

Halliday Meecham Architects Ltd

# 56 High Street

56 High Street

02-05-2023

Remediation

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## C10 Site survey

### Surveys

#### 125 Site survey

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1. Description: Of existing ACM cladding, spandrel panels
2. Qualifications of survey author: Contractor's choice
3. Area to be surveyed: All areas of facade where ACM cladding, spandrel panels
4. Site datum: Contractor's choice
5. Objectives
  - 5.1. General: Establish/ record positions, dimensions and levels including dimensions of replacement panels.
  - 5.2. Features: Record positions, dimensions and levels including adjacent windows, glazed panels and reveals.
6. Methodology: Do not use intrusive survey techniques. Avoid disturbing natural features or wildlife.
  - 6.1. Permissible survey techniques: Site reconnaissance, Direct measurement, Photogrammetric
7. Control points: Establish and record measuring stations/ targets to facilitate future remeasuring.
  - 7.1. Standards: To BS 5964-1 and -2.
    - 7.1.1. Type: Benchmarks - long term markers
8. Dimensional accuracy
  - 8.1. Angular:  $\pm 0.1$  degrees
  - 8.2. Horizontal:  $\pm 1$  mm
  - 8.3. Vertical:  $\pm 1$  mm
9. Source data for reference/ verification: The following information is provided: Drawings (electronic).
10. Site survey report: Submit.
  - 10.1. Timing: Submit proposals

### Survey techniques

#### 410 Bench marks

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1. Unrecorded bench marks and other survey information: Give notice when found and notify Ordnance Survey.

#### 420 Unforeseen hazards

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1. Unrecorded hazards and hazardous materials: Give notice when found. Do not disturb.

#### 430 Survey instruments

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1. Equipment calibration: In accordance with manufacturer's recommendations.
2. Site use calibration: To relevant parts of BS 7334-1, -3, -4, -5 and -8.
3. Calibration: Use only persons accredited by the United Kingdom Accreditation Service (UKAS).
4. Calibration compliance: Submit evidence prior to use.

#### 440 Protection

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1. Protect the following: Existing brickwork, white reconstituted stone blocks, aluminium framed windows/ doors, site boundary fences/ walls

## Completion

### 915 Documentation – electronic

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1. Description: - FOR SITE SURVEY
2. Storage medium: None, submit files electronically
3. File naming: Use descriptive long file names
4. File types
  - 4.1. Text files: Adobe portable document format (.pdf)
  - 4.2. Charts: Adobe portable document format (.pdf)
  - 4.3. Diagrams: Adobe portable document format (.pdf)
  - 4.4. Tabulated data: Adobe portable document format (.pdf)
5. Photographs: Adobe portable document format (.pdf)
6. Drawings: Revit version 2019

Ω End of Section

## C20 Demolition

### General requirements

#### 120 Extent of deconstruction/ demolition

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1. General: Subject to retention requirements specified elsewhere, deconstruct/ demolish structures down to SFS zone .

#### 150 Features to be retained

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1. General: Keep in place and protect the following: Where ever possible the existing facing masonry should be carefully removed set aside and stored ready for replacement after the fire remediation works are complete.

### Services affected by deconstruction/ demolition

#### 210 Services regulations

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1. Work carried out to or affecting new and/ or existing services: Carry out in accordance with the byelaws and/ or regulations of the relevant Statutory Authority.

#### 220 Location of services

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1. Services affected by deconstruction/ demolition work: Locate and mark positions.
2. Mains services marking: Arrange with the appropriate authorities for services to be located and marked.
  - 2.1. Marking standard: In accordance with National Joint Utilities Group 'Guidelines on the positioning and colour coding of underground utilities' apparatus'.

#### 230 Services disconnection arranged by contractor

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1. General: Arrange with the appropriate authorities for disconnection of services and removal of fittings and equipment owned by those authorities prior to starting deconstruction/ demolition.

#### 260 Service bypass connections

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1. General: Provide as necessary to maintain continuity of services to occupied areas of the site on which the deconstruction/ demolition is taking place and to adjoining sites/ properties.
2. Minimum notice to adjoining owners and all affected occupiers: 72 hours, if shutdown is necessary during changeover.

#### 270 Services to be retained

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

### Deconstruction/ demolition work

#### 310 Workmanship

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1. Standard: Demolish structures in accordance with BS 6187.
2. Operatives
  - 2.1. Appropriately skilled and experienced for the type of work.
  - 2.2. Holding, or in training to obtain, relevant CITB Certificates of Competence.

3. **Site staff responsible for supervision and control of work:** Experienced in the assessment of risks involved and methods of deconstruction/ demolition to be used.

### **320 Gas or vapour risks**

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1. **Precautions:** Prevent fire and/ or explosion caused by gas and/ or vapour from tanks, pipes, etc.

### **330 Dust control**

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1. **General:** Reduce airborne dust by periodically spraying deconstruction/ demolition works with an appropriate wetting agent. Keep public roadways and footpaths clear of mud and debris.
2. **Lead dust:** Submit method statement for control, containment and clean-up regimes.

### **340 Health hazards**

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1. **Precautions:** Protect site operatives and general public from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.

### **350 Adjoining property**

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1. **Temporary support and protection:** Provide. Maintain and alter, as necessary, as work proceeds. Do not leave unnecessary or unstable projections.
2. **Defects:** Report immediately on discovery.
3. **Damage:** Minimize. Repair promptly to ensure safety, stability, weather protection and security.
4. **Support to foundations:** Do not disturb.

### **360 Structures to be retained**

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

### **370 Partly demolished structures**

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

### **380 Dangerous openings**

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1. **General:** Provide guarding at all times, including outside of working hours. Illuminate during hours of darkness.
2. **Access:** Prevent access by unauthorized persons.

### **391 Asbestos-containing materials – unknown occurrences**

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

### **410 Unforeseen hazards**

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

## **450 Site condition at completion**

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1. Debris: Clear away and leave the site in a tidy condition.
2. Other requirements: N/A

## **Materials arising**

### **510 Contractor's property**

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

### **520 Recycled materials**

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1. Materials arising from deconstruction/ demolition work: Can be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification and in accordance with any site waste management plan.
2. Evidence of compliance: Submit full details and supporting documentation.
  - 2.1. Verification: Allow adequate time in programme for verification of compliance.

Ω End of Section

## F10 Brick/ block walling

### Types of walling

#### 110 Clay facing brickwork

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1. Description: TO REPLACE BRICKWORK DAMAGED DURING REMEDIATION
2. Bricks: To BS EN 771-1.
  - 2.1. Manufacturer: LBT Brick and Facades Orlando House, 67 Manchester Rd, Bolton BL2 1ES
  - 2.1.1. Product reference: Yorkshire Red
  - 2.2. Recycled content: As manufactured
  - 2.3. Special shapes: None required
3. Mortar: As section Z21.
  - 3.1. Standard: To BS EN 998-2
  - 3.2. Mix: Mortar to BS EN 998-2
  - 3.3. Additional requirements: Coloured mortar to match existing
4. Bond: To match existing
5. Joints: To match existing
6. Features: None

### Testing - Not Used

### Workmanship generally

#### 430 Conditioning of clay bricks and blocks

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1. Bricks and blocks delivered warm from manufacturing process: Do not use until cold.
2. Absorbent bricks in warm weather: Wet to reduce suction. Do not soak.

