#### 30-05-30/210 Design of permanently fixed external stair systems

- Design: Complete the design of the fixed roof stair system.
- Standard: To BS EN ISO 14122-1.
- Proposals: Submit technical information, calculations and manufacturers' literature, including requirements for the load-bearing roof structure and method by which the fastening system is to be fixed to the support system and conformation of the type of roofing for which the ladders are designed.
- 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):
  - Inclined surfaces, up to 1:20 pitch: To BS 1134, Rz of 20 µm.

- Stair or step treads: [To BS 1134, Rz of 20 µm.](#)
- Stair or step nosings: [To BS 1134, Rz of 20 µm.](#)

### **Custom made products**

30-05-30/510 Custom made external stair components type C

- Manufacturer: [Contractor's choice.](#)
- Components: [Guarding: comprising perspex guarding, joint covers and fixing brackets as shown on drawings.](#)
- Finish:
  - Colour: [Clear perspex acrylic sheet](#)
  - Texture: [Gloss](#)
- Submit the following information: [Mounting and fixing details.](#)

### **Execution**

30-05-30/620 Control inspections of fixed ladder, working platforms, walkways and industrial stair systems

- Location of inspections: [Factory or workshop.](#)
- Required inspections: [During fabrication and At completion of fabrication and prior to installation.](#)

30-05-30/640 Installing permanently fixed ladders, working platforms and walkways generally

- Structural members: [Do not subject members to non-design loading. Do not modify, cut, notch or make unspecified holes.](#)
- Frameworks:
  - Construction: [Assemble and brace, including temporary members required for installation.](#)
  - Temporary support: [Do not use access systems as temporary support or strutting for other work.](#)
- Contact between dissimilar metals: [Avoid.](#)
- Bolted joints:
  - Bolts and washers: [Select quantities to retain supported components without distortion or loss of support.](#)
  - Fixings: [Fully bolt together. Tighten bolts.](#)
- Welded joints:
  - Standard: [To BS EN ISO 15607](#)
  - Surfaces to be jointed: [Clean.](#)
  - Tack welds: [Use only for temporary attachment.](#)
  - Traces of flux residue, slag and weld spatter: [Remove.](#)
  - Surface of welds: [Grind smooth.](#)
  - Joints: [Fully bond with no holes or cracks.](#)
- Finished components:
  - Distortion, cracks, burrs and sharp arrises: [Not permitted.](#)
  - Corner junctions of identical sections: [Mitre.](#)
  - Handrails: [Smooth and continuous, with no sharp edges.](#)

30-05-30/660 Installing permanently fixed roof ladder systems

- Standard: [To BS EN 12951.](#)

### **System completion**

30-05-30/810 Inspection of fixed ladders, working platforms, walkway and industrial stair systems

- Timing: Two weeks prior to date when principal contractor expects work to be practically complete.

Ω End of system

## **30-05-30/165 Permanently-fixed vertical ladder system**

### **System outline**

#### 30-05-30/165 Permanently-fixed vertical ladder system

- System performance: [30-05-30/280 Slip resistance of fixed ladder, working platform, walkway and industrial stair systems](#); and [30-05-30/220 Design of permanently fixed ladder and companion way ladder systems](#).
- NOTE: System to be read in conjunction with: LSWH-EN31-EAR-REP-BCK-00259 [Access and Maintenance Strategy].
- Additional Information: Allow for access hatches to flat roof areas. Refer to specification clause [25-50-20/135](#) for access hatch details and locations.
- Stiles: [Required](#).
- Rungs: [Required](#).
- Safety cage: [Not required](#).
- System accessories: [30-05-30/510 Vertical fixed ladder system type A](#) and [30-05-30/510 Vertical fixed ladder system type B](#).
- Execution: [30-05-30/640 Installing permanently fixed ladders, working platforms and walkways generally](#); [30-05-30/660 Installing permanently fixed roof ladder systems](#); and [30-05-30/620 Control inspections of fixed ladder, working platforms, walkways and industrial stair systems](#).
- System completion: [30-05-30/810 Inspection of fixed ladders, working platforms, walkway and industrial stair systems](#).

### **System performance**

#### 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):
  - Inclined surfaces, up to 1:20 pitch: [To BS 1134, Rz of 20 µm](#).
  - Stair or step treads: [To BS 1134, Rz of 20 µm](#).
  - Stair or step nosings: [To BS 1134, Rz of 20 µm](#).

### **Custom made products**

#### 30-05-30/510 Vertical fixed ladder system type A

- Manufacturer: [Bilco UK Ltd](#)  
[Park Farm Business Centre](#)  
[Fornham St Genevieve](#)  
[Bury St Edmunds](#)  
[Suffolk](#)  
[IP28 6TS](#)  
[Tel: 01284 701696](#)  
[Web: <http://www.bilco.com/bilcointernational/foundations/store/shopdetail.asp?product=1BL>](#)



or similar approved.

- Area / location: Ladders to be used in conjunction with roof access hatches. Refer to drawing LSWH-EN31-EAR-DGA-BCK-00064 [GA ROOF PLAN].
- Product reference: BL-A Fixed Vertical Ladder suitable for use with Bilco Roof Access Hatches.

Industrial standard fixed vertical ladder available to suit floor to ceiling heights of between 2.0 and 6.0 meters. Manufactured to meet the requirements of BS4211:2005 + A1 2008.

- Material: Aluminium. Finish: Manufacturers standard.
- Ladder: Ladder: Alloy Class 1 Stiles 73mm x 25mm box section. Class 1 heavy duty rung. Stand off brackets from 50mm x 10mm alloy rectangular bar. Fixings in stainless steel.  
Ladder width: 488mm

Options: Ladder up safety post to be included

- Other requirements: Roof Access Hatch to suit fixed vertical access ladder. Refer to Hatch system ref: [25-50-20/135](#) for details.

#### 30-05-30/510 Vertical fixed ladder system type B

- Manufacturer: Contractor's choice.
- Area / location: Fixed access ladder adjacent to lift shaft on platform 2.  
As Drawing LSWH-EN31-EAR-DEL-BCK-00105 [FOOTBRIDGE DETAILED ELEVATIONS 03].
- Description: Fixed access ladder with integrated 'fall arrest' system. Ladder to extend a minimum 1100mm past roof level. Fixed to lift structure in accordance with specialist details.  
As Document LSWH-EN31-EAR-REP-BCK-00259 [Access and Maintenance Strategy].
- Finish:
  - Coating: In line with NR standards. Suitable for external environment.
  - Colour: Contractor's choice.
  - Preparation: Joints welded and ground smooth.
- Submit the following information: Overall dimensions and Mounting and fixing details.

### **Execution**

#### 30-05-30/620 Control inspections of fixed ladder, working platforms, walkways and industrial stair systems

- Location of inspections: Factory or workshop.
- Required inspections: During fabrication and At completion of fabrication and prior to installation.

#### 30-05-30/640 Installing permanently fixed ladders, working platforms and walkways generally

- Structural members: Do not subject members to non-design loading. Do not modify, cut, notch or make unspecified holes.
- Frameworks:
  - Construction: Assemble and brace, including temporary members required for installation.
  - Temporary support: Do not use access systems as temporary support or strutting for other work.
- Contact between dissimilar metals: Avoid.
- Bolted joints:
  - Bolts and washers: Select quantities to retain supported components without distortion or loss of support.
  - Fixings: Fully bolt together. Tighten bolts.
- Welded joints:
  - Standard: To BS EN ISO 15607
  - Surfaces to be jointed: Clean.
  - Tack welds: Use only for temporary attachment.
  - Traces of flux residue, slag and weld spatter: Remove.
  - Surface of welds: Grind smooth.

- Joints: Fully bond with no holes or cracks.
- Finished components:
  - Distortion, cracks, burrs and sharp arrises: Not permitted.
  - Corner junctions of identical sections: Mitre.
  - Handrails: Smooth and continuous, with no sharp edges.

30-05-30/660 Installing permanently fixed roof ladder systems

- Standard: To BS EN 12951.

### **System completion**

30-05-30/810 Inspection of fixed ladders, working platforms, walkway and industrial stair systems

- Timing: Two weeks prior to date when principal contractor expects work to be practically complete.

Ω End of system

## **30-05-30/195 Working platform and walkway system**

### **System outline**

#### 30-05-30/195 Working platform and walkway system

- System performance: [30-05-30/280 Slip resistance of fixed ladder, working platform, walkway and industrial stair systems](#).
- NOTE: System to be read in conjunction with: LSWH-EN31-EAR-REP-BCK-00259 [Access and Maintenance Strategy].
- Frame:
  - Section: [45-60-50/378 Aluminium mobile tower](#).
- Decking and flooring:
  - Material: [Manufacturers standard](#).
  - Applied anti-slip treatment: [Manufacturers standard](#).
- Balustrade guarding system: [Required](#).
- Assembly connectors: [Fixing details in accordance with manufacturers recommendations](#).
- Execution: [30-05-30/620 Control inspections of fixed ladder, working platforms, walkways and industrial stair systems](#) and [30-05-30/640 Installing permanently fixed ladders, working platforms and walkways generally](#).
- System completion: [Testing the installed system, submittals \(e.g. operation and maintenance manuals\), and training for assembly](#).

### **System performance**

#### 30-05-30/280 Slip resistance of fixed ladder, working platform, walkway and industrial stair systems

- Slip resistance value – water wet (minimum):
  - Inclined surfaces, up to 1:20 pitch: [To BS 1134, Rz of 20 µm](#).
  - Stair or step treads: [To BS 1134, Rz of 20 µm](#).
  - Stair or step nosings: [To BS 1134, Rz of 20 µm](#).

### **Products**

#### 45-60-50/378 Aluminium mobile tower

- Supplied by: [UTS Sales and Repairs Ltd](#)  
[Unit 1a Canterbury Industrial Park](#)  
[Island Road](#)  
[Hersden](#)  
[Canterbury](#)  
[CT3 4HQ](#)  
Web: <http://www.towersandpodiums.co.uk/one-man-tower/#!>  
  
or similar approved.
- Area / location: [As Document LSWH-EN31-EAR-REP-BCK-00259 \[Access and Maintenance Strategy\]](#).
- Description: [One man, quick assembly aluminium mobile access tower for visual inspection of roof areas](#).
  - The base unit turns into an easy to manoeuvre trolley
  - Maximum safe working height is 6.1m
  - 250mm Rung pitching's to ease climbing
  - There are 4 different platform heights available – 1.1m, 2.1m, 3.1m, 4.1m
  - The Platform Length is 1.3m with an anti-slip finish
  - Will fit through standard doorways and corridors
  - Floating spigots for ease of erecting and ease of assembly

Manufactured under ISO 9001:2008.

## **Execution**

30-05-30/620 Control inspections of fixed ladder, working platforms, walkways and industrial stair systems

- Location of inspections: [Factory or workshop](#).
- Required inspections: [During fabrication and At completion of fabrication and prior to installation](#).

30-05-30/640 Installing permanently fixed ladders, working platforms and walkways generally

- Structural members: [Do not subject members to non-design loading. Do not modify, cut, notch or make unspecified holes](#).
- Frameworks:
  - Construction: [Assemble and brace, including temporary members required for installation](#).
  - Temporary support: [Do not use access systems as temporary support or strutting for other work](#).
- Contact between dissimilar metals: [Avoid](#).
- Bolted joints:
  - Bolts and washers: [Select quantities to retain supported components without distortion or loss of support](#).
  - Fixings: [Fully bolt together. Tighten bolts](#).
- Welded joints:
  - Standard: [To BS EN ISO 15607](#)
  - Surfaces to be jointed: [Clean](#).
  - Tack welds: [Use only for temporary attachment](#).
  - Traces of flux residue, slag and weld spatter: [Remove](#).
  - Surface of welds: [Grind smooth](#).
  - Joints: [Fully bond with no holes or cracks](#).
- Finished components:
  - Distortion, cracks, burrs and sharp arrises: [Not permitted](#).
  - Corner junctions of identical sections: [Mitre](#).
  - Handrails: [Smooth and continuous, with no sharp edges](#).

