WRIGHT & WRIGHT ARCHITECTS

Wright & Wright Architects LLP

The British Museum

# Energy Centre Programme: Incoming Substation

SW001-WWA-1145-C_XX-TSP-A-9974

Architectural Specification

A4 - Authorised & Accepted Stage 4 | Security Status: Official

C01

25-10-2024

# Contents

# C20
# Demolition

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## General requirements

### 110 Desk study/ survey

1. Scope: Before starting deconstruction/ demolition work, examine available information, and carry out a survey of: The structure or structures to be deconstructed/ demolished, the site on which the structure or structures stand and the surrounding area.
2. Report and method statements: Submit, describing:
   - 2.1. Form, condition and details of the structure or structures, the site, and the surrounding area.
     - 2.1.1. Extent: As survey boundary drawing.
   - 2.2. Type, location and condition of features of historical, archaeological, geological or ecological importance.
   - 2.3. Type, location and condition of adjoining or surrounding premises that might be adversely affected by removal of the structure or structures, or by noise, vibration and dust generated during deconstruction or demolition.
   - 2.4. Identity and location of services above and below ground, including those required for the contractor's use, and arrangements for their disconnection and removal.
   - 2.5. Form and location of flammable, toxic or hazardous materials, including lead-based paint, and proposed methods for their removal and disposal.
   - 2.6. Form and location of materials identified for reuse or recycling, and proposed methods for removal and temporary storage.
   - 2.7. Proposed programme of work, including sequence and methods of deconstruction or demolition.
   - 2.8. Details of specific pre-weakening required.
   - 2.9. Arrangements for protection of personnel and the general public, including exclusion of unauthorized persons.
   - 2.10. Arrangements for control of site transport and traffic.
3. Format of report: 2 no. hard copy reports to the Employer's Agent and PDF copy distributed digitally to the design team.

### 120 Extent of deconstruction/ demolition

1. General: Subject to retention requirements specified elsewhere, deconstruct/ demolish structures down to levels as shown on drawings.

### 130 Groundworks

1. Old foundations, slabs and the like: Break out in locations and to the extents stated.
2. Contaminated material: Remove, and carry out remediation required by the Enforcing Authority.
3. Removal of deleterious material: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
4. Ancillary items: Backfill basements and voids to level of surrounding site.

### 140 Benchmarks

1. Unrecorded benchmarks and other survey information: Give notice when found. Do not remove marks or destroy the fabric on which they are found.

### 150 Features to be retained

1. General: Keep in place and protect the following: Neighbouring boundary walls to extent as shown on drawings, historic railings, existing above and below ground services as defined and specified by the MEP and Civil Engineers' drawings and specifications noted on the drawings and all surrounding historic fabric unless otherwise stated. Bricks salvaged from any masonry walls demolished to be set aside for repair of masonry walls, as clauses C41/ 265 and C41/ 365.

## Services affected by deconstruction and demolition

### 210 Services regulations

1. Work carried out to or affecting new and/ or existing services: Carry out in accordance with the by-laws and regulations of the relevant statutory, as well as the requirements of individual private service providers.

### 220 Location and marking of services

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 Street Works UK publication 'Guidance on the Positioning and Colour Coding of Underground Utilities' Apparatus'.

### 230 Services disconnection arranged by contractor

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

### 231 Services disconnection arranged by employer

1. General: The employer will arrange with the appropriate authorities and responsible private organizations for disconnection of services, and removal of fittings and equipment owned by those authorities prior to deconstruction or demolition, as follows: Fire Systems: Honeywell, Security: Synetics and Other Services: CBRE.
2. Timing: Do not start deconstruction or demolition until disconnections are completed.

### 232 Services disconnection arranged by employer and contractor

1. Responsibility: The employer will arrange with the appropriate authorities and responsible private organizations for disconnection of services, and removal of fittings and equipment owned by those authorities prior to deconstruction or demolition, as follows: Refer to MEP and Civil Engineers' specifications and drawings.
2. Timing: Do not start deconstruction or demolition until disconnections are completed.

### 240 Disconnection of drains

1. General: Locate, disconnect and seal disused drain connections. Agree where drains are to be sealed.
2. Sealing: Permanent, and within the site.

### 250 Live foul and surface water drains

1. Drains and associated manholes, inspection chambers, gullies, vent pipes and fittings: Protect and maintain normal flow during deconstruction or demolition, make good any damage arising from deconstruction or demolition work and leave clean and in working order at completion of deconstruction or demolition work.
2. Other requirements: None.