#### 460 Mortar designations

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1. Mix proportions: For a specified designation select a mix from the following:
  - 1.1. Designation (i) (BS EN 998-2 M12 equivalent)
    - 1.1.1. 1:0-¼:3 (Portland cement:lime:sand with or without air entraining additive).
    - 1.1.2. 1:3 (Portland cement:sand and air entraining additive).
  - 1.2. Designation (ii) (BS EN 998-2 class M6 equivalent)
    - 1.2.1. 1:½:4-5 (Portland cement:lime:sand with or without air entraining additive).
    - 1.2.2. 1:3 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
    - 1.2.3. 1:2½-3½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
    - 1.2.4. 1:3-4 (Portland cement:sand and air entraining additive).
  - 1.3. Designation (iii) (BS EN 998-2 class M4 equivalent)
    - 1.3.1. 1:1:5-6 (Portland cement:lime:sand with or without air entraining additive).
    - 1.3.2. 1:3½-4 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
    - 1.3.3. 1:4-5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
    - 1.3.4. 1:5-6 (Portland cement:sand and air entraining additive).

- 1.4. Designation (iv) (BS EN 998-2 class M2 equivalent)
  - 1.4.1.1:2:8-9 (Portland cement:lime:sand with or without air entraining additive).
  - 1.4.2.1:4½ (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
  - 1.4.3.1:5½-6½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
  - 1.4.4.1:7-8 (Portland cement:sand and air entraining additive).
2. Batching: Mix proportions by volume.
3. Mortar type: Continuous throughout any one type of masonry work.

## 500 Laying generally

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

## 520 Accuracy

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1. Courses: Level and true to line.
2. Faces, angles and features: Plumb.
3. Permissible deviations
  - 3.1. Position in plan of any point in relation to the specified building reference line and/ or point at the same level: ± 10 mm.
  - 3.2. Straightness in any 5 m length: ± 5 mm.
  - 3.3. Verticality up to 3 m height: ± 10 mm.
  - 3.4. Verticality up to 7 m height: ± 14 mm.
  - 3.5. Overall thickness of walls: ± 10 mm.
  - 3.6. Level of bed joints up to 5 m (brick masonry): ± 11 mm.
  - 3.7. Level of bed joints up to 5 m (block masonry): ± 13 mm.

## 561 Coursing brickwork with existing

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1. Gauge: Line up with existing brick courses.

## 610 Support of existing work

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1. Joint above inserted lintel or masonry: Fully consolidated with semidry mortar to support existing structure.

## 635 Jointing

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1. Profile: Consistent in appearance.

## 645 Accessible joints not exposed to view

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1. Jointing: Struck flush as work proceeds.

## 665 Pointing

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1. **Description:** TO ALL WALLING
2. **Joint preparation:** Remove debris. Dampen surface.
3. **Mortar:** As section Z21.
  - 3.1. **Standard:** To BS EN 998-2
  - 3.2. **Mix:** Designation (iii) as clause 460 with sulfate-resisting cement
  - 3.3. **Additional requirements:** None
4. **Profile:** Flush to match existing

## 671 Fire-stopping

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

## 690 Adverse weather

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

## Additional requirements for facework

### 710 The term facework

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

### 730 Brick/ Concrete block samples

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1. **General:** Before placing orders with suppliers submit for approval of appearance labelled samples of the following: Brick replacements for damaged originals .
2. **Selection of samples:** Representative of the range in variation of appearance.

### 750 Colour consistency of masonry units

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1. **Colour range:** Submit proposals of methods taken to ensure that units are of consistent and even appearance within deliveries.
2. **Conformity:** Check each delivery for consistency of appearance with previous deliveries and with approved reference panels; do not use if variation is excessive.
3. **Facing bricks** should be blended on site from a minimum of three packs to ensure an even distribution of colour and texture variation.
4. **Finished work:** Free from patches, horizontal stripes and racking back marks.

### 760 Appearance

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1. **Brick/ block selection:** Do not use units with damaged faces or arrises.
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02-05-2023

2. **Cut masonry units:** Where cut faces or edges are exposed cut with table masonry saw.
3. **Quality control:** Lay masonry units to match relevant reference panels.
  - 3.1. **Setting out:** To produce satisfactory junctions and joints with built-in features and components.
  - 3.2. **Coursing:** Evenly spaced using gauge rods.
4. **Lifts:** Complete in one operation.
5. **Methods of protecting facework:** Submit proposals.

## **790 Putlog scaffolding**

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1. **Use:** Not permitted in facework.

## **800 Toothed bond**

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

## **830 Cleanliness**

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

Ω End of Section

## H43

# Metal insulating sandwich panel cladding/ roofing

## Types of cladding/ roofing system

### 120 Metal insulating sandwich panel

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1. Support structure: Existing curtain wall frame
2. Panels: Factory-assembled construction to BS EN 14509
  - 2.1. Manufacturer: Metalline Services Ltd, Hollies Park Road, Cannock, Staffordshire, WS11 1DB (01543 456930)
    - 2.1.1. Product reference: Ultima A2
  - 2.2. External facing material: 3mm aluminium sheet (J57S UP) with PPC finish
  - 2.3. Composition: Aluminium to BS EN 507, grade EN AW-3004
    - 2.3.1. Profile: Flat
    - 2.3.2. Finish: PPC
    - 2.3.3. Colour: to match existing
  - 2.4. Internal facing material: 2mm aluminium tray with mill finish
    - 2.4.1. Profile: Flat
    - 2.4.2. Finish: Natural plain mill
  - 2.5. Core insulation: Fabrock Clad insulation
  - 2.6. Panel thickness: to suit existing glazing rebate, to be site measured
3. Joint type
  - 3.1. Side/ vertical: as existing
  - 3.2. End/ horizontal: as existing
4. Primary fasteners: as existing system
5. End laps size (minimum): 100 mm
6. Sealing laps
  - 6.1. End laps: Two row(s) of partially cross-linked butyl rubber sealant tape, 6 x 5 mm or minimum diameter 6 mm and one row of silicone sealant to classification ISO 11600-F-25 LM of BS EN ISO 11600
  - 6.2. Side laps: Two row s of partially cross-linked butyl rubber sealant tape 6 x 5 mm or minimum diameter 6 mm
7. Fire performance
  - 7.1. Reaction to fire/ external exposure to fire
    - 7.1.1. Wall panel: To BS EN 13501-1, Class A2-s1, d0 or better
    - 7.1.2. Wall panel core insulation: To BS EN 13501-1, Class A2-s1, d0 or better
  - 7.2. Fire resistance
    - 7.2.1. Wall panel: To BS EN 13501-2, E60
8. U-value (plane): 0.30 W/m<sup>2</sup> K
9. Accessories: As required to complete installation, additional matching curtain wall cappings where damaged by removal of existing. New gaskets.
10. Special features: recessed detail within panels, to match existing facade

## General requirements

### 172 Thermal bridging

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1. Requirement: Complete the design of the cladding/ roofing system to avoid excessive thermal bridging.
  - 1.1. Standard and process, in accordance with: BRE Report 497 and BRE IP 1/06

### 175 Product samples

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1. General: Before commencing detailed design, submit labelled samples of the following: sample of panel for colour match.