Ω End of system

## **30-85-30/140 Individual services penetrations fire stopping system**

### **System outline**

30-85-30/140 Individual services penetrations fire stopping system

- System performance: [30-85-30/220 Fire performance](#) and [30-85-30/290 Compliance with performance requirements](#).
- Penetration seal: [45-45-70/433 Flexible intumescent gap sealer](#) and [45-55-75/375 Intumescent foam fillers](#).
- Execution: [30-85-30/610 Fire stopping systems workmanship generally](#); [30-85-30/630 Installing flexible intumescent gap sealer](#); and [30-85-30/640 Applying intumescent foam](#).
- System completion: [30-85-30/810 Cleaning after installation of fire stopping systems](#); [30-85-30/820 Inspection of fire stopping systems](#); and [30-85-30/895 Verification of performance](#).

### **System performance**

30-85-30/220 Fire performance

- Resistance to fire: [In accordance with Aecom grip 4 fire safety strategy report dated 12th May 2014](#).
- Reaction to fire:
  - Standard: [In accordance with Aecom grip 4 fire safety strategy report dated 12th May 2014](#).
- Smoke resistance:
  - Air leakage rate (maximum): [In accordance with Aecom grip 4 fire safety strategy report dated 12th May 2014](#).

30-85-30/290 Compliance with performance requirements

- Requirement: [Proof of compliance with specified performance](#).
- Method: [Previous test results for fire performance](#).
- Testing authority: [UKAS accredited independent](#).

### **Products**

45-45-70/433 Flexible intumescent gap sealer

- Manufacturer: [Contractor's choice](#).
- Third party certification: [British Board of Agrément \(BBA\) Certificate](#).
- Size: [Manufacturer's standard](#).

45-55-75/375 Intumescent foam fillers

- Manufacturer: [Contractor's choice](#).
- Material: [One part polyurethane expanding intumescent foam](#). Or manufacturers standard.
- Colour: [Natural](#).
- Execution: [45-55-75/610 Suitability of joints for sealant application](#) and [45-55-75/620 Joint preparation for sealant application](#).

## **Execution**

### 30-85-30/610 Fire stopping systems workmanship generally

- Preparation: [Remove loose dust and combustible materials.](#)
- Openings and gaps: [Seal between building elements and services, to provide effective resistance to fire and the passage of smoke. Allow for capping sealants where required. Finish flush with surrounds.](#)
- Adjacent surfaces: [Prevent overrun of filler, sealant or mortar on to finished surfaces.](#)

### 30-85-30/630 Installing flexible intumescent gap sealer

- Fitting of strips: [Compress strips and fit into gap so that, as they decompress, the strips wedge themselves in the void.](#)
- Joints:
  - Ends of strips: [Fit intumescent 'end piece' at both ends of run of fire stop laminate.](#)
  - Joints between strips: [Fit two intumescent 'end pieces' at each butt joint.](#)

### 30-85-30/640 Applying intumescent foam

- New joints: [Remove builder's debris, mortar droppings, grease, and other contaminants.](#)
- Old joints: [Clean and remove existing sealant from each joint.](#)
- Priming: [Lightly moisten substrate with water.](#)
- Application: [Fill joint to approximately half its depth, and allow foam to expand to face of joint.](#)
- Trimming: [Trim excess foam to give a neat, flush appearance.](#)

### 45-55-75/610 Suitability of joints for sealant application

- Joint dimensions: [Within limits specified for the sealant.](#)
- Substrate quality: [Surfaces regular, undamaged and stable.](#)
- Joints not fit to receive sealant: [Submit proposals for rectification.](#)

### 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.](#)
- Cleaning: [Use materials and methods recommended by sealant manufacturer.](#)
- Vulnerable surfaces adjacent to joints: [Mask.](#)

## **System completion**

### 30-85-30/810 Cleaning after installation of fire stopping systems

- Masking tapes: [Remove.](#)
- Cleaning: [Clean off splashes and droppings. Wipe down finishes.](#)

### 30-85-30/820 Inspection of fire stopping systems

- Notice for inspection (minimum): [5 working days.](#)

### 30-85-30/895 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:

$\Omega$  End of system

## **35-05-35/135 General fittings, furnishings and equipment system**

### **System outline**

#### 35-05-35/135 General fittings, furnishings and equipment system

- NOTE: All general fittings, furnishings and equipment is dependant on TFL input and may be subject to change. System to be read in conjunction with: LSWH-EN31-EAR-SCH-BCK-00257 [Finishes Schedule].
- Fittings: [35-05-35/510 Ticket office screen and desk](#);  
[35-05-35/520 Custom made joinery - generally](#);  
[45-25-10/360 Roller blinds](#);  
[45-35-55/340 Notice boards](#);  
[45-35-80/340 Kitchen storage units](#);  
[45-35-95/315 Worktops](#);  
and [45-35-80/320 Shelves](#).
- Execution: [35-05-35/610 Applying sealant bedding and pointing](#).
- System completion: [35-05-35/810 General](#) and [35-05-35/820 Appliances and equipment](#).

### **Products**

#### 45-25-10/360 Roller blinds

- Manufacturer: [Submit proposals. In accordance with TFL requirements.](#)
- Standards: [To BS 5867-1, BS 5867-2 and BS EN 13120.](#)
- Position: [To all external windows with the exception of the footbridge and stairs.](#)
- Dimensions (minimum width x depth): [To suit window opening.](#)
- Blinds:
  - Material: [Manufacturer's standard.](#)
  - Finish: [TBC.](#)
  - Colour: [TBC.](#)
- Tube:
  - Material: [Extruded aluminium.](#)
  - Diameter: [TBC.](#)
- Tube covers:
  - Material: [Powder coated extruded aluminium.](#)
  - Colour: [TBC.](#)
- Operation: [Manual, stainless steel ball chain.](#)
- Accessories: [As required to complete system.](#)
- Execution: [45-25-10/630 Installing blinds.](#)

#### 45-35-55/340 Notice boards

- Manufacturer: [Submit proposals. In accordance with TFL requirements.](#)
- Form: [Wall mounted.](#)
- Use: [Pins.](#)
- Dimensions: [1200 x 900 mm.](#)
- Board surface:
  - Finish: [Felt.](#)
  - Colour: [Blue.](#)
- Frame:
  - Material: [Aluminium.](#)



- Finish: [Self finished](#).
- Colour: [Grey](#)

#### 45-35-80/320 Shelves

- Manufacturer: [Spur Shelving](#) or similar approved
- Material: [Powder coated steel](#)
- Dimensions:
  - Length: [Refer to drawings](#)
  - Width: [300mm](#)
  - Thickness: [Manufacturer's standard](#)
- Integral accessories: [Shelf supports](#).
- Execution: [45-35-80/610 Installing shelves and shelf units](#).

#### 45-35-80/340 Kitchen storage units

- Manufacturer: [Howdens Joinery](#)  
[3 Keswick Road, Putney](#)  
[London](#)  
[United Kingdom,](#)  
[SW15 2HL](#)  
 Tel: [020 8871 0220](#)  
 Web: <https://www.howdens.com/kitchen-collection/universal/greenwich/gloss-white/>  
  
[or similar approved](#).
- Form: [Perimeter base units and Perimeter wall units.](#)  
[As Drawing LSWH-EN31-EAR-DPL-BCK-00156 \[Staff Mess Layout\]](#).
- Dimensions: [To BS EN 1116](#).
- Surface finishes: [Durability to BS 6222-3](#).
- Doors:
  - Material: [Gloss Slab Door](#)
  - Finish and colour: [White](#)
  - Edges: [0.5mm ABS Edging](#)
  - Hardware: [Stainless Steel HKB1131\\*T Bar Handle](#)
- Side panels, plinths and pelmets:
  - Material: [Manufactures standard. 30 mm wrapped mdf to pelmet](#)
  - Finish and colour: [White](#)
- Integral accessories: [Legs and plinths and Worktops](#).
- Execution: [45-35-80/620 Installing storage units](#).

#### 45-35-95/315 Worktops

- Manufacturer: [Howdens Joinery](#)  
[3 Keswick Road, Putney](#)  
[London](#)  
[United Kingdom,](#)  
[SW15 2HL](#)  
 Tel: [020 8871 0220](#)  
 Web: <https://www.howdens.com/kitchen-collection/kitchen-worktops/granite-20mm-worktops/>  
  
[or similar approved](#).
- Standard: [Durability to BS 6222-3](#).
- Material: [Black Granite Effect worktop](#)
- Dimensions:
  - Plan size: [Refer to BPR drawings for layout.](#)  
[As Drawing LSWH-EN31-EAR-DPL-BCK-00156 \[Staff Mess Layout\]](#).
  - Thickness: [38 mm](#).

- Exposed edges:
  - Profile: [Radiused](#).
- Cutouts: [Required for sink](#).
- Integral accessories: [Proprietary fasteners](#).
- Execution: [45-35-95/610 Installing worktops and counter tops](#).

### **Custom made products**

#### 35-05-35/510 Ticket office screen and desk

- Supplied by: [Ideas pay windows and counters](#)  
[info@ideas.ltd.uk](mailto:info@ideas.ltd.uk)
- Layout: [Refer to BPR drawings for layout information](#).
- Product reference: [Framed glass screen and desk - to meet TFL standards](#).
- Glass: [Manual attack EN365 Ballistic Glass EN1063, Fire Resistant Glass](#).
- Framing: [PPC aluminium framing \(nominal 50mm thk\). Colour: TBC](#).
- Counter top: [Solid surface Corian. Solid surface work tops - no visible joints](#).
- Cupboards and drawers: [High pressure laminate faced MDF](#).
- Supports: [Manufacturers standard](#).
- Hardware: [Manufacturers standard](#).
- Power: [Required. In accordance with TFL requirements and M&E specification](#).
- Communications: [Required. In accordance with TFL requirements and M&E specification](#).
- Other requirements: [Allow for the following accessories](#);
  - Cash drawer: with lid opening flush to surface. Product Code IDL 4732
  - DFA Dual Height Cash Transfer Tray. Product code: IDL 3376
  - PED arm. Product Code: IDL 0116
  - VDU Pole and Arm: Product Code: IDL 0118
  - Ergonomic chip and pin mount
  - Flat screen monitor arm
  - Customer microphone
  - Induction loop
  - Roller blinds
  - Under counter cable management

#### 35-05-35/520 Custom made joinery - generally

- 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 machining defects](#).
- Joints: [Tight and close fitting](#).
- Assembled components: [Rigid. Free from distortion](#).
- Screw fixing into 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](#).

### **Execution**

#### 35-05-35/610 Applying sealant bedding and pointing

- Application: [One part silicone sealant](#).

- Bedding: [Bed sinks to top of worktops.](#)
- Pointing: [Joints between worktop and splash backs.](#)  
[Joints between units and floor finish.](#)

#### 45-25-10/630 Installing blinds

- Position: [Window reveals.](#)
- Fixing: [Top-fix.](#)

#### 45-35-80/610 Installing shelves and shelf units

- General criteria: [Fitted to be stable, secure and level, with no unplanned gaps between adjacent units and between units and building fabric.](#)

#### 45-35-80/620 Installing storage units

- General criteria: [Fitted to be stable, secure and level, with no unplanned gaps between adjacent units and between units and building fabric.](#)

#### 45-35-95/610 Installing worktops and counter tops

- General criteria: [Fitted to be stable, secure and level, with no unplanned gaps between adjacent units and between units and building fabric.](#)
- Supports: [Supported on base units](#)

### **System completion**

#### 35-05-35/810 General

- Doors and drawers: [Accurately align, not binding, operating smoothly.](#)
- Hardware: [Functioning correctly.](#)

#### 35-05-35/820 Appliances and equipment

- Test: [Correct working of functions and features.](#)
- Documentation: [Submit guarantees, instruction manuals, etc.](#)

Ω End of system

## **35-35-30/130 External furniture system**

### **System outline**

#### 35-35-30/130 External furniture system

- System performance: [35-35-30/220 Structural design](#) and [35-35-30/250 Accessibility](#).
- External furniture: [45-35-86/321 Bench seating \(2no. bespoke\)](#) and [45-35-86/323 Platform seating](#).
- Site applied finishes: [45-35-84/410 Clear varnishes](#).
- Execution: [35-35-30/607 Work on street furniture generally](#).

### **System performance**

#### 35-35-30/220 Structural design

- Standards: [To the Eurocodes appropriate to the nature and location of the structure](#).
- Deflections and other structural movements: [At serviceability limit state, these must be compatible with requirements of the building fabric, construction joints and weathertightness](#).

#### 35-35-30/250 Accessibility

- Inclusive design: [Complete detailed design in accordance with BS 8300, allowing for use by children](#).
- Finished surfaces on accessible areas: [Free of irregularities capable of inflicting personal injury](#).
- Designed gaps: [To BS 5709](#).

### **Products**

#### 45-35-84/410 Clear varnishes

- Manufacturer: [Contractor's choice](#).
- Composition: [Manufacturer's standard. To provide a transparent, hard, protective finish](#).
- Sheen: [Matt](#).
- Execution: [45-35-84/725 Varnishing wood](#).

#### 45-35-86/321 Bench seating (2no. bespoke)

- Manufacturer: [Steel frame and structure \(To contractors design\) with western red cedar cladding](#).

[Timber cladding manufacturer:](#)  
[Western red cedar sawn timber.](#)  
[Preferred manufacturer: Silva London \(South\):](#)  
[Tel: 01895 271 300](#)  
[Web: \[http://www.silvatimber.co.uk/\]\(http://www.silvatimber.co.uk/enquiries@silvatimber.co.uk\)](#)  
[enquiries@silvatimber.co.uk](#)

[or similar approved.](#)

- Area / location: [Concourse and external planter / seating by entrance. Refer to BPR drawings for quantities and exact locations.](#)
- Length: [As per BPR layout drawings.](#)
- Base: [Secured in accordance with structural engineers details.](#)
- Material: [Steel frame and supporting structure. Western red cedar cladding.](#)
- Finish: [Exterior wood stain, Natural finish - TBC by TFL](#)
- Other requirements: [Timber cladding, size as per bpr drawings in external works package. Any alternative product suggested by the contractor must match the steel and wooden gate reference 'Hinged gate system 25-60-35/109.](#)

#### 45-35-86/323 Platform seating

- Manufacturer: [Hille seating](#)  
[Head Office Address](#)  
[Hille Educational Products Ltd](#)  
[Unit 27](#)  
[Rassau Industrial Estate](#)  
[Ebbw Vale](#)  
[Gwent](#)  
[NP23 5SD](#)  
[Web: <http://www.hille.co.uk/woodro>](#)
- Product reference: [Woodro seating](#).
- Location / area: [Station platforms](#). Refer to BPR drawings for details and layout.
- Length: [4 seater with arms 2385mm](#).
- Material: [Steel, timber](#).
- Finish: [Oiled Iroko](#).
- Fixings: [Toro leg to be connected to the floor via toro nylon foot fixed with an M10 Rawlbolt to the floor and self tapping screw or rivet](#)
- Accessories: [All as recommended by manufacturer to complete the seating system](#).

### **Execution**

#### 35-35-30/607 Work on street furniture generally

- Metal fixings: [Protect from corrosion](#).
- In situ welding: [Not permitted](#).
- Treatment of minor damage to galvanized surfaces:
  - Repairs to areas of damage less than 40 mm<sup>2</sup>:  
Method: [At least two coats of zinc-rich paint](#).  
Zinc coating thickness (minimum): [Thickness of the original layer](#).
- Site cutting of wood:
  - Components generally: [Minimize cutting](#).
  - Wood below or near ground level: [Do not cut](#).
  - Treatment of surfaces exposed by minor cutting and drilling:  
Method: [Apply sufficient material to provide a coating equal to the original preservative](#).
- Site applied finishes: [Prepare surfaces and apply finishes as soon as possible after fixing](#).
- Disposal of arisings:
  - Tree roots and stumps: [Remove from site](#).
  - Litter and nonbiodegradable arisings: [Remove from site](#).

#### 45-35-84/725 Varnishing wood

- Thinner: [Brush well in and lay off. Avoid aeration](#).
- Subsequent coats: [Rub down lightly along the grain between coats](#).

## **35-70-70/118 Sink assembly**

### **System outline**

#### 35-70-70/118 Sink assembly

- Components: [45-35-70/344 Kitchen sink](#); [45-35-70/345 Water supply fittings for sinks](#); and [45-35-70/340 Ceramic sinks](#).
- Execution: [45-35-70/614 Installing sink assemblies on brackets or leg frames](#) and [45-35-70/616 Installing worktop sink assemblies](#).

### **Products**

#### 45-35-70/340 Ceramic sinks

- Manufacturer: [Twyford Bathrooms Registered Office](#)  
[Geberit House](#)  
[Edgehill Drive](#)  
[Warwick](#)  
[CV34 6NH](#)  
[UK - Business Support \(for Architects and Merchants\)](#)  
[Tel: +44 \(0\) 1926 516 800](#)  
[Web: <http://www.twyfordbathrooms.com/products/professional-products/utility-sinks/high-back-cleaner-sink-470-x405-including-grating/2752/>](#)  
  
[or similar approved.](#)
- Standard: [To BS 1206.](#)
- Form: [High back cleaners sink 470x400mm with 310mm high splash back and grating FC1044WH.](#)
- Materials:
  - Body: [Enamelled fireclay. Stainless steel grating.](#)
  - Finish and colour: [White, glazed.](#)
- Size: [As Drawing LSWH-EN31-EAR-DDE-BCK-00154 \[Cleaners Cupboard and Corridor \].](#)
- Water supply, overflow and waste holes:
  - Water supply: [No tap holes.](#)
  - Overflow: [Side weir overflow.](#)
  - Waste: [Grid waste 1 1/2", unslotted: chrome plated WF4343CP.](#)
- Integral accessories: [Contractor to make allowance for 1/2" bib taps cross head, back inlet, pair SF2302CP.](#)
- Execution: [45-35-70/614 Installing sink assemblies on brackets or leg frames.](#)

#### 45-35-70/344 Kitchen sink

- Manufacturer: [Howdens Joinery](#)  
[3 Keswick Road](#)  
[Putney](#)  
[London](#)  
[SW15 2HL](#)  
[Tel: 020 8871 0220](#)  
[Web: <https://www.howdens.com/kitchen-collection/kitchen-sinks/>](#)  
  
[or similar approved.](#)
- Product reference: [SNK5122 Lamona Rutland Single bowl Sink, RH drainer, LH sink, 1 tap hole , With Overflow.](#)
- Size: [985\[W\] x 190\[D\] x 508\[W\].](#)
- Standard: [To BS EN 13310.](#)
- Form:

- Materials: [Stainless steel type 304 to EN 1 4401.](#)
- Finish: [Satin polish finish.](#)
- Water supply, overflow and waste holes:
  - Water supply: [One tap hole.](#)
  - Overflow: [Overflow hole.](#)
  - Waste: [Centre.](#)
- Integral accessories: [Contractor to make allowance for kitchen mixer tap.](#)  
[Reference: lamona chrome garda swan neck monobloc tap](#)  
[Finish: Chrome plated CP.](#)  
[System requirements: Minimum operating pressure 0.3 bar. Maximum operating pressure 5.5 bar](#)

#### 45-35-70/345 Water supply fittings for sinks

- Manufacturer: [Zip water](#)
- Third party certification: [Water Regulations Advisory Scheme \(WRAS\) approved.](#)
- Form: [Zip Hydroboil Plus](#)
- Materials:
  - Body: [Stainless Steel](#)
  - Finish and colour: [White](#)
- Integral accessories: [As come as standard as part of the system. Refer to M&E specification for further details.](#)

### **Execution**

#### 35-70-70/610 Installing sanitary assemblies generally

- Standards:
  - Space requirements: [In accordance with BS 8300.](#)
- Supply and discharge pipework: [Fix before appliances.](#)
- Appliances:
  - Surfaces designed to falls: [Install to drain as intended.](#)
  - Fasteners: [Use nonferrous or stainless steel fasteners.](#)
  - Fixing: [Fix appliances securely to structure or to appropriate brackets. Do not support on pipework.](#)
  - Unauthorized use: [Do not use appliances.](#)
  - Sealing to walls and floors:
    - Sealants: [Silicone sealant.](#)
    - Colours: [Matched to appliance.](#)
- Water supply fittings:
  - Positioning: [Hot tap to left of cold tap as viewed by user of appliance.](#)
  - Fixing: [Secure against twisting.](#)
  - Sealing to appliance: [Watertight.](#)
- Wastes: [Secure in position using supplied washers.](#)

#### 45-35-70/614 Installing sink assemblies on brackets or leg frames

- Brackets or leg frames:
  - Fixing: [Secure.](#)
  - Levels: [Top surfaces in a horizontal plane.](#)
- Overflow connector pipe.: [Secure flexible overflow connector pipes.](#)
- Sealing: [Clear silicone sealant.](#)

#### 45-35-70/616 Installing worktop sink assemblies

- Overflow connector pipe.: [Secure flexible overflow connector pipe to sink overflow grille. Use sealing washer to grille.](#)
- Sealing to worktop: [Clear silicone sealant.](#)

Ω End of system



## **35-70-70/124 Wash basin assembly**

### **System outline**

#### 35-70-70/124 Wash basin assembly

- Components: [45-35-70/369 Wall hung wash basins](#).
- Execution: [35-70-70/610 Installing sanitary assemblies generally](#).
- System completion: [35-70-70/810 Water supply fittings](#).

### **Products**

#### 45-35-70/369 Wall hung wash basins

- Manufacturer: [Armitage Shanks](#)  
[Armitage](#)  
[Rugeley](#)  
[Staffordshire](#)  
[WS15 4BT](#)  
Tel: +44 (0)1543 490253  
Web: [http://www.idealspec.co.uk/catalogue/bluebook/washbasins/pedestal-or-wall/portman-21-40cm-washbasin\\_p973.html](http://www.idealspec.co.uk/catalogue/bluebook/washbasins/pedestal-or-wall/portman-21-40cm-washbasin_p973.html)  
  
[or similar approved](#).
- Product reference: [S2317 Portman 21 400 mm Washbasin with two tapholes, overflow and chainstay hole](#)
- Form: [Wall hung wash basin](#).
- Connecting dimensions: [To BS EN 31](#).
- Materials:
  - Body: [Vitreous china to BS 3402](#).
  - Finish and colour: [White](#).
- Size: [As Drawing LSWH-EN31-EAR-DPL-BCK-00155 \[Public DDA and Staff WC Layout\]](#).
- Water supply, overflow and waste holes:
  - Water supply: [Single tap hole, offset](#).
- Integral accessories: - [E0157\(67\) Wall fixing set](#)  
- [B8262\(AA\) Piccolo 21 inclined ½" washbasin pillar taps, lever operated, dual hot and cold indices, anti-vandal water saving nozzle](#)  
- [S8800\(AA\) Waste 1¼" plastic waste with bead chain and plug, 80mm slotted tail, bolt stay](#)
- Execution: [45-35-70/620 Installing wash basin assemblies](#).

### **Execution**

#### 35-70-70/610 Installing sanitary assemblies generally

- Standards:
  - Space requirements: [In accordance with BS 8300](#).
- Supply and discharge pipework: [Fix before appliances](#).
- Appliances:
  - Surfaces designed to falls: [Install to drain as intended](#).
  - Fasteners: [Use nonferrous or stainless steel fasteners](#).
  - Fixing: [Fix appliances securely to structure or to appropriate brackets. Do not support on pipework](#).
  - Unauthorized use: [Do not use appliances](#).
  - Sealing to walls and floors:

Sealants: [Silicone sealant](#).

Colours: [Matched to appliance](#).

- Water supply fittings:
  - Positioning: [Hot tap to left of cold tap as viewed by user of appliance](#).
  - Fixing: [Secure against twisting](#).
  - Sealing to appliance: [Watertight](#).
- Wastes: [Secure in position using supplied washers](#).

#### 45-35-70/620 Installing wash basin assemblies

- Brackets or leg frames:
  - Fixing: [Secure](#).
  - Levels: [Top surfaces in a horizontal plane](#).
- Pedestals: [Plumb and accurately aligned with basin](#). Securely fix to the floor.
- Sealing to walls: [White silicone sealant](#).