## Design/ performance requirements

### 198 Water penetration

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

### 200 Avoidance of interstitial condensation

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1. Requirement: Determine interstitial condensation risk of cladding system using the method described in BS 5250 Annex D. If necessary, provide a vapour control layer and/ or revise thermal insulation to ensure that damage and nuisance from interstitial condensation does not occur.
2. Outdoor psychrometric conditions (notional): As follows:
  - 2.1. Temperature: Winter -5°C, summer 18°C
  - 2.2. Relative humidity: Winter 90%, summer 65%
  - 2.3. Vapour pressure: Winter 0.36 kPa, summer 1.34 kPa
3. Indoor psychrometric conditions (notional): As follows:
  - 3.1. Temperature: 20°C
  - 3.2. Relative humidity: 55%
  - 3.3. Vapour pressure: 1.285 kPa

### 202 Avoidance of surface condensation

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

## Fixing cladding/ roofing

### 219 Fasteners

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

### 221 Fittings and accessories

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

### 223 Prevention of electrolytic action

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

#### **540 Abutment to Curtain wall frame**

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1. Junctions with flashings: Ensure panel is fully glazed in and sealed

#### **670 Documentation**

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

Ω End of Section

## H72

# Aluminium strip/ sheet fully supported roof and wall coverings/ flashings

### Types of aluminium work

#### 470 Miscellaneous flashings

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1. Aluminium: Coated sheet/ strip, as clause 525
  - 1.1. Alloy designation: EN AW-1050
  - 1.2. Temper: O
  - 1.3. Finish: Polyester powder coated - Colour to match original panel cladding
  - 1.4. Thickness: 3.0mm
2. Dimensions
  - 2.1. Lengths: Not more than To match existing panel sizes.
3. Fixing: as existing

#### 472 Flashings to external openings - Penthouse window reveals

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1. Aluminium: Coated sheet/ strip, as clause 525
  - 1.1. Alloy designation: EN AW-1050
  - 1.2. Temper: O
  - 1.3. Finish: Polyester powder coated - Colour to match original panel cladding.
  - 1.4. Thickness: 3.0mm
2. Dimensions
  - 2.1. Lengths: Not more than 2 m.
3. Fixing: Welt top and bottom edges and secure with clips at 450 mm centres

### General requirements/ preparatory work

#### 510 Workmanship generally

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1. Standard: Generally to BS EN 14783, BS EN 507, CP 143-15 and latest edition of the FTMRC publication 'UK guide to good practice in fully supported metal roofing and cladding'.
2. Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.
3. Operatives: Trained in the application of aluminium coverings/ flashings. Submit records of experience on request.
4. Measuring, marking, cutting and forming: Prior to assembly wherever possible.
5. Marking out: With pencil, chalk or crayon. Do not use scribes or other sharp instruments without approval.
6. Folding: With mechanical or manual presses to give straight, regular and tight bends, leaving panels free from ripples, kinks, buckling and cracks. Use hand tools only for folding details that cannot be pressed.
7. Surface protection: Fully coat surfaces to be embedded in concrete or mortar with high build bitumen-based paint, after folding.
8. Sharp metal edges: Fold under or remove as work proceeds.
9. Joints: Do not use sealants to attain waterproofing.
10. Finished aluminium work: Fully supported, adequately fixed to resist wind uplift and able to accommodate thermal movement without distortion or stress.

10.1. **Protection:** Prevent staining, discolouration and damage by subsequent works.

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## 515 Welding

1. In situ welding: Not permitted.

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## 525 Coated aluminium strip/ sheet

1. **Standard:** To BS EN 14783 and BS EN 1396
2. **Manufacturer:** Metalline Hollies Park Road, Cannock, Staffordshire, WS11 1DB. Tel: 01543 456930
  - 2.1. **Product reference:** Contractor's choice

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## 530 Integrity of aluminium

1. **Requirement:** Design coverings/ flashings and methods of attachment to prevent loss of weathertightness and permanent deformation due to wind pressure or suction.
2. **Structural requirements**
  - 2.1. **Wind loads:** as defined by Structural Engineer

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## 535 Integrity of aluminium

1. **Requirement:** Design coverings/ flashings and methods of attachment to prevent loss of weathertightness and permanent deformation due to wind pressure or suction.
2. **Wind loads:** as defined by Structural Engineer
3. **Structural requirements**
  - 3.1. **Generally:** As section B50.
    - 3.1.1. **Modifications:** None
4. **Design:** Complete in accordance with the designated code of practice to satisfy specified performance criteria.

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## 555 Layout

1. **Setting out of longitudinal and cross joints:** Submit proposals.

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## 570 Existing metal retained

1. **Type/ Location/ Extent:** Main roof, penthouse apartment roofs
2. **Cleaning:** Remove dirt without damage to metal or adversely affecting other materials.

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## 610 Suitability of substrates

1. **Condition:** Dry and free of dust, debris, grease and other deleterious matter.

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## 625 Existing membrane

1. **Defective, unsuitable or missing membrane:** Give notice.

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## 627 Existing AVCL

1. **Defective, unsuitable or missing AVCL:** Give notice.

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## Fixing

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## 710 Fixings for clips

1. **Nails to timber substrates:** Aluminium to BS 1202-3 for aluminium clips. Stainless steel (austenitic) for stainless steel clips.

- 1.1. Shank type: Annular ringed or helical threaded.
- 1.2. Shank diameter: Not less than 2.65 mm.
- 1.3. Head: Flat.
- 1.4. Length: Not less than 25 mm or equal to substrate thickness.
2. Screws to concrete/ masonry substrates: Sherardized or zinc plated steel or aluminium, for aluminium clips, to BS EN 14592. Stainless steel (austenitic) to BS EN 14592 for stainless steel clips.
  - 2.1. Diameter: Not less than 3.35 mm.
  - 2.2. Length: Not less than 25 mm.
  - 2.3. Washers and plastic plugs: Compatible with screws.
3. Screws to composite metal decks: Self tapping, as recommended by the deck and aluminium manufacturer/ supplier for aluminium or stainless steel clips.

## 750 Clips for flashings/ cross joints

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1. Material: Cut from same alloy and thickness as that being secured.
2. Stainless steel (austenitic) clips: Cut from same thickness of metal as the aluminium being secured.
3. Dimensions
  - 3.1. Width: Not less than 50 mm.
  - 3.2. Length: Sufficient to suit detail.
4. Fixing: Secure each clip to substrate with two fixings, not more than 50 mm from edge of strip/ sheet being fixed.

## Jointing

### 810 Forming details

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1. Folds and welts: Form without thinning or splitting the strip/ sheet.
2. Thermal movement: Form details with appropriate allowance for movement, without impairment of security at full expansion or contraction.

### 860 Drip/ Step joints

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1. Strip/ Sheet from below step: Fold up full height of upstand and fix to top edge.
2. Form aluminium underlap/ continuous clip
  - 2.1. Cover to roof slope: Not less than 100 mm with anticapillary welt at top edge.
  - 2.2. Projection: 25 mm for forming into drip welt.
  - 2.3. Downstand: Not less than 40 mm with welt at bottom edge.
  - 2.4. Fixing: To roof slope at 100 mm centres, avoiding through fixings at longitudinal joint positions.
3. Strip/ Sheet from above step: Fold around underlap projection and single welt to form a drip.

Ω End of Section

## H92 Rainscreen cladding

### Tendering - Not Used

### Type(s) of rainscreen cladding

#### 120 Rainscreen cladding - To replace Penthouse Cladding

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1. Description: Replacement for Penthouse Cladding
2. Primary support structure: Existing SFS framing
3. Rainscreen cladding system
  - 3.1. Manufacturer: Metalline Architectural Fabrications, Hollies Park Road, Cannock, Staffordshire, WS11 1DB  
Tel: 01543 456 930  
Email: unity@metalline.co.uk
  - 3.2. Type: Drained and back-ventilated
  - 3.3. Fire performance requirements: As clause 470 for rainscreen cladding, clauses 480 and 485 for backing wall, and clause 490 for cavity fire barriers.
4. Rainscreen panel
  - 4.1. Manufacturer: Metalline Architectural Fabrications
    - 4.1.1. Product reference: Unity A2 SF (Secret Fix Cassette) Aluminium cladding
  - 4.2. Material: Aluminium
  - 4.3. Thickness: 3mm
  - 4.4. Finish/ Colour: Polyester Powder Coated (A2-s1, d0 Classification to EN 13501-1)  
Colour to match existing
  - 4.5. Joint type: Open but baffled recess
  - 4.6. Joint width: 10mm
5. Air gap: minimum 25mm
6. Secondary support/ framing system: Aluminium support system comprising extruded vertical support rails with adjustable wall attachment brackets
  - 6.1. Material: Extruded aluminium to BS1474 in 6063/T6 grade alloy.
  - 6.2. Fasteners: Panels fixed to support rails through material face – rivet fix min 15mm from panel edge.
    - 6.2.1. Number and location: As fabricators structural design
7. Backing wall: Existing concrete slab/ metal studs
  - 7.1. Thermal insulation: as clause 775
  - 7.2. Breather membrane: as clause 785
8. Accessories: as recommended by manufacturer
9. Other requirements: Panel dimensions, spacing and setting out to match existing

### General requirements/preparatory work

#### 210 Design

---

1. Rainscreen cladding system and associated features: Complete detailed design in accordance with this specification and the preliminary design drawings and submit before commencement of fabrication.
2. Related works: Coordinate in detailed design.

## 220 Specification

---

1. **Compliance standards:** The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
2. **Reference information:** For the duration of the contract, keep available at the design office, workshop and on site copies of:
  - 2.1. The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
  - 2.2. Publications invoked by the CWCT 'Standard for systemised building envelopes'.

## 230 Information to be provided during detailed design

---

1. **Submit the following cladding particulars**
  - 1.1. A schedule of detailed drawings and dates for submission for comment.
  - 1.2. A schedule of loads that will be transmitted from the rainscreen cladding to the structure.
  - 1.3. Proposed fixing details and systems relevant to the structural design and construction with methods of adjustment and tolerances.
  - 1.4. A schedule of fabrication tolerances/ size tolerances.
  - 1.5. A detailed testing programme in compliance with the Main Contract master programme.
  - 1.6. A detailed fabrication and installation programme in compliance with the Main Contract master programme.
  - 1.7. Proposals to support outstanding applications for Building Regulations consents or relaxations.

## 232 Quality plan

---

1. **Requirement:** Submit during detailed design.
2. **Content:** In accordance with BS EN ISO 9001 and including the following:
  - 2.1. Name of the quality manager.
  - 2.2. Quality assessment procedures.
  - 2.3. Inspection procedures to be adopted in checking the work.
  - 2.4. Stages at which check lists will be used and samples of the lists.
  - 2.5. List of work procedures on the correct use of materials or components, both off site and on site.
  - 2.6. List of product information with latest revisions.
  - 2.7. Subcontractors involved in the work.
  - 2.8. Subcontractors quality plans.
  - 2.9. Storage, handling, transport and protection procedures.
  - 2.10. Procedure for registering and reporting non compliances.
  - 2.11. Maintenance procedures and calibration records.
  - 2.12. Certification that completed work complies with specification.
  - 2.13. Check list register to ensure all items have been inspected and non-compliances discharged.

## 240 Product samples

---

1. **General:** Before commencing detailed design, submit labelled samples of: The penthouse cladding panel .

## 250 Samples of fixings

---

1. **General:** During detailed design, submit labelled samples of each type of fixing, together with manufacturers' recommended torque figures.

## Design/performance requirements

### 310 CWCT 'Standard for systemised building envelopes'

---

1. General: Unless specified or agreed otherwise comply with:
  - 1.1. Part 2 - Loads, fixings and movement.
  - 1.2. Part 3 - Air, water and wind resistance.
  - 1.3. Part 4 - Operable components, additional elements and means of access.
  - 1.4. Part 5 - Thermal, moisture and acoustic performance.
  - 1.5. Part 6 - Fire performance.
  - 1.6. Part 7 - Robustness, durability, tolerances and workmanship.
2. Project performance requirements specified in this subsection: Read in conjunction with CWCT performance requirements.

### 350 Deflection under wind load

---

1. Requirement: For listed components, at positive and negative applications of the design wind pressure, normal deflections are not to exceed: those defined by calculation given the location and height of the cladded areas.
2. Additional stiffness to CWCT 'Standard for systemised building envelopes' clause 3.5.4.2: Not allowed

### 370 Appearance and fit

---

1. Requirement: Design rainscreen wall:
  - 1.1. To ensure position and alignment of all parts and features as shown on preliminary design drawings.
  - 1.2. To accommodate deviations in the primary support structure.
2. Primary support structure: Before commencing installation of rainscreen cladding system, carry out survey sufficient to verify that required accuracy of erection can be achieved.
  - 2.1. Give notice: If the structure will not allow the required accuracy or security of erection.
  - 2.2. Design tolerances: To be determined by assessment of existing SFS structure
3. Rainscreen envelope zone tolerances
  - 3.1. Width: Refer to [CWCT](#), clause 7.4.3 and 7.4.4 for further guidance
    - 3.1.1. Critical reference location: Existing datum
4. Maximum permitted component and installation tolerances: Panel length  $\pm 2$  mm Panel width  $\pm 1$  mm

### 430 Thermal properties

---

1. Method for calculating the thermal transmittance (U-value) of the rainscreen wall: Weighted U-value.
2. Average U-value of rainscreen wall: 0.30W/m<sup>2</sup>K minimum
3. Method for assessing thermal transmittance (U-value) of assemblies: By calculation

### 450 Air and Vapour control layer

---

1. Condensation risk within rainscreen wall: Determine using the method described in BS 5250, Annex D. Where required, provide a suitable air and vapour control layer to ensure that damage and nuisance from condensation is reduced.