### **System completion**

#### 35-70-70/810 Water supply fittings

- Water flow rates: [Test and adjust flow rates to meet specified requirements](#).
- Water temperature at outlets: [Test and adjust maximum temperatures to meet specified requirements](#).

Ω End of system

## **35-70-70/134 WC assembly**

### **System outline**

#### 35-70-70/134 WC assembly

- Components: [45-35-70/384 WC pans](#)
- Execution: [35-70-70/610 Installing sanitary assemblies generally.](#)
- System completion: [35-70-70/810 Water supply fittings.](#)

### **Products**

#### 45-35-70/384 WC pans

- Manufacturer: [Armitage Shanks](#)  
[Armitage](#)  
[Rugeley](#)  
[Staffordshire](#)  
[WS15 4BT](#)  
[Tel: +44 \(0\)1543 490253](#)  
[Web: http://www.idealspec.co.uk/catalogue/bluebook/wcs\\_c9.html](#)  
  
[or similar approved.](#)
- Product reference: [E2910 Close Coupled with horizontal outlet](#)
- Standard: [To BS EN 997, Class 2](#)
- Form: [Close Coupled.](#)  
[As Drawing LSWH-EN31-EAR-DPL-BCK-00155 \[Public DDA and Staff WC Layout\].](#)
- Connecting dimensions: [To BS EN 33.](#)
- Pan height: [395mm](#)
- Materials:
  - Body: [Vitreous china to BS 3402.](#)
  - Finish and colour: [White.](#)
- Water supply, outlet and seat holes:
  - Water supply: [Back inlet.](#)
  - Outlet: [Horizontal back outlet.](#)
- Integral accessories: - [S4045 Orion 3 seat & cover](#)  
- [S3660 Sandringham Plus close coupled cistern 6/4 litre dual flush push button valve bottom supply and internal overflow](#)  
- [S9101 Domex screws \(pair\)](#)
- Execution: [45-35-70/622 Installing flushing WC assemblies.](#)

### **Execution**

#### 35-70-70/610 Installing sanitary assemblies generally

- Standards:
  - Space requirements: [In accordance with BS 8300.](#)
- Supply and discharge pipework: [Fix before appliances.](#)
- Appliances:
  - Surfaces designed to falls: [Install to drain as intended.](#)
  - Fasteners: [Use nonferrous or stainless steel fasteners.](#)
  - Fixing: [Fix appliances securely to structure or to appropriate brackets. Do not support on pipework.](#)

- Unauthorized use: [Do not use appliances.](#)
- Sealing to walls and floors:
  - Sealants: [Silicone sealant.](#)
  - Colours: [Matched to appliance.](#)
- Water supply fittings:
  - Positioning: [Hot tap to left of cold tap as viewed by user of appliance.](#)
  - Fixing: [Secure against twisting.](#)
  - Sealing to appliance: [Watertight.](#)
- Wastes: [Secure in position using supplied washers.](#)

#### 45-35-70/622 Installing flushing WC assemblies

- Pans:
  - Floor mounted pans: [Screw fix and fit cover caps over screw heads. Do not use mortar or other beddings.](#)
  - Seat and cover: [Stable when raised.](#)
- Cisterns:
  - Brackets:
    - Fixing: [Secure.](#)
    - Levels: [Top surfaces of brackets in a horizontal plane.](#)
  - Cistern operating components: [Obtain from cistern manufacturer.](#)
  - Float operated valves: [Match to pressure of water supply.](#)
  - Overflow pipes:
    - Fixing at cistern: [With resilient washer between appliance and backnut.](#)
    - Fixing generally: [Fix to falls and in a location that gives visible warning of discharge.](#)
    - Position: [As shown on drawings](#)

### **System completion**

#### 35-70-70/810 Water supply fittings

- Water flow rates: [Test and adjust flow rates to meet specified requirements.](#)
- Water temperature at outlets: [Test and adjust maximum temperatures to meet specified requirements.](#)

Ω End of system

## **35-70-70/140 Accessible WC package assembly**

### **System outline**

35-70-70/140 Accessible WC package assembly

- Components: [45-35-70/407 Accessible WC Doc M equipment packages](#).
- Execution: [35-70-70/610 Installing sanitary assemblies generally](#).
- System completion: [35-70-70/810 Water supply fittings](#).

### **Products**

45-35-70/407 Accessible WC Doc M equipment packages

- Manufacturer: [Armitage Shanks](#)  
[Armitage](#)  
[Rugeley](#)  
[Staffordshire](#)  
[WS15 4BT](#)  
[Tel: +44 \(0\)1543 490253](#)  
[Web: \[http://www.idealspec.co.uk/catalogue/bluebook/doc-m/doc-m-wc-rooms\\\_c102.html\]\(http://www.idealspec.co.uk/catalogue/bluebook/doc-m/doc-m-wc-rooms\_c102.html\)](#)  
  
[or similar approved](#).
- Standards: [In accordance with Approved Document M](#).
- Product reference: [S6984\(AC\) - Doc M Standard low level left hand corner pack, WC with spacer box low level cistern, grab rails in contracting colour, hinged support rail with toilet roll holder, seat no cover with retaining buffers](#).
- Type approval certificate: [Submit](#).
- Form: [Complete accessible WC Doc M package and fittings](#).
- Arrangement: [Close coupled pack](#).
- Transfer handing: [As Drawing LSWH-EN31-EAR-DPL-BCK-00155 \[Public DDA and Staff WC Layout\]](#).
- Material and colour:
  - WC pans: [Vitreous china to BS EN 997, white](#).
  - WC seats: [Plastics, white](#).
  - Wash basins:  
Material: [Vitreous china to BS EN 14688, white](#).  
Water supply fittings: [Lever operated thermostatic mixer tap](#).
  - Water supply temperature (maximum): [48°C](#).
- Execution: [45-35-70/622 Installing flushing WC assemblies](#).
- Area / Location: [Public DDA WC](#).

### **Execution**

35-70-70/610 Installing sanitary assemblies generally

- Standards:
  - Space requirements: [In accordance with BS 8300](#).
- Supply and discharge pipework: [Fix before appliances](#).
- Appliances:
  - Surfaces designed to falls: [Install to drain as intended](#).
  - Fasteners: [Use nonferrous or stainless steel fasteners](#).

- Fixing: [Fix appliances securely to structure or to appropriate brackets. Do not support on pipework.](#)
- Unauthorized use: [Do not use appliances.](#)
- Sealing to walls and floors:
  - Sealants: [Silicone sealant.](#)
  - Colours: [Matched to appliance.](#)
- Water supply fittings:
  - Positioning: [Hot tap to left of cold tap as viewed by user of appliance.](#)
  - Fixing: [Secure against twisting.](#)
  - Sealing to appliance: [Watertight.](#)
- Wastes: [Secure in position using supplied washers.](#)

#### 45-35-70/622 Installing flushing WC assemblies

- Pans:
  - Floor mounted pans: [Screw fix and fit cover caps over screw heads. Do not use mortar or other beddings.](#)
  - Seat and cover: [Stable when raised.](#)
- Cisterns:
  - Brackets:
    - Fixing: [Secure.](#)
    - Levels: [Top surfaces of brackets in a horizontal plane.](#)
  - Cistern operating components: [Obtain from cistern manufacturer.](#)
  - Float operated valves: [Match to pressure of water supply.](#)
  - Overflow pipes:
    - Fixing at cistern: [With resilient washer between appliance and backnut.](#)
    - Fixing generally: [Fix to falls and in a location that gives visible warning of discharge.](#)
    - Position: [As shown on drawings](#)

### **System completion**

#### 35-70-70/810 Water supply fittings

- Water flow rates: [Test and adjust flow rates to meet specified requirements.](#)
- Water temperature at outlets: [Test and adjust maximum temperatures to meet specified requirements.](#)

Ω End of system

## **35-70-70/190 Sanitary accessories**

### **System outline**

#### 35-70-70/190 Sanitary accessories

- NOTE: All sanitary items may be subject to change pending TFL review of manufacturers. System to be read in conjunction with: LSWH-EN31-EAR-SCH-BCK-00257 [Finishes Schedule].
- Sanitary fixtures fittings and equipment: [45-35-72/334 Hand driers](#);  
[45-35-72/336 Mirrors](#);  
[45-35-72/358 Soap dispensers](#);  
[45-35-72/380 Waste bins](#);  
and [45-35-72/368 Toilet roll holders](#).
- Execution: [35-70-70/611 Installing sanitary accessories generally](#).

### **Products**

#### 45-35-72/334 Hand driers

- Manufacturer: [Bavada Ltd](#)  
[22 Northumberland Rd](#)  
[Ballsbridge](#)  
[Dublin 4 IE](#)  
[Ireland](#)  
[T: 020 7193 5104](#)  
[Web: <http://www.bavada.com/en/hand-dryers/26-ecofast-hk-ef01-hand-dryer.html>](#)  
  
[or similar approved.](#)
- Standards: [To BS EN 60335-2-23](#).
- Form: [High velocity air](#). [Surface mounted](#).
- Operation: [Automatic](#).
- Body:
  - Enclosure: [White steel](#)
  - Finish and colour: [White](#).
- Features: [Hands only](#).
- Product reference: [ECOFAST HK-EF01 HAND DRYER](#)
- Dimesions: [250 mm W x 170 mm H x 137.5 mm D](#)
- Location / area: [To public DDA and staff WC areas](#).

#### 45-35-72/336 Mirrors

- Manufacturer: [Contractor's choice](#).
- Form: [Wall mounted](#). Refer to BPR drawings for size and locations.
- Materials:
  - Glazing: [Class C safety glass to BS 6206](#).
  - Size: [In accordance with BPR drawings](#).
  - Backing: [Aluminium foil](#).
  - Quality: [Free from tarnishing, discoloration, scratches and other defects visible in the designed viewings conditions](#). [Reflection undistorted](#).
  - Edges: [Chamfered](#).
  - Fixing: [Screws with polyethylene sleeves and washers](#). NOTE: [Dome headed chrome screw caps](#).
  - Installation: [Accurately with sides vertical](#).

#### 45-35-72/358 Soap dispensers

- Manufacturer: [Dolphin Solutions Ltd](#)  
[Southpoint](#)  
[Compass Park](#)  
[Junction Road](#)  
[Bodiam](#)  
[TN32 5BS](#)  
[T 01424 202224](#)  
[E \[info@dolphinsolutions.co.uk\]\(mailto:info@dolphinsolutions.co.uk\)](#)  
[Web: <https://www.dolphinsolutions.co.uk/product/soap-dispenser/>](#)

[or similar approved.](#)

- Product reference: [BC123 Dolphin Excel Soap Dispenser.](#)
- New clause item 1: [To staff and public WC's](#)
- Form: [Wall mounted.](#)
- Materials:
  - Body: [Plastics.](#)
  - Finish and colour: [White.](#)
- Operation: [Push button.](#)

#### 45-35-72/368 Toilet roll holders

- Manufacturer: [Dolphin Solutions Ltd](#)  
[Southpoint](#)  
[Compass Park](#)  
[Junction Road](#)  
[Bodiam](#)  
[TN32 5BS](#)  
[T 01424 202224](#)  
[E \[info@dolphinsolutions.co.uk\]\(mailto:info@dolphinsolutions.co.uk\)](#)  
[Web: <https://www.dolphinsolutions.co.uk/product-category/toilet-tissue-dispensers/>](#)

[or similar approved.](#)

- Product reference: [NOTE: TBC pending feedback from TFL regarding preferred manufacturers.](#)
- Form: [Wall mounted.](#)
- Materials: [Plastics.](#)
- Finish and colour: [White.](#)

#### 45-35-72/380 Waste bins

- Manufacturer: [Dolphin Solutions Ltd](#)  
[Southpoint](#)  
[Compass Park](#)  
[Junction Road](#)  
[Bodiam](#)  
[TN32 5BS](#)  
[T 01424 202224](#)  
[E \[info@dolphinsolutions.co.uk\]\(mailto:info@dolphinsolutions.co.uk\)](#)  
[Web: <https://www.dolphinsolutions.co.uk/product-category/bins/>](#)

[or similar approved.](#)