### 460 Sound transmittance

---

1. Minimum weighted sound reduction index (R<sub>w</sub>) to BS EN ISO 717-1

- 1.1. Between internal and external surfaces of rainscreen clad wall: As determined by acoustic report
2. Minimum weighted standardized level difference (DnTw) to BS EN ISO 717-1.
  - 2.1. Between adjacent floors abutting rainscreen clad wall: NA
  - 2.2. Between adjacent rooms on same floor abutting rainscreen clad wall: NA

#### **470 Fire performance of rainscreen cladding**

---

1. **Standard:** In accordance with the CWCT 'Standard for systemised building envelopes', section 6 and TN 98.
2. **Reaction to fire**
  - 2.1. **External surfaces:** To BS EN 13501-1, Class A2-s1, d0 or better
  - 2.2. **Internal (cavity) surfaces:** To BS EN 13501-1, Class A2-s1, d0 or better
3. **Verification of fire performance:** In accordance with the CWCT 'Standard for systemised building envelopes', section 6 and TN98

#### **480 Fire resistance of backing wall**

---

1. **Minimum periods and criteria:** as existing performance

#### **485 Internal reaction to fire of backing wall**

---

1. **Class (minimum):** BS EN 13501-1, Class A2-s1, d0

#### **490 Fire resistance of cavity fire barriers**

---

1. **Standard:** To BS EN 13501-2
2. **Requirement:** To resist the passage of flame and smoke for not less than 30 minutes' integrity, 15 minutes' insulation 60 minutes' integrity, 60 minutes' insulation.

#### **495 Durability**

---

1. **Relevant agents or degradation mechanisms:** as BS 7543
2. **Design life of the rainscreen cladding system:** Not less than 25 years
3. **Secondary components:** Submit details together with required maintenance regime, replacement periods and methods of replacement.

#### **497 Lightning protection system**

---

1. **Rainscreen components used as part of lightning protection system:** re-instate existing system after replacement of cladding

### **Testing - Not Used**

### **Products**

#### **710 Aluminium alloy framing sections**

---

1. **Standards:** To BS EN 755 alloy EN AW-6063 and suitable for the specified finish.
2. **Structural members:** To comply with BS EN 1999-1-1, -3 and -4.

#### **712 Aluminium alloy sheet**

---

1. **Standards:** To BS EN 485, BS EN 515 and BS EN 573.
2. **Alloy, temper and thickness:** Suitable for the application and specified finish.

### **715 Carbon steel framing sections/ reinforcement**

---

1. **Standards:** To the relevant parts of BS 7668, BS EN 10029, BS EN 10025 or BS EN 10210.
2. **Thickness:** Suitable for the application, and for galvanizing or other protective coating.

### **730 Mechanical fixings – material requirements**

---

1. **Stainless steel:** To BS EN ISO 3506 grade A2 generally, grade A4 when used in severely corrosive environments.
2. **Carbon steel:** To BS 4190 and suitable for galvanizing or other protective coating.
3. **Aluminium:** To BS EN 755.

### **735 Fixings and fasteners**

---

1. **Type and use:** Reviewed and approved by manufacturers. Submit confirmatory information on request.
2. **Dimensions:** Not less than recommended by their manufacturers.
3. **Adjustment capability:** Sufficient in three dimensions to accommodate primary support structure and rainscreen cladding fabrication/ installation tolerances.

### **760 Gaskets**

---

1. **Material**
  - 1.1. Noncellular rubber to BS 4255-1.
  - 1.2. Cellular rubber to ASTM-C509-06.
2. **Durability:** Resistant to oxidation, ozone and UV degradation.

### **770 General sealants**

---

1. **Selection:** In accordance with BS 6213 from:
  - 1.1. Silicone.
  - 1.2. One part polysulfide.
  - 1.3. Two part polysulfide.
  - 1.4. One or two part polyurethane.
2. **Classification and requirements:** To BS EN ISO 11600.
3. **Reaction to contact products and finishes:** Stable and compatible.

### **775 Thermal insulation Between existing SFS Framing**

---

1. **Material:** Mineral wool to BS EN 13162
  - 1.1. **Properties:** Durable, rot and vermin proof and not degradable by moisture or water vapour.
2. **Product reference:** Rockwool Duo Slab
3. **Thickness:** 150mm
4. **Recycled content:** as manufactured
5. **Fixing:** Attached to the outer face or supported 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.
6. **U-value:** to achieve existing external wall u-value or minimum 0.30

### **785 Breather membrane**

---

1. **Manufacturer:** Obex Protection Ltd
  - 1.1. **Contact details**
    - 1.1.1. **Address:** Nunnery Park, Nunnery Way, Worcester, WR4 0SX

1.1.2. Telephone: [+44 \(0\) 1905 337800](tel:+441905337800)

1.1.3. Web: [www.obexuk.com](http://www.obexuk.com)

1.1.4. Email: [sales@obexuk.com](mailto:sales@obexuk.com)

1.2. Product reference: Cortex 0200FR

2. Standard: To BS EN 13859-2.
3. Reaction to fire: Class A2-s1,d0 (EN 13501-1)
4. UV resistance: Excellent.
5. Continuity: No breaks. Minimize joints.
  - 5.1. Penetrations and abutments: Attach to breather membrane with tape. Achieve full bond.
  - 5.2. Laps: Not less than 150 mm, bond with tape. Achieve full bond.
6. Tape: As recommended by breather membrane manufacturer.
7. Repairs: Lapped patch of breather membrane material secured with continuous band of tape on edges.
8. Junctions at flashings, sills, gutters etc. Overlap and allow free drainage to exterior.

## Finishes

### 810 Protective coating of carbon steel framing sections/ reinforcement

---

1. Treatment: All surfaces to one of the following:
  - 1.1. Hot dip galvanized to BS EN ISO 1461.
  - 1.2. An appropriate equivalent coating to BS EN ISO 12944 and BS EN ISO 14713-1 and -2.

### 820 Protective coating of carbon steel mechanical fixings

---

1. Treatment: All surfaces to one of the following:
  - 1.1. Hot dip galvanized to BS EN ISO 1461.
  - 1.2. Sherardized to BS EN ISO 17668, Class 30 coating thickness and passivated.
  - 1.3. Zinc plated to BS EN ISO 2081, coating designation of FE//Zn//C for an iridescent (yellow passivate) chromate conversion coating or FE//Zn//D for an opaque (olive green) chromate conversion coating.