- Product reference: [NOTE: TBC pending feedback from TFL regarding preferred manufacturers.](#)
- Form: [Freestanding, open rim.](#)
- Materials: [Satin stainless steel.](#)
- Finish and colour: [Satin stainless steel.](#)



## **Execution**

35-70-70/611 Installing sanitary accessories generally

- Fixtures:
  - Positions: [In accordance with BS 8300.](#)
  - Fixing: [Secure. In accordance with manufacturers' recommendations.](#)

Ω End of system

## **35-80-25/110 Fixed external signage system**

### **System outline**

35-80-25/110 Fixed external signage system

- Sign type: [All signage in accordance with Merson signage schedule put together on behalf of LOROL. As Document CD-C05226 West Hampstead -ISSUE 2.](#)
- Fixings: [In accordance with SE specification.](#)

Ω End of system

## **35-80-25/120 Free standing external signage system**

### **System outline**

35-80-25/120 Free standing external signage system

- Sign type: [All signage in accordance with Merson signage schedule put together on behalf of LOROL. As Document CD-C05226 West Hampstead -ISSUE 2.](#)
- Fixings: [In accordance with SE specification.](#)
- Execution: [35-80-25/670 Posts set in concrete.](#)

### **Execution**

35-80-25/670 Posts set in concrete

- Components: [Accurately position. Support securely.](#)
- Buried depth (minimum): [In accordance with SE specification.](#)
- Concrete fill: [Ram well as filling proceeds. Fill hole level to surrounding ground.](#)

Ω End of system

## **35-85-40/145 Intumescent coating system**

### **System outline**

#### 35-85-40/145 Intumescent coating system

- System performance: [35-85-40/210 Fire resistance](#); [35-85-40/215 Durability](#); and [35-85-40/290 Compliance with performance requirements](#).
- System application: [Contractor's design](#).
- Primer: [45-35-64/377 Water based acrylic primers](#).
- Intumescent coat: [45-35-84/364 Intumescent protective coatings](#).
- Finish: [45-35-84/374 Top sealer coats for intumescents](#).
- Execution: [35-85-40/620 Working conditions](#); [35-85-40/625 Operatives](#); [35-85-40/635 Working procedures](#); [35-85-40/660 Condition of new steelwork](#); [35-85-40/680 Sprayed coating application on site](#); and [35-85-40/715 Applying top sealer coats](#).
- System completion: [35-85-40/895 Verification of performance](#).

### **System performance**

#### 35-85-40/210 Fire resistance

- Standard:
- Requirement: [In accordance with Aecom grip 4 fire safety strategy report dated 12th May 2014](#).

#### 35-85-40/215 Durability

- Requirement: [Assess for durability in accordance with BS EN 16623, clause 5](#).
- In service environment:
  - Standard: [To BS EN ISO 12944-2](#).

#### 35-85-40/290 Compliance with performance requirements

- Requirement: [Project specific evaluation of intumescent materials](#).
- Method:
  - Standard: [In accordance with BS EN 16623, clause 6 for coatings](#).

### **Products**

#### 45-35-64/377 Water based acrylic primers

- Manufacturer: [Contractor's choice](#). To suit intumescent coating manufacturer.
- Composition: [Ensure existing primer is compatible with Nullifire Coatings and primed surface is clean, dry and free from any grease, dust and contaminants. Primer should be a minimum of 50 - 75 microns dft ensuring blast profile is fully covered. Primer should be no more than 250 microns thick](#).
- Execution: [45-35-64/685 Primer dry film thickness \(dft\)](#).

#### 45-35-84/364 Intumescent protective coatings

- Manufacturer: [Contractor's choice](#).
- Composition: [Water-borne. Applied to meet the 'dft' requirement for the fire rating specified](#).

- Area / location: [All exposed / concealed steelwork.](#)
- Fire resistance: [TBC pending review of fire strategy for station environment.](#)
- Appearance: [Matt.](#)
- Colour: [High decorative finish to exposed steelwork. Finish colour: Light Grey: NCS-S-1502Y](#)  
[Concealed steelwork. Finish: Contractors choice.](#)
- Execution: [45-35-84/640 Intumescent coat finish – high decorative.](#)

#### 45-35-84/374 Top sealer coats for intumescent

- Manufacturer: [Contractor's choice.](#)
- Composition: [Water based eggshell. Topseal at 50 microns dft per coat \(2 coats may be required when brushed or primary colours\).](#)
- Execution: [45-35-84/650 Top sealer coat dft.](#)

### **Execution**

#### 35-85-40/620 Working conditions

- Environmental conditions:
  - Ambient temperature (minimum): [5°C.](#)
  - Steelwork temperature (minimum): [3°C above dew point.](#)
  - Relative humidity (maximum): [85%.](#)
- Recommended environmental conditions: [Maintain during application and drying.](#)
- Surface condition: [Clean and dry at time of application.](#)

#### 35-85-40/625 Operatives

- Operatives: [Trained and experienced in intumescent castings.](#)
- Evidence of training and experience: [Submit on request.](#)

#### 35-85-40/635 Working procedures

- Standard: [In accordance with BS EN 16623.](#)
- Give notice: [Before commencing surface preparation and coating application.](#)
- Quality control: [Record project-specific procedures for surface preparation and coating application.](#)

#### 35-85-40/660 Condition of new steelwork

- Requirement: [Free from rust, millscale, grease and contaminants.](#)

#### 35-85-40/680 Sprayed coating application on site

- Standard: [In accordance with BS EN 16623.](#)
- Uncoated areas of steel: [Submit proposals.](#)
- Spraydrift: [Minimize.](#)
- Masking:
  - Requirement: [Protect designated adjacent surfaces.](#)
  - Designated surfaces: [Fair faced brickwork.](#)

#### 35-85-40/715 Applying top sealer coats

- Appearance: [Provide an even, solid, opaque appearance, free from runs, sags and other visual defects.](#)

#### 45-35-64/685 Primer dry film thickness (dft)

- Dry film thickness (minimum): [As recommended by manufacturer.](#)
- Measuring primer dft: [Determine average dft \(for deduction from total dft after application of intumescent coating\).](#)

45-35-84/640 Intumescent coat finish – high decorative

- Locations: [Visible areas.](#)
- Requirement: [High standard of evenness, smoothness and gloss when viewed from a minimum distance of 2 m.](#)

45-35-84/650 Top sealer coat dft

- Dry film thickness (minimum): [As recommended by manufacturer.](#)

### **System completion**

35-85-40/895 Verification of performance

- Requirement: [Check completed system and provide assurance of compliance with specified performance.](#)
- Submittals:
  - Content: [Description of inspections, remedial works carried out and certification of compliance.](#)
  - Format: [Contractor's choice.](#)

Ω End of system

## **35-85-60/105 Anti-graffiti coating system**

### **System outline**

#### 35-85-60/105 Anti-graffiti coating system

- Preparation: [In accordance with manufacturers recommendations.](#)
- Finishing coats: [45-35-84/392 Anti-graffiti coatings.](#)
- Execution: [35-85-60/603 Handling and storage of coating materials;](#)  
[35-85-60/620 Preparation for coating systems generally;](#)  
[35-85-60/700 Applying coating generally;](#)  
and [45-35-84/703 Applying coating system.](#)

### **Products**

#### 45-35-84/392 Anti-graffiti coatings

- Manufacturer: [Dulux Trade](#)  
[Manchester Road](#)  
[West Timperley](#)  
[Altrincham](#)  
[Cheshire](#)  
[WA14 5PG](#)  
Technical advice: 0333 222 7070  
Web: <https://www.duluxtradepaintexpert.co.uk/products/picker>  
  
[or similar approved.](#)
- Product reference: [Anti Graffiti Finish.](#)
- Preparation: [Ensure that surfaces are completely clean and thoroughly free from grease and oil.](#)
- Location / area: [Contractor to allow for coating to all external areas of exposed brickwork.](#)
- Category of use: [Permanent coating: Similar to conventional masonry paints but with greater resistance to abrasion and chemical cleaning methods. Manufacturer to advise whether coating will have an adverse effect on brick finish. If so please consult with BPR.](#)
- Colour: [Clear coating.](#)
- Primer / sealer: [As recommended by covering manufacturer given the substrate.](#)

### **Execution**

#### 35-85-60/603 Handling and storage of coating materials

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

#### 35-85-60/620 Preparation for coating systems generally

- Standard: [In accordance with BS 6150.](#)
- Substrates: [Sufficiently dry in depth to suit coating.](#)
- Suspected existing hazardous materials: [Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.](#)
- Efflorescence salts: [Remove.](#)
- Dirt, grease and oil: [Remove.](#)
- Contamination of surfaces and substrates: [Give notice.](#)
- Surface irregularities: [Remove.](#)

- Joints, cracks, holes and other depressions: [Fill flush with surface. Provide smooth finish.](#)
- Dust, particles and residues from preparation: [Remove and dispose of safely.](#)
- Water-based stoppers and fillers: [Apply before priming.](#)
- Doors, opening windows and other moving parts: [Ease, if necessary, before coating.](#)

#### 35-85-60/700 Applying coating generally

- Application: [In accordance with BS 6150, clause 9.](#)
- Environmental conditions: [Maintain suitable temperature, humidity and air quality during application and drying.](#)
- Surfaces: [Clean and dry at time of application.](#)
- Thinning and intermixing of coatings: [Not permitted unless recommended by manufacturer.](#)
- Overpainting: [Do not paint over intumescent strips or silicone mastics.](#)
- Initial coats:
  - Thickness: [To suit surface porosity.](#)
  - Application: [As soon as possible on same day as preparation is completed.](#)
- Finish: [Even, smooth and of uniform colour. Free from brush marks, sags, runs and other defects.](#)
- Cutting in: [Cut in neatly.](#)
- Doors, opening windows and other moving parts: [Ease before coating, and between coats.](#)

#### 45-35-84/703 Applying coating system

- Initial coats:
  - Number of coats: [In accordance with manufacturer's instructions.](#)
  - Application: [In accordance with manufacturer's instructions.](#)
- Undercoats:
  - Number of coats: [In accordance with manufacturer's instructions.](#)
  - Application: [In accordance with manufacturer's instructions.](#)
- Finishing coats:
  - Number of coats: [In accordance with manufacturer's instructions.](#)
  - Application: [In accordance with manufacturer's instructions.](#)

Ω End of system



## **35-85-60/195 Water-borne paint system**

### **System outline**

#### 35-85-60/195 Water-borne paint system

- Initial coats: [45-35-64/325 Primers for plasterboard](#).
- Finishing coats: [45-35-84/320 Water-borne matt or flat finishes](#) and [45-35-84/316 Water-borne gloss finishes type B](#).
- Execution: [35-85-60/603 Handling and storage of coating materials](#);  
[35-85-60/620 Preparation for coating systems generally](#);  
[35-85-60/623 Fixtures and fittings removal before applying coating systems](#);  
[35-85-60/625 Application of coating systems around hardware](#);  
[35-85-60/700 Applying coating generally](#);  
and [45-35-84/703 Applying coating system](#).

### **Products**

#### 45-35-64/325 Primers for plasterboard

- Manufacturer: [British Gypsum](#)  
[Head Office](#)  
[Gotham Road](#)  
[East Leake](#)  
[Loughborough](#)  
[Leicestershire](#)  
[LE12 6HX](#)  
[T: 0115 945 1000](#)  
[Email \[bgtechnical.enquiries@bpb.com\]\(mailto:bgtechnical.enquiries@bpb.com\)](#)  
[Web: <http://www.british-gypsum.com/products/gyproc-drywall-primer?tab0=0>](#)  
  
[or similar approved](#).
- Product reference: [Gyproc Drywall Primer](#).
- Material: [General purpose plasterboard primer that provides an ideal surface for decoration with most paints and wall coverings](#).
- Composition: [A mixture of vinyl acetate emulsion, mineral fillers, and small quantities of organic additives, including an antibacterial agent](#).