### 830 Powder coating

---

1. Requirement: As section Z31.

## Fabrication and installation

### 910 Generally

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1. Electrolytic corrosion: Take necessary measures to prevent.
2. Identification of products: Mark or tag to facilitate identification during assembly, handling, storage and installation. Do not mark surfaces visible in the complete installation.

### 912 Metalwork

---

1. Requirement: As section Z11, unless specified otherwise in this section.

### 922 Fixings/ adhesives application

---

1. Requirement: As section Z20, unless specified otherwise in this section.

### 925 Sealant application

---

1. Requirement: As section Z22, unless specified otherwise in this section.

### 930 Assembly

---

1. **Location:** Carry out as much assembly as possible in the workshop.
2. **Joints:** Other than movement joints and designed open joints, must be rigidly secured, reinforced where necessary and fixed with hairline abutments.
3. **Displacement of components in assembled units:** Submit proposals for reassembly on site.

### 960 Preliminary rainscreen cladding installation

---

1. **Requirement:** Complete an area of cladding as set out below for inspection and approval of appearance.
2. Part of penthouse apartment .

### 970 Rainscreen cladding installation

---

1. **Tightening mechanical fasteners:** To manufacturer's recommended torque figures. Do not overtighten fasteners intended to permit differential movement.
2. **Protective coverings:** Remove only where necessary to facilitate installation and from surfaces which will be inaccessible on completion.

### 980 Interfaces

---

1. **Installation:** Locate flashings, closers etc. correctly and neatly overlap cladding to form a weathertight junction.

### 985 Damage

---

1. **Repairs:** Do not repair cladding without approval.
  - 1.1. **Approval:** Will not be given where the proposed repair will impair performance or appearance.
2. **Record of repairs:** Prepare schedule or record on drawings for inclusion in the maintenance manual.

### 995 Maintenance

---

1. **Maintenance manual:** Incorporate details within the Building Manual in accordance with CWCT 'Standard for systemised building envelopes', clause 7.6.1.
  - 1.1. **Materials certification and test reports to be included:** all relevant to clause 120

Ω End of Section

## K10

# Gypsum board dry linings/ partitions/ ceilings

## Types of dry lining

### 165 Wall lining system (metal framing)

---

1. Description: Existing framing to receive new plasterboard
2. Manufacturer: Existing SFS Manufacturer unknown
  - 2.1. Product reference: NA
3. Wall: Existing framing
4. Cavity between wall and back of lining: NA
  - 4.1. Framing centres: As existing
  - 4.2. Bracket centres (maximum): NA
5. Fire performance
  - 5.1. Reaction to fire: Assume 60 minute fire rating
  - 5.2. Fire resistance of complete wall lining assembly: To BS EN 13501-2. EI 60 or better
6. Fire separation
  - 6.1. Cavity fire barriers: NA
7. Insulation: Mineral wool as Section P10
  - 7.1. Recycled content: As manufactured
  - 7.2. Thickness: 150mm
8. Resilient layer: NA
9. Linings: Two layers 12.5 mm plasterboard Two layers 12.5 mm plasterboard as clause 404
10. Access units: NA
11. Finishing: Skim coat plaster
  - 11.1. Primer/ Sealer: As recommended by the board manufacturer for vapour control
  - 11.2. Accessories: Beads/ stops
12. Other requirements: NA

## General/ preparation - Not Used

## Components

### 400 Gypsum boards generally

---

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

### 404 Gypsum plasterboard (improved fire protection)

---

1. Type: British Gypsum 12.5mm Fireline Duplex
2. Core: Including fibres and/ or other additives for improved cohesion.
  - 2.1. Density (minimum): 800 kg/m<sup>3</sup>.
3. Reaction to fire: Class A2-s1, d0 or better
4. Water vapour resistance factor: 1400  $\mu$
5. Thermal conductivity: 0.24 W/(m·K)

6. Other BS EN 520 characteristics: None
7. Recycled content: As Manufactured
8. Exposed surface and edge profiles: Clean and undamaged

## Installation

### 435 Dry linings generally

---

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

### 560 Joints between boards

---

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

### 565 Vertical joints

---

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

### 570 Horizontal joints

---

1. Surfaces exposed to view: Horizontal joints not permitted. Seek instructions where height of partition/ lining exceeds maximum available length of board.
2. Two layer boarding: Stagger joints between layers by at least 600 mm.
3. Edges of boards: Support using additional framing.
  - 3.1. Two layer boarding: Support edges of outer layer.

### 590 Fixing gypsum board to metal framing/ Furrings

---

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

## Finishing

### 650 Level of dry lining across joints

---

1. Sudden irregularities: Not permitted.

2. **Joint deviations:** Measure from faces of adjacent boards using methods and straightedges (450 mm long with feet/ pads) to BS 8212, clause 3.3.5.
  - 2.1. **Tapered edge joints**
    - 2.1.1. Permissible deviation (maximum) across joints when measured with feet resting on boards: 3 mm.
  - 2.2. **External angles**
    - 2.2.1. Permissible deviation (maximum) for both faces: 4 mm.
  - 2.3. **Internal angles**
    - 2.3.1. Permissible deviation (maximum) for both faces: 5 mm.

## **670 Seamless jointing to gypsum boards**

---

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

## **680 Skim coat plaster finish**

---

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

## **692 Rigid beads/stops**

---

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

## **695 Installing beads/ Stops**

---

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

## **725 Repairs to existing gypsum board**

---

1. Performance of repairs must match original specified performances.
2. **Filling small areas with broken cores:** Cut away paper facing, remove loose core material and fill with jointing compound.
  - 2.1. **Finish:** Flush, smooth surface suitable for redecoration.
3. **Large patch repairs:** Cut out damaged area and form neat hole with rectangular sides. Replace with matching gypsum board.
  - 3.1. **Fixing:** Use methods to suit type of dry lining, ensuring full support to all edges of existing and new gypsum board.

- 3.2. **Finishing:** Fill joints, tape and apply jointing compound to give a flush, smooth surface suitable for redecoration.

Ω End of Section

## K11

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

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

### 485 Wall sheathing

---

1. Description: Sheathing to Penthouse level apartments where cladding is being replaced.
2. Substrate: Existing SFS framing
  - 2.1. Additional supports: NA
3. Sheathing: Calcium-silicate board
  - 3.1. Manufacturer: Benx
    - 3.1.1. Product reference: Y-Wall
  - 3.2. Thickness: 15mm
  - 3.3. Fire performance
    - 3.3.1. Reaction to fire: BS EN 13501-1 Class A1 Non-Combustible
    - 3.3.2. Resistance to fire: Manufacturer's standard
  - 3.4. Other requirements: NA
4. Setting out: Long edges vertical and centred on supports.
  - 4.1. Expansion gap between adjacent boards: As manufacturers recommendations
5. Fixing to supports
  - 5.1. Fasteners: 4.8mm x 38mm Wing tip self drilling fixing
  - 5.2. Fixing centres (maximum)
    - 5.2.1. Around board edges: 150 mm
    - 5.2.2. Along intermediate supports: 150 mm
  - 5.3. Fixing distance from edges (minimum): as manufacturers guidance from bottom edge of board and as manufacturers guidance mm from other edges.

## Workmanship

### 910 Installation generally

---

1. Timing: Building to be weathertight before fixing boards internally.
2. Moisture content of timber supports (maximum): 18%.
3. Joints between boards: Accurately aligned, of constant width and parallel to perimeter edges.
4. Methods of fixing, and fasteners: As section Z20 where not specified otherwise.

### 960 Fixing generally

---

1. Boards/ sheets: Fixed securely to each support without distortion and true to line and level.
2. Fasteners: Evenly spaced in straight lines and, unless otherwise recommended by board manufacturer, in pairs across joints.
  - 2.1. Distance from edge of board/ sheet: Sufficient to prevent damage.
3. Surplus adhesive: Removed as the work proceeds.

### 975 Metal wall framing

---

1. Setting out: Existing set-out to be confirmed by site measure

5540 - 56 High Street – 56 High Street  
Client:

Ω End of Section

## M61

# Intumescent coatings for fire protection of steelwork

## Protective coating systems

### 120 On-site coating to existing steel

---

1. Description: TO STEEL WITHIN CAVITY
2. Use/ location: To steel at floor level cavity barrier location and 200mm either side.
3. Fire performance: As clause 202
4. Preparation: Manual cleaning
5. Intumescent coating system
  - 5.1. Manufacturer: Jotun
    - 5.1.1. Product reference: Jotun A/S
  - 5.2. Primer
    - 5.2.1. Type: Jotacote F60 Primer
  - 5.3. Intumescent coat
    - 5.3.1. Type: Sealmaster 600WF
    - 5.3.2. Finish: Non-visible areas: basic
  - 5.4. Top sealer coat
    - 5.4.1. Type: Sealmaster 600WF
    - 5.4.2. Colour: Contractor's Choice
6. Bolt head/ nut protection: As main steelwork

## Performance and general requirements

### 202 Fire performance

---

1. Reaction to fire: A1
2. Fire resistance to BS EN 13501-2: To BS 476, 60 minutes

### 204 Exposure and durability

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1. Environmental exposure: C0
2. Durability classification: W/Y

### 205 Validation of materials

---

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

### 210 Working procedures

---

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

### 215 Working conditions

---

1. General: Maintain manufacturer's recommended temperature, humidity and air quality conditions during application and drying.

2. Surface condition: Clean and dry at time of application.

## 220 Applicator's personnel

---

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

## 270 Inspection

---

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

## Preparation of surfaces

### 330 Existing steel – manual cleaning

---

1. Preparation: Remove oil, grease and contaminants.
2. Loose or unsound coatings: Remove to a firm edge.
3. Finish: To BS EN ISO 8501-1, preparation grade St2. Leave a clean but unpolished dry surface.
4. Primer: Apply as soon as possible after cleaning and before gingering or blackening appears. Remove coating edges that lift as a result of priming, and reprime.

### 340 Existing steel – preparation for overcoating

---

1. Preparation: Remove oil, grease and contaminants.
2. Loose or unsound coatings: Remove to a firm edge.
3. Exposed steel finish: Manually clean to BS EN ISO 8501-1, grade St2. Leave a clean but unpolished dry surface.
4. Existing coatings finish: Abrade to give a good key. Leave a clean, dry surface.
5. Primer: Apply one brush coat to bare steel areas. Remove coating edges that lift as a result of priming, and reprime.

## Application of castings - Not Used

## Application of coatings

### 410 Intumescent coating dry film thickness (dft)

---

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

## 420 Measurement of intumescent dft

---

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

## 440 Basic finish

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

## 490 Top sealer coat

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

## Completion

## 530 Records of intumescent application

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

Ω End of Section

## P10 Sundry insulation/ proofing work

### Types of insulation

#### 190 Insulation fitted between studs

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1. Manufacturer: Rockwool Ltd
  - 1.1. Tel: [+44 \(0\)1656 862621](tel:+44201656862621)
  - 1.2. Address: ROCKWOOL Ltd  
14th Floor, Chiswick Tower  
389 Chiswick High Road  
London  
W4 4AJ
  - 1.3. Product reference: Steel Frame Slab
2. Material: Rock wool to BS EN 13162
  - 2.1. Facing: Not required
3. Recycled content: as manufactured
4. Thickness: 150 mm
5. Installation requirements
  - 5.1. Joints: Butted, no gaps.
  - 5.2. Fasteners: Use where necessary to retain insulation and/ or prevent slumping.

#### 432 Cavity barriers Type A

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1. Manufacturer: [ROCKWOOL Ltd](#)
  - 1.1. Contact details
    - 1.1.1. Address: ROCKWOOL Ltd  
14th Floor, Chiswick Tower  
389 Chiswick High Road  
London  
W4 4AJ
    - 1.1.2. Telephone: [+44 \(0\)1656 862621](tel:+44201656862621)
    - 1.1.3. Web: [www.rockwool.co.uk](http://www.rockwool.co.uk)
    - 1.1.4. Email: [info@rockwool.com](mailto:info@rockwool.com)
  - 1.2. Product reference: Firepro SP 60 Firestop systems
2. Thickness: 75 mm - to achieve 60 minutes fire rating
3. Fire performance: Euroclass Fire Rating A1/ Independently tested to BS 476-22 by accredited laboratories
4. Accessories: SP/S Fixing Brackets - installed as recommended by manufacturer to suit circa 130mm cavity

#### 435 Ventilated cavity barriers

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1. Manufacturer: Rockwool
  - 1.1. Product reference: SP Firestop OSCB
2. Material: Mineral Wool
3. Size: To be determined by site measure
4. Thickness: 75mm
5. Fire resistance rating: To BS EN 13501-2, EI 60

6. Free air provision: 25mm
7. Installation requirements: Continuous, with minimum joints.
  - 7.1. Fasteners: Stainless steel self-drilling screws in selvage at 300 mm centres
8. Other requirements: NA

Ω End of Section

## Z20

# Fixings and adhesives

### Products

#### 310 Fasteners generally

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

#### 320 Packings

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

#### 330 Nailed timber fasteners

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

#### 340 Masonry fixings

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

#### 370 Wood screws

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

#### 380 Miscellaneous screws

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

#### 390 Adhesives

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

## Execution

### 610 Fixing generally

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1. Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
2. Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.
3. Appearance: Fixings to be in straight lines at regular centres.