#### 45-35-84/316 Water-borne gloss finishes type B

- Manufacturer: [Dulux Trade](#)  
[Manchester Road](#)  
[West Timperley](#)  
[Altrincham](#)  
[Cheshire](#)  
[WA14 5PG](#)  
[Technical advice: 0333 222 7070](#)  
[Web: <https://www.duluxtradepaintexpert.co.uk/products/picker>](#)  
  
[or similar approved](#).
- Product reference: [Dulux trade diamond eggshell](#).
- Area / location: [As Document LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\]](#).
- Surfaces: [Internal walls and ceilings, plasterboard surface. Also suitable for use in kitchens and bathrooms](#).
- Composition: [Pigment: Lightfast Pigments](#).  
[Binder: Acrylic Copolymer Emulsion](#).  
[Solvent: Water](#).
- Sheen: [Eggshell](#).
- Colour: [Contrast Colour 2: NCS-S-0505-Y10R](#)

- VOC: Ready Mixed: This product contains max. 17g/l VOC. VOC content: Low (0.30-7.99%).

#### 45-35-84/320 Water-borne matt or flat finishes

- Manufacturer: [Dulux Trade](#)  
[Manchester Road](#)  
[West Timperley](#)  
[Altrincham](#)  
[Cheshire](#)  
[WA14 5PG](#)  
[T: 0333 222 7070](#)  
[Web: https://www.duluxtradepaintexpert.co.uk/products/picker](#)  
  
[or similar approved.](#)
- Product reference: [Vinyl Matt.](#)
- Area / location: [As Document LSWH-EN31-EAR-SCH-BCK-00257 \[Finishes Schedule\].](#)
- Surfaces: [Internal walls and ceilings, plasterboard surface.](#)
- Composition: [Pigment: Lightfast Pigments.](#)  
[Binder: Acrylic Copolymer Emulsion.](#)  
[Solvent: Water.](#)
- Sheen: [Matt.](#)
- Colour: [Contrast Colour 2: NCS-S-0505-Y10R](#)
- VOC: Ready Mixed: This product contains max. 1g/l VOC. VOC content: Minimal (0-0.29%).

### **Execution**

#### 35-85-60/603 Handling and storage of coating materials

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

#### 35-85-60/620 Preparation for coating systems generally

- Standard: [In accordance with BS 6150.](#)
- Substrates: [Sufficiently dry in depth to suit coating.](#)
- Suspected existing hazardous materials: [Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.](#)
- Efflorescence salts: [Remove.](#)
- Dirt, grease and oil: [Remove.](#)
- Contamination of surfaces and substrates: [Give notice.](#)
- Surface irregularities: [Remove.](#)
- Joints, cracks, holes and other depressions: [Fill flush with surface. Provide smooth finish.](#)
- Dust, particles and residues from preparation: [Remove and dispose of safely.](#)
- Water-based stoppers and fillers: [Apply before priming.](#)
- Doors, opening windows and other moving parts: [Ease, if necessary, before coating.](#)

#### 35-85-60/623 Fixtures and fittings removal before applying coating systems

- Items to be removed: [Cover plates, grilles, wall clocks, and other surface mounted fixtures.](#)
- Replacement: [Refurbish as necessary, refit when coating is dry.](#)

#### 35-85-60/625 Application of coating systems around hardware

- Other hardware: [Remove from surfaces to be coated before painting.](#)
- Refurbishment: [Remove old coating marks. Clean and polish.](#)

- Replacement: [Refit when coating is dry.](#)

#### 35-85-60/700 Applying coating generally

- Application: [In accordance with BS 6150, clause 9.](#)
- Environmental conditions: [Maintain suitable temperature, humidity and air quality during application and drying.](#)
- Surfaces: [Clean and dry at time of application.](#)
- Thinning and intermixing of coatings: [Not permitted unless recommended by manufacturer.](#)
- Overpainting: [Do not paint over intumescent strips or silicone mastics.](#)
- Initial coats:
  - Thickness: [To suit surface porosity.](#)
  - Application: [As soon as possible on same day as preparation is completed.](#)
- Finish: [Even, smooth and of uniform colour. Free from brush marks, sags, runs and other defects.](#)
- Cutting in: [Cut in neatly.](#)
- Doors, opening windows and other moving parts: [Ease before coating, and between coats.](#)

#### 45-35-84/703 Applying coating system

- Initial coats:
  - Number of coats: [In accordance with manufacturer's instructions.](#)
  - Application: [In accordance with manufacturer's instructions.](#)
- Undercoats:
  - Number of coats: [In accordance with manufacturer's instructions.](#)
  - Application: [In accordance with manufacturer's instructions.](#)
- Finishing coats:
  - Number of coats: [In accordance with manufacturer's instructions.](#)
  - Application: [In accordance with manufacturer's instructions.](#)

Ω End of system

## **40-40-25/165 External planter system**

### **System outline**

#### 40-40-25/165 External planter system

- Container:
  - **Structural wall:** Planter to sit on brickwork dwarf wall.  
Manufacturer: Ibstock Brick Ltd or similar approved.  
Product reference: Ibstock White Glazed Facing Brick. Low level brickwork while maintaining upper brickwork appearance must be durable and have low water absorption.  
Dimensions: 215mm x 65mm x 102.5mm.  
Bond: Stretcher.  
  
As Drawing LSWH-EN31-EAR-DDE-BCK-00160 [Secondary Ticketing Zone Details 01 (Ballymore Annex)].
  - **Container:** Galvanised Steel Planters  
Manufacturer:  
IOTA Garden and Home Limited  
Wick Road  
Wick St Lawrence  
North Somerset  
BS22 7YQ  
United Kingdom  
Tel: 01934 522617  
Web: <https://www.iotagarden.com/bespoke-planters/pre-galvanised-steel-planters/>  
or similar approved.  
  
Product reference: 1.5 thick custom planter to profiles and dimensions shown on bpr drawings.  
Material: Galvanized steel powder coated  
Dimensions / shape: Refer to BPR drawings.  
Lining: Not required.  
Accessories: To manufacturer's recommendations for the size and profile of the planter, and the health and sustainability of the plants, including drainage holes to base as recommended. Planters generally supported on  
  
Metal tread grille spanning concrete block dwarf walls  
Manufacturer – Lang + Fulton Web  
Newbridge Industrial Estate  
Newbridge  
Edinburgh  
EH28 8PJ  
T: 0131 441 1255  
[sales@langandfulton.co.uk](mailto:sales@langandfulton.co.uk)  
Web: [http://langandfulton.co.uk/gratings/wall\\_cladding/demialto](http://langandfulton.co.uk/gratings/wall_cladding/demialto)  
or similar approved.  
  
Product reference: Demi Alto 44 Material  
Material: Electrofused Steel 44mm Thick  
Dimensions / shape: Refer to BPR drawings.
  - **Timber seating:** As per clause [45-35-86/32145-35-86/321 Bench seating \(2no. bespoke\)](#)
- **Configuration:** As Drawing LSWH-EN31-EAR-DDE-BCK-00160 [Secondary Ticketing Zone Details 01 (Ballymore Annex)].
- **Dimensions:** As Drawing LSWH-EN31-EAR-DDE-BCK-00160 [Secondary Ticketing Zone Details 01 (Ballymore Annex)].
- **Liner:** As per the manufacturers requirements.
- **Drainage layer:**
  - Requirement: As per the manufacturers requirements.
  - Filter membrane: As per the manufacturers requirements.
- **Planting:**
  - Requirement: To be client supplied - TBC by TfL.

- Site finishes: [Required](#).
- Execution: [40-40-25/624 Work on planters generally](#).
- System completion: [40-40-25/804 Requirements for completion](#)

## **Products**

### 45-35-86/321 Bench seating (2no. bespoke)

- Manufacturer: [Steel frame and structure \(To contractors design\) with western red cedar cladding](#).

[Timber cladding manufacturer:](#)  
[Western red cedar sawn timber.](#)  
[Preferred manufacturer: Silva London \(South\):](#)  
[Tel: 01895 271 300](#)  
[Web: <http://www.silvatimber.co.uk/enquiries@silvatimber.co.uk>](#)

[or similar approved.](#)

- Area / location: [Concourse and external planter / seating by entrance. Refer to BPR drawings for quantities and exact locations.](#)
- Length: [As per BPR layout drawings.](#)
- Base: [Secured in accordance with structural engineers details.](#)
- Material: [Steel frame and supporting structure. Western red cedar cladding.](#)
- Finish: [Exterior wood stain, Natural finish - TBC by TFL](#)
- Other requirements: [Timber cladding, size as per bpr drawings in external works package. Any alternative product suggested by the contractor must match the steel and wooden gate reference 'Hinged gate system 25-60-35/109.](#)

## **Execution**

### 40-40-25/624 Work on planters generally

- Metal fixings: [Protect from corrosion](#).
- Treatment of minor damage to galvanized surfaces:
  - Repairs to areas of damage less than 40 mm²:  
 Method: [At least two coats of zinc-rich paint to BS 4652.](#)  
 Zinc coating thickness (minimum): [Thickness of the original layer.](#)
- Site cutting of wood:
  - Components generally: [Minimize cutting.](#)
  - Wood below or near ground level: [Do not cut.](#)
  - Preservative treatment of surfaces exposed by minor cutting and drilling:  
 Method: [Apply sufficient material to provide a coating equal to the original preservative.](#)  
 Number of coats: [Two.](#)
- Site applied finishes: [Prepare surfaces and apply finishes as soon as possible after fixing.](#)

## **System completion**

### 40-40-25/804 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.](#)

## **50-10-00/110 External gravity rainwater drainage system**

### **System outline**

#### 50-10-00/110 External gravity rainwater drainage system

- System performance: [50-10-00/210 Design of gravity rainwater drainage system](#).
- Combined fascias soffits and gutters:
  - Materials: [90-05-35/310 Aluminium combined fascias soffits and gutters](#).
- External rainwater pipework:
  - Rainwater downpipes:  
Downpipe types: [90-10-20/306 Aluminium external rainwater downpipes](#).  
Jointing: [As recommended by pipework manufacturer](#).
- System accessories: [45-35-84/394 Anti-climb paints](#).
- Execution: [50-10-00/610 Installation of rainwater drainage generally](#);  
[50-10-00/622 Fixing and jointing combined fascia, soffit and gutter system](#);  
and [50-10-00/662 Access for testing and maintenance of rainwater drainage system](#).
- System completion: [50-10-00/810 Testing rainwater drainage generally](#);  
[50-10-00/822 Rainwater drainage system pre-handover checks](#);  
and [50-10-00/818 Rainwater drainage gutter test](#).

### **System performance**

#### 50-10-00/210 Design of gravity rainwater drainage system

- Design: [Details and layout of external drainage to M&E specification and drawings](#).
- Standards: [In accordance with E&W Building Regulations Approved Document H, H3, Section 1](#).
- Proposals: [Submit drawings, technical information, calculations and manufacturers literature](#).
- Design parameters:
  - Roof and gutter construction and finish: [Single ply membrane with aluminium downpipes](#).
- Requirements: [Submit proposals including detailed design drawings, technical information, calculations and manufacturers' literature](#).

### **Products**

#### 45-35-84/394 Anti-climb paints

- Manufacturer: [Contractor's choice](#).  
[TFL to confirm whether this is required. Generally downpipes will be away from public realm.](#)
- Colour: [To match colour of rainwater goods. Applied at least 2.4 m from the ground on surfaces which can only be reached by climbing.](#)
- Execution: [45-35-84/703 Applying coating system](#).

#### 90-05-35/310 Aluminium combined fascias soffits and gutters

- Manufacturer: [Bailey Total Building Envelope](#)  
[Blatchford Close](#)  
[Horsham](#)  
[West Sussex](#)  
[RH13 5RF](#)  
[+44 \(0\) 800 849 8558](#)  
[sales@bailey-uk.com](#)  
[Web: http://www.bailey-uk.com/building-envelope/eaves-systems/](#)

or similar approved.

- Form: Combined Fascia / soffit and gutter.
- Third party product certification: BBA Agrément certificate.
- Area / location: Concourse roof perimeter and Footbridge, stair roof perimeter.
- General Description: Aluminium soffit panels with interlocking joints and secret fixing:

Panel stiffness and flatness is ensured by interlocking joints on all edges, lateral stiffeners attached to back of panel and choice of metal gauge to suit panel width.

Complete system includes Bailey Support Carcassing for suspension from primary building structure, ensuring correct alignment and adjustability.