### 620 Fixing through finishes

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

### 630 Fixing packings

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

### 640 Fixing cramps

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

### 650 Nailed timber fixing

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

### 660 Screw fixing

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

### 680 Plugged countersunk screw fixing

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

### 700 Applying adhesives

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

Ω End of Section

## Z21 Mortars

### Cement gauged mortars

#### 110 Cement gauged mortar mixes

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

#### 120 Sand for site made cement gauged masonry mortars

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

#### 160 Cements for mortars

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1. **Cement:** To BS EN 197-1 and CE marked.
  - 1.1. **Types:** Portland cement, CEM I.
    - 1.1.1. **Portland limestone cement,** CEM II/A-L or CEM II/A-LL.
2. **Portland slag cement,** CEM II/B-S.
3. **Portland fly ash cement,** CEM II/B-V.
  - 3.1. **Strength class:** 32.5, 42.5 or 52.5.
4. **White cement:** To BS EN 197-1 and CE marked.
  - 4.1. **Type:** Portland cement, CEM I.
  - 4.2. **Strength class:** 52.5.
5. **Sulfate resisting Portland cement**
  - 5.1. **Type:** To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.
6. **To BS EN 197-1 fly ash cement,** CEM II/B-V and CE marked.
  - 6.1. **Strength class:** 32.5, 42.5 or 52.5.
7. **Masonry cement:** To BS EN 413-1 and CE marked.
  - 7.1. **Class:** MC 12.5.

#### 180 Admixtures for site made cement gauged mortars

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

#### 200 Storage of cement gauged mortar materials

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1. **Sands and aggregates:** Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.
2. **Factory made ready-mixed lime:sand/ ready to use retarded mortars:** Keep in covered containers to prevent drying out or wetting.

3. Bagged cement/ hydrated lime: Store off the ground in dry conditions.

## **210 Making cement gauged mortars**

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

### **Lime:sand mortars - Not Used**

Ω End of Section

## Z22 Sealants

### Products

#### 310 Joints

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1. Description: Existing joints between retained window and retained brickwork
2. Manufacturer: Adshead Ratcliffe Derby Road, Belper DE56 1WJ 01773 826661
  - 2.1. Product reference: Arbosil 1090
3. Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.
4. Fire performance
  - 4.1. Fire resistance: Manufacturer's standard
  - 4.2. Reaction to fire: Manufacturer's standard

### Execution

#### 610 Suitability of joints

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

#### 620 Preparing joints

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

#### 630 Applying sealants

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

Ω End of Section

## Z31 Powder coatings

To be read with preliminaries/ general conditions.

### 120 Powder coating materials

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1. Selected manufacturer: Submit details before commencement of powder coating including:
  - 1.1. Name and contact details.
  - 1.2. Details of accreditation schemes.
  - 1.3. Technical data of product including current Agrément certificates.

### 210 Working procedures

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1. Comply with the follow following standards.
  - 1.1. Aluminium components: To BS 6496 or BS EN 12206-1.
  - 1.2. Steel components: To BS EN 13438.
  - 1.3. Safety standards: To British Coatings Federation 'Code of safe practice: Powder coating. Application of coating powders by electrostatic spraying'.
  - 1.4. Health and safety guidance: Health and Safety Executive 'Reducing risk associated with using coating powders - employers' web page.

### 220 Powder coating applicators

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1. Applicator requirements
  - 1.1. Approved by powder coating manufacturer.
  - 1.2. Currently certified to BS EN ISO 9001.
  - 1.3. Comply with quality procedures, guarantee conditions, standards and tests required by powder coating manufacturer.
  - 1.4. Selected applicator: Submit details before commencement of powder coating including:
    - 1.4.1. Name and contact details.
    - 1.4.2. Details of accreditation schemes.

### 225 Guarantees

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1. Powder coating manufacturer and applicator guarantees
  - 1.1. Submit sample copies before commencement of powder coating.
  - 1.2. Submit signed project specific copies on completion of work.

### 250 Component design

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1. Condition of components to be powder coated
  - 1.1. To comply with relevant recommendations of BS 4479-1, -3, and -4.
  - 1.2. Of suitable size to fit plant capacity.
  - 1.3. Of suitable thickness to withstand oven curing.

### 310 Pretreatment of aluminium components

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1. Condition of components to be pretreated
  - 1.1. Free from corrosion and damage.
  - 1.2. All welding and jointing completed and finish off as specified.
  - 1.3. Free from impurities including soil, grease and oil.

- 1.4. Suitable for and compatible with the pretreatment process.
2. Conversion coating requirements
  - 2.1. Chromate system: To BS 6496 or BS EN 12206-1.
  - 2.2. Chromate-free system: To BS EN 12206-1. Submit details before using.
3. Rinsing requirements: Use demineralized water. Drain and dry.

#### **430 Extent of powder coatings**

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1. **Application:** To visible component surfaces, and concealed surfaces requiring protection. Coated surfaces will be deemed 'significant surfaces' for relevant BS 6496 or BS EN 13438 performance requirements.

#### **435 Application of powder coatings**

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1. **Surfaces to receive powder coatings:** Free from dust or powder deposits.
2. **Powder colours:** Obtain from one batch of one manufacturer.
3. **Commencement of powder coating:** To be continuous from pretreatment.
4. Components to be installed on site in order of application.
5. **Jig points:** Not visible on coated components.
6. **Curing:** Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
7. **Stripping and recoating of components:** Only acceptable by prior agreement of powder coating manufacturer. Stripping, pretreatment and powder coating are to be in accordance with manufacturer's requirements.
8. **Overcoating of components:** Not acceptable.

#### **440 Performance and appearance of powder coatings**

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1. For aluminium components
  - 1.1. **Standard:** To BS 6496 or BS EN 12206-1.
2. For steel components
  - 2.1. **Standard:** To BS EN 13438.
3. **Visual inspection after powder coating:** Significant surface viewing distances to be as specified in the relevant Standard, unless specified otherwise.
4. **Colour and gloss levels:** To conform with approved samples.

#### **470 Fixings**

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1. **Exposed metal fixings:** Powder coat together with components, or coat with matching repair paint system applied in accordance with the powder coating manufacturer's recommendations.

#### **480 Damaged components – repair or replacement**

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1. **Before delivery to site:** Check all components for damage to powder coatings. Replace damaged components.
2. **Site damage:** Submit proposals for repair or replacement.

#### **510 Protection**

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1. **Powder coated surfaces of components:** Protect from damage during handling and installation, or by subsequent site operations.
2. **Protective coverings must be**
  - 2.1. Resistant to weather conditions.
  - 2.2. Partially removable to suit building in and access to fixing points.

3. Protective tapes in contact with powder coatings must be
  - 3.1. Low tack, self adhesive and light in colour.
  - 3.2. Applied and removed in accordance with tape and powder coating manufacturers' recommendations. Do not use solvents to remove residues as these are detrimental to the coating.
4. Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

## 540 Completion

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1. Protection: Remove any protective coverings.
2. Cleaning and maintenance of powder coatings: Carry out in accordance with procedures detailed in powder coating manufacturer and applicator guarantees.

Ω End of Section



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