Panels typically span between Carcassing fixing points with long axis parallel to building elevation. Other support arrangements are feasible.

Supplied in 3 m lengths as standard. Choice of special sizes, shapes, flat or curved section.

Powder coated finish with choice of colour. Applied in-house with thirty year guarantee available on application, subject to location.

Interlocking joints compatible with Bailey.

Suitable for use with Bailey Carcassing or Laser-Line Carcassing Systems.

Powder coated finish to White: RAL 9003. Applied in-house with thirty year guarantee available on application, subject to location.

- Fascias:
  - Profile: Cassette Fascia Panel. Refer to documents:  
LSWH-EN31-EAR-DDE-BCK-00087 [CONCOURSE ROOF DETAILS];  
LSWH-EN31-EAR-DSE-BCK-00106 [FOOTBRIDGE DETAILED SECTIONS 01];  
LSWH-EN31-EAR-DSE-BCK-00107 [FOOTBRIDGE DETAILED SECTIONS 02].
  - Size: Length maximum 3000mm as standard: special shorter lengths to suit building modulation on request
  - Thickness or gauge: Minimum 2mm, but increased in accordance with the recommendations of Bailey.
  - Material: Aluminium sheet to EN 485/515/573 for fascia & soffits.  
Galvanised steel sheet to EN 10327:2004 DX51D + Z275NA, for support carcassing.
  - Finish and colour:  
Finish: Polyester powder coating.  
Colour: White: RAL 9003.
- Soffits:
  - Profile: Flat Cassette Panels.
  - Size: Length maximum 3000mm as standard: special shorter lengths to suit building modulation on request
  - Material: Aluminium sheet to EN 485/515/573 for fascia & soffits.  
Galvanised steel sheet to EN 10327:2004 DX51D + Z275NA, for support carcassing.
  - Thickness or gauge: Minimum 2mm, but increased in accordance with the recommendations of Bailey.
  - Finish and colour:  
Finish: Polyester powder coating.  
Colour: White: RAL 9003
- Gutters:
  - Profile: Rectangular box.
  - Thickness or gauge: As recommended by manufacturer to form profile.
  - Finish and colour:  
Finish: Polyester powder coating.  
Colour: White: RAL 9003
- Integral accessories: Factory fabricated fascia corners, stop-ends, traditional flashings, rear edge trims, mitre cover strips as required.

Access panel. - Entire panel made accessible, hinged longitudinally with stays and quick-release opening.

- **Supports:** To be fitted to Bailey Carcassing inclusive of super cleats or Laser-Line System at centres recommended by Bailey.
- **Fixing:** All fixings to be completely concealed. System to be fixed using carbon steel and stainless steel fixings as recommended and supplied by Bailey.
- **Special Features:** The system is to fully allow for normal building tolerances to be overcome on site without the necessity to purpose manufacture components to site dimensions. All factory fabricated components to be fully finished and dressed prior to polyester powder coating. Panels to be stiffened to provide flat and acceptable surface using Bailey concealed stiffening system, without any exposed or visible fixings on the surface of the panels.
- **Method of jointing:** Fascias to be jointed using internal profiled butt strap with minimum 3mm expansion gap. Soffit panels to be jointed with Bailey Interlocking and Stiffening End joint detail with concealed fixing.
- **Modulation:** As stipulated
- **Design:** The installing sub contractor is to provide full working drawings for approval prior to manufacture. As a minimum, these should include:

Reflected panel layouts showing all joints, junctions, mitres, etc. suitably cross referenced to the relevant section

Section of each different detail including method of support from structural elements and fixings to be used. Each component to be numbered

Large scale details and, where required, isometric details for particularly awkward or complex junctions, corners, barge boxes, etc.

- **Packaging:** All components are to be fully wrapped and protected. Bundles should be no larger than can be handled by one person to ensure transfer to point of installation in original packaging. In the case of large or heavy items, these should be clearly marked with the appropriate warning and approximate weight. Fascia and Soffit components to be labelled in accordance with part numbers given on working drawings.
- **Installation:** To be in accordance with the Bailey Eaves Systems instructions as follows:

Structure:

Check that structure is in a suitable state to receive cladding before commencing fixing.

Sub contractor must confirm acceptance to main contractor and C.A.

Do not fix cladding until final coats of paint have been applied to outer surfaces of supporting structure.

Isolating Tape:

A type recommended for the purpose by Bailey. Apply to those surfaces of supports which would otherwise be in contact with panels or accessories after fixing

Fixing Sheets Generally:

Cut panels to give clean, true lines with no distortion. Remove burrs and any lubricants

Cut openings in panels for outlets, vent-pipes, flues, etc. the minimum size necessary.

Reinforce edges of openings with split ring flashing as supplied by Bailey Eaves Systems.

Drill all holes. Holes for primary fastening to be 1.5mm larger than diameter for fastening unless self-drilling type with point is used.

Remove all drilling swarf, dust and any other foreign matter before finally fixing sheets into position.

Protect panels adequately during fixing and up to practical completion against mechanical damage, corrosion and disfigurement. Rectify any defects as quickly as practicable to minimise damage and nuisance.

Fastenings Generally:

Type(s), size(s), material(s) and finish(es) as recommended for the purpose by Bailey Eaves Systems.

Type(s), number and locations of fastenings:

To be determined in conjunction with Bailey.

Accessories Generally:

Cappings, closure pieces, flashings, trims, tapes, sealants, fixings, etc. where not specified to be types



recommended by Bailey Eaves Systems and supplied by them.

The entire fascia, soffit and rainwater system together with all sub-carcassing work is to be supplied and installed by one sub contractor who is to be selected from the Bailey list of recommended sub contractors.

#### 90-10-20/306 Aluminium external rainwater downpipes

- Manufacturer: [Bailey Total Building Envelope](#)  
[Blatchford Close](#)  
[Horsham](#)  
[West Sussex](#)  
[RH13 5RF](#)  
[+44 \(0\) 800 849 8558](#)  
[sales@bailey-uk.com](#)  
Web: <http://www.bailey-uk.com/building-envelope/rainwater-systems/downpipes/>

or similar approved.

- Standard: [To BS 8530](#).
- Area / location: [As Drawing LSWH-EN31-EAR-DGA-BCK-00064 \[GA ROOF PLAN\]](#).
- Material: [Aluminium](#).
- Third party product certification: [BBA Agrément certificate](#).
- Form: [Manufacturer's standard](#).
- Section: [Round](#).
- Size (nominal): [Min. 100mm](#). Information based on manufacturers flow rate calculations. Refer to drainage engineers design for accurate sizings.
- Finish and colour:
  - Finish: [Polyester powder coating](#).
  - Colour: [RAL 7035 Light Grey](#).
- Integral accessories: [Brackets and fixings](#) as required to complete installation of the system.

### **Execution**

#### 45-35-84/703 Applying coating system

- Initial coats:
  - Number of coats: [In accordance with manufacturer's instructions](#).
  - Application: [In accordance with manufacturer's instructions](#).
- Undercoats:
  - Number of coats: [In accordance with manufacturer's instructions](#).
  - Application: [In accordance with manufacturer's instructions](#).
- Finishing coats:
  - Number of coats: [In accordance with manufacturer's instructions](#).
  - Application: [In accordance with manufacturer's instructions](#).

#### 50-10-00/610 Installation of rainwater drainage generally type A

- Collection and distribution of rainwater: [Complete, and without leakage or noise nuisance](#).
- Electrolytic corrosion: [Avoid contact between dissimilar metals where corrosion may occur](#).
- Allowance for thermal and building movement: [Provide and maintain clearance as fixing and jointing proceeds](#).
- Protection: [Fit purpose-made temporary caps to prevent ingress of debris](#). Fit access covers, cleaning eyes and blanking plates as the work proceeds.

#### 50-10-00/622 Fixing and jointing combined fascia, soffit and gutter system

- Fixing:
  - Fascias: [As manufacturer's recommendations](#).

- Soffits: [As manufacturer's recommendations.](#)
- Jointing:
  - Fascias: [As manufacturer's recommendations.](#)
  - Soffits: [As manufacturer's recommendations.](#)

#### 50-10-00/662 Access for testing and maintenance of rainwater drainage system

- Requirement: [Install pipework and gutters with adequate clearance to permit testing, cleaning and maintenance, including painting where necessary.](#)
- Access fittings and rodding eyes: [Position so that they are not obstructed.](#)

### **System completion**

#### 50-10-00/810 Testing rainwater drainage generally

- Dates for testing: [Give notice.](#)
- Pipework: [Complete, and fix securely. Make free from defects, obstruction and debris before testing.](#)
- Testing:
  - Clean water: [Provide.](#)
  - Testing apparatus: [Provide.](#)
  - Smoke testing: [Do not use.](#)

#### 50-10-00/818 Rainwater drainage gutter test

- Preparation: [Temporarily block all outlets.](#)
- Testing: [Fill gutters to overflow level and after 5 minutes closely inspect for leakage.](#)
- Records of tests: [Submit.](#)

#### 50-10-00/822 Rainwater drainage system pre-handover checks

- Construction rubbish, debris, swarf, temporary caps and fine dust which may enter the rainwater system: [Remove. Do not sweep or flush into the rainwater system.](#)
- Access covers, rodding eyes, outlet gratings and the like: [Secure complete with fixings.](#)

Ω End of system

## **50-10-15/110 Below ground drainage**

### **System outline**

#### 50-10-15/110 Below ground drainage

- System performance: [50-10-15/210 Design of below ground gravity drainage pipeline systems](#).
- Surface water collectors: [90-05-20/426 Linear slot drainage channels](#).
- Execution: [50-10-15/700 Laying and jointing below ground drainage pipelines generally](#); [50-10-15/615 Excavating drainage trenches generally](#); and [50-10-15/740 Connecting to public sewers](#).
- System completion: [50-10-15/815 Testing and inspection of below ground drainage](#).

### **System performance**

#### 50-10-15/210 Design of below ground gravity drainage pipeline systems

- Design: [Complete the design of the below ground drainage system in accordance with BS EN 752, BS EN 1295-1 and BS EN 1610](#).
- Assumed ground conditions: [TBC. Pending further site investigations](#).
- Performance criteria:
  - Stormwater run-off capacity: [Peak site stormwater run-off not to exceed 15 L/s](#).
- Requirements: [Submit proposals including detailed design drawings, technical information, calculations and manufacturers' literature](#).

### **Products**

#### 90-05-20/426 Linear slot drainage channels

- Manufacturer: [ACO Technologies plc](#)  
[ACO Business Park](#)  
[Hitchin Road](#)  
[Shefford](#)  
[Bedfordshire](#)  
[SG17 5TE](#)  
[Tel: +44\(0\)1462 816666](#)  
[Email: \[technologies@aco.co.uk\]\(mailto:technologies@aco.co.uk\)](#)  
[Web: \[http://www.aco.co.uk/product\\\_detail.php?id=55\]\(http://www.aco.co.uk/product\_detail.php?id=55\)](#)

[or similar approved](#). Located to Station entrance in front of ticket gates.

- Standard: [To BS EN 1433](#).
- Third party certification: [BSI Kitemark](#).
- Material: [Channel unit is manufactured from Vienite, ACO's high strength polymer concrete and forms the main component of the system](#).
- Slot body:
  - Material: [Galvanized steel](#).
  - Upstand height: [Manufacturer's standard](#).
- Product reference: [Slimline](#)
- Load class (minimum): [In accordance with structural engineers details and specification](#).
- Channel unit dimensions:
  - Width (nominal): [Nominal 100mm. TBC pending input from drainage engineer](#).
  - Overall depth: [TBC pending input from drainage engineer](#).

- Length: [Refer to BPR drawings for locations.](#)
- Integral accessories: [All as required to complete linear slot drainage system to the require performance specifications.](#)
- Execution: [90-05-20/610 Installing channels.](#)

## **Execution**

### 50-10-15/615 Excavating drainage trenches generally

- Type of subsoil:
  - Assumed type: [TBC.](#)
  - Discrepancies found during excavations: [Notify.](#)
- Trenches (up to 300 mm above crown of pipe):
  - Sides: [Vertical.](#)
  - Width (minimum): [To BS EN 1610, tables 1 and 2.](#)
  - Width (maximum):
    - DN 100 pipelines more than 6.0 m deep: [600 mm.](#)
    - DN 150 pipelines more than 5.4 m deep: [700 mm.](#)
    - DN 225 pipelines more than 4.0 m deep: [800 mm.](#)
    - DN 300 pipelines more than 2.9 m deep: [900 mm.](#)
- Excavating to trench bottom:
  - Timing: [Excavate to formation immediately before laying beddings or pipes.](#)
  - Mud, rock projections, boulders and hard spots: [Remove. Replace with consolidated bedding material.](#)
  - Local soft spots: [Harden by tamping in bedding material.](#)
  - Inspection of excavated formations: [Give notice.](#)
- Excavated materials: [Separate out reusable materials. Set aside for use in reinstatement.](#)

### 50-10-15/700 Laying and jointing below ground drainage pipelines generally

- Laying:
  - Gradient: [To true line and regular gradient on even bed for full length of barrel with sockets \(if any\) facing up the gradient.](#)
  - Ingress of debris: [Prevent. Seal exposed ends during construction.](#)
  - Timing: [Minimize time between laying and testing.](#)
- Jointing:
  - Connections: [Durable, effective and free from leakage.](#)
  - Junctions, including to differing pipework systems: [With adaptors intended for the purpose.](#)
  - Cut ends of pipes: [Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.](#)
  - Jointing or mating surfaces: [Clean and, where necessary, lubricate immediately before assembly.](#)
  - Allowance for movement: [Provide and maintain appropriate clearance at ends of spigots as fixing and jointing proceeds..](#)
  - Jointing material: [Do not allow to project into bore of pipes and fittings.](#)

### 50-10-15/740 Connecting to public sewers

- Requirement: [Connect new pipework to existing adopted sewers to the requirements of the adopting authority or its agent.](#)

### 90-05-20/610 Installing channels

- Alignment: [Grating flush with finished surface.](#)
- Bedding:
  - Material: [Contractor's choice.](#)

- Thickness (minimum): [Contractor's choice.](#)

### **System completion**

50-10-15/815 Testing and inspection of below ground drainage

- Dates for testing and inspection: [Give notice.](#)
- Period of notice (minimum): [Contractor's choice.](#)

Ω End of system

## **70-80-35/110 General lighting system**

### **System outline**

70-80-35/110 General lighting system

### **Products**

90-60-50/301 NOTE

- General: Refer to Illustrated Luminaire Schedule for full list of specified luminaires. Details relating to execution and installation are included within M&E specification.

90-60-50/440 Control gear generally

- Third party certification: [ENEC](#).
- Ballasts:
  - For fluorescent lamps: [To BS EN 60921](#), [BS EN 61347-1](#) and [BS EN 61347-2-8](#).
  - For discharge lamps: [To BS EN 60923](#), [BS EN 61347-1](#) and [BS EN 61347-2-9](#).
- Lamp starters generally: [To BS EN 60927](#), [BS EN 61347-1](#) and [BS EN 61347-2-1](#).
- Electronic control gear:
  - For fluorescent lamps: [To BS EN 60929](#), [BS EN 61347-1](#) and [BS EN 61347-2-3](#).
  - For battery supplied self-contained emergency lighting: [To BS EN 61347-1](#) and [BS EN 61347-2-7](#).
  - For discharge lamps: [To BS EN 61347-1](#) and [BS EN 61347-2-12](#).
  - For LED modules: [To BS EN 61347-1](#) and [BS EN 61347-2-13](#) and [BS EN 62384](#).
- Digital addressable control gear:
  - For digital addressable fluorescent lamps: [To BS EN 62386-102](#) and [BS EN 62386-201](#).
  - For digital addressable self-contained emergency lighting: [To BS EN 62386-102](#) and [BS EN 62386-202](#).
  - For digital addressable high intensity discharge lamps: [To BS EN 62386-102](#) and [BS EN 62386-203](#).
  - For digital addressable low voltage halogen lamps: [To BS EN 62386-102](#) and [BS EN 62386-204](#).
  - For digital addressable incandescent lamps: [To BS EN 62386-102](#) and [BS EN 62386-205](#).
  - For digital addressable LED modules: [To BS EN 62386-102](#) and [BS EN 62386-207](#).

Ω End of system

## **80-45-45/120 Hydraulic lift system**

### **System outline**

#### 80-45-45/120 Hydraulic lift system

- System manufacturer: [Stannah Lifts](#)  
[Anton Mill](#)  
[Andover](#)  
[Hampshire](#)  
[SP10 2NX](#)  
Telephone: 01264 339090  
Email: [contact@stannah.co.uk](mailto:contact@stannah.co.uk)  
Web: <http://www.stannahlifts.co.uk/products/passenger-lifts>

Refer to M&E drawings and specifications for full set of lift requirements.

- Approval: [Full member of the Lift and Escalator Industry Association.](#)
- Lift function: [Goods/ passenger lift. 16 person lift between footbridge and platform level](#)
- Drive space: [With machine room.](#)

Refer to documents for further details:

[LSWH-EN31-EAR-DDE-BCK-00109 \[FOOTBRIDGE LIFT DETAILS\]](#)  
[LSWH-EN31-EAR-DDE-BCK-00110 \[LIFT MOTOR ROOM DETAILS\].](#)

- Evacuation lift functionality: [Required.](#)
- Firefighters' lift functionality: [Required.](#)
- Electrical supplies to firefighters' and evacuation lifts:
  - Primary source: [In accordance with Stannah Lift details.](#)
  - Secondary source: [In accordance with Stannah Lift details.](#)
- Door arrangement: [Single entrance.](#)
- Lift car: [Required.](#)
- Landing doors, frames and sills: [Required.](#)
- Controls:
  - Passenger collection strategy: [In accordance with Stannah Lift details.](#)
  - Call handling: [Fully automatic push button.](#)
  - Features: [In accordance with Stannah Lift details.](#)
- Power unit: [Enclosed motor and pump. Refer to M&E drawings and specifications for full set of lift requirements.](#)

Ω End of system

## **80-50-25/110 Fall arrest system - guided anchor line**

### **System outline**

80-50-25/110 Fall arrest system - guided anchor line

- System performance: [80-50-25/210 Design of anchor device fixing points](#) and [80-50-25/250 Safety performance](#).
- Structural anchors: [45-50-05/400 Anchors for personal fall protection systems](#).
- Anchor line: [45-85-95/405 Stainless steel wire rope](#).
- Ancillary equipment: [Contractor's design](#).
- Execution: [80-50-25/620 Installing permanent access and safety equipment - generally](#) and [80-50-25/650 Installing guided type fall arrest system](#).
- System completion: [80-50-25/830 Provision of operating and maintenance manual](#).

### **System performance**

80-50-25/210 Design of anchor device fixing points

- Fixings in steelwork and timber: [Verify by calculation that fixings are capable of sustaining the relevant static and dynamic test forces specified in BS EN 795, clause 4.3.](#)
- Fixings in other materials: [Verify suitability by carrying out a test on an anchor device fixed to a sample of the material. The sample must be capable of sustaining the relevant static and dynamic test forces specified in BS EN 795, clause 4.3.](#)

80-50-25/250 Safety performance

- General: [The equipment as installed must have no irregularities or projections capable of inflicting personal injury. Finished surfaces and edges of all accessible parts must be regular and smooth.](#)

### **Products**

45-50-05/400 Anchors for personal fall protection systems

- Manufacturer: [Latchways plc](#)  
[Hopton Park](#)  
[DEVIZES](#)  
[Wiltshire](#)  
[SN10 2JP](#)  
[UK](#)  
[Telephone: 01380 732700](#)  
[Web: https://www.mantechsafetysystems.com/fall-arrest-fall-restraint-and-rescue/mansafe-fall-arrest-systems](#)  
  
[or similar approved.](#)
- Certification: [Where a European Assessment Document \(EAD\) or European Technical Assessment Guideline \(ETAG\) is available, provide a European Technical Assessment \(ETA\) with CE marking and a Declaration of Performance \(DoP\). Otherwise provide third party certification by a United Kingdom Accreditation Service \(UKAS\)-approved independent laboratory.](#)
- Anchor type: [To BS EN 795, class A1.](#)
- Description: [Latchways Constant Force post for Single Ply Membrane Roofing to various decks. Fixing method in accordance with manufacturers recommendations. Contractor to allow for all additional components for successful installation of the system.](#)
- Layout: [Refer to documents:](#)  
[LSWH-EN31-EAR-DGA-BCK-00064 \[GA ROOF PLAN\]](#)  
[LSWH-EN31-EAR-REP-BCK-00259 \[Access and Maintenance Strategy\].](#)
- Fixings: [Anchorage device:](#)  
[Constant Force post by Latchways Plc for mechanical attachment through the insulation to various decks in](#)



accordance with our current data sheet 65616-99, using Latchways Plc appropriate fixing kits. Weathering to be strictly in accordance with manufacturers recommendations.

- Material: [Manufacturer's standard.](#)
- Finish: [Manufacturer's standard.](#)
- Execution: [45-50-05/610 Fixing with anchors.](#)

#### 45-85-95/405 Stainless steel wire rope

- Manufacturer: [Latchways plc](#)  
[Hopton Park](#)  
[DEVIZES](#)  
[Wiltshire](#)  
[SN10 2JP](#)  
[UK](#)  
Telephone: 01380 732700  
Web: <https://www.mantechsafetyssystems.com/fall-arrest-fall-restraint-and-rescue/mansafe-fall-arrest-systems>

[or similar approved.](#)

- Material: [Stainless steel wire to BS EN 10264-4.](#)
- Size:
  - Thickness: [Manufacturer's standard.](#)
  - Length: [Manufacturer's standard.](#)
- Strength: [Minimum breaking force of unspliced rope 19 kN.](#)
- Fittings:
  - Type: [All additional components as required for successful installation of the system.](#)

### **Execution**

#### 45-50-05/610 Fixing with anchors

- Preparation: [Protect threaded length from damage. Drill pilot hole, and prepare for insertion of anchor. Place washers, packings, ferrules as required.](#)
- Initial fix: [Tighten sufficiently to hold unloaded components – check line and level of components before final tightening.](#)
- Final fix: [Tighten nuts to hold components in final position when fully loaded.](#)
- Inspection: [Inspection of the installation of mechanical fixings by appropriately qualified personnel required and to be recorded in accordance with agreed protocol.](#)

#### 80-50-25/620 Installing permanent access and safety equipment - generally

- Modifying, cutting, notching or making holes in structural members: [Submit proposals.](#)
- Anchors into substrate:
  - Site drilling or cutting into structure/ fabric: [Submit proposals.](#)
  - Distance between fixing devices and edges of supporting material (minimum): [Contractor's choice.](#)
- Frameworks:
  - Generally: [Assemble and brace, including temporary members required for installation.](#)
  - Access system: [Do not use as temporary support or strutting for other work.](#)
- Bolted joints:
  - Contact between dissimilar metals: [Avoid.](#)
  - Types, sizes and quantities of fasteners, packings and spacings: [Select to retain supported components without distortion or loss of support.](#)
- Welded joints: [Comply with National Structural Steelwork Specification \(NSSS\), section 5.](#)
- Finished components: [Smooth, free from distortion, cracks, burrs and sharp arrises.](#)

80-50-25/650 Installing guided type fall arrest system

- Installation: [In accordance with BS 7883.](#)
- Installer: [System manufacturer or a contractor approved by the system manufacturer.](#)

**System completion**

80-50-25/830 Provision of operating and maintenance manual

- General: [Provide, for inclusion in the Building Manual, printed instructions and recommended procedures to be established by the Employer for operating and routinely maintaining the equipment. Provide diagrams where appropriate.](#)
- Content:
  - Assembly instructions: [Provide instructions for assembling / erecting equipment for use.](#)
  - Operating instructions: [Provide comprehensive instructions including safety and emergency procedures for all motions including upward, downward and lateral travel, and slew.](#)
  - Servicing and maintenance: [Provide detailed dismantling and re-assembly instructions where maintenance necessitates dismantling of machinery parts.](#)
  - Replacement parts: [Provide list of replacement parts, with references.](#)
- Schedule for maintenance and for replacement of components: [Submit.](#)

Ω End of system