### 260 Service bypass connections

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

## 270 Services to be retained

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

# Deconstruction and demolition work

## 310 Workmanship

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

## 320 Gas and vapour risks

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

## 330 Dust control

1. General: Minimize airborne dust by periodically spraying deconstruction and 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

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

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 disturbance. Repair promptly to ensure safety, stability, weather protection and security.
4. Support to foundations: Do not disturb.

## 360 Structures to be retained

1. Extent: Refer to demolition drawings and Structural Engineer's drawings.
2. Parts which are to be kept in place: Protect. Give notice and notify service authority or owner of damage arising from the execution of the works.
3. Interface between retained structures and deconstruction or demolition: Cut away and strip out with care to minimize the amount of making good needed.

## 370 Partly demolished structures

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

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

## 390 Asbestos-containing materials – known occurrences

1. General: Materials containing asbestos are known to be present in: refer to R&D survey.
2. Removal: By contractor licensed by the Health and Safety Executive, and prior to other works starting in these locations.
3. Timing: Before other works start in these locations.

## 391 Asbestos-containing materials – unknown occurrences

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

## 410 Unforeseen hazards

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

## 420 Open basements, etc

1. Temporary support: Leave adequate buttress walls or provide temporary support to basement retaining walls up to ground level.
2. Safety: Make remaining sections of retaining and buttress walls safe and secure.
3. Water movement: Make adequate holes in basement floors to allow water drainage or penetration (depending on water table).

## 430 Filling of basements, etc

1. Temporary support: Leave adequate buttress walls or provide temporary support to basement retaining walls up to ground level.
2. Safety: Make remaining sections of retaining and buttress walls safe and secure.
3. Water movement: Make adequate holes in basement floors to allow water drainage or penetration (depending on water table).
4. Filling: Remove organic material and soil from basements and other voids. Fill and consolidate with granular material in accordance with local highways authority requirements.

## 442 Site surface at completion

1. Topography: Grade the site to follow the levels of adjacent areas, refer to landscape drawings.
2. Temporary surface: Cover the site with consolidated layer as specified in Landscape Architect's drawings.

## 450 Site condition at completion

1. Debris: Clear away and leave the site in a clean, tidy and secure condition.
2. Other requirements: Adjacent Museum and perimeter property spaces to be cleaned and returned dust-free.

## Materials arising

### 510 Contractor's property

1. Components and materials arising from the deconstruction and demolition work: Property of the contractor, except for designated items which remain the property of the employer.
2. Action: Remove from site as work proceeds, where not to be reused or recycled for site use.

### 520 Recycled materials

1. Materials arising from deconstruction and 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

# C41
# Repairing/ renovating/ conserving masonry

## Summary

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## Generally/ preparation

### 110 Scope of work

1. Schedule: Repairs, as required, to adjacent structures as required, following removal of masonry wall and excavation to depth as specified in the drawings.
2. Records of masonry to be repaired: Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, special features, etc.
3. Identification of masonry units to be removed, replaced or repaired: Mark clearly, but not indelibly, on face of masonry units or parts of units to be cut out and replaced. Transcribe markings to drawings/ photographs.
4. Overview of works:: Refer to demolition drawings. Allow for making good to 1A Montague Street's masonry boundary wall and portico wall.

### 120 Site inspection

1. Purpose: To confirm type and extent of repair/ renovation/ conservation work shown on drawings and described in survey reports and schedules of work.
2. Parties involved: Employer's agent, architect and structural engineer.
3. Timing: At least 5 working days before starting each section of work.
4. Instructions issued during inspection: Confirm in writing, with drawings and schedules as required, before commencing work.

### 125 Removal of fittings/ fixtures

1. Items to be removed, and reinstated on completion of repair work: Lamppost, previously removed as part of the Enabling Works, to be reinstated and rewired, as clause C90/ 110.
    1.1. Reinstatement: Refit in specified location, to match the location of the other lamppost to the southeast of The White Wing, using original installation methods to Structural Engineer's details. Specialist subcontractor to be engaged to provide method statement on best practice of repair and reinstatement.
2. Masonry fabric and surfaces: Do not damage during removal and replacement of fittings/ fixtures.

### 130 Removal of plant growths from masonry

1. Plants, root systems and associated soil/ debris: Carefully remove from joints, voids and facework.
2. Removal of roots: Where growths cannot be removed completely without disturbing masonry seek instructions.
3. Unwanted plants close to masonry: Where removal of root system is not possible or desirable, cut through stem as close to the ground as possible. Remove bark from stump and apply herbicide paste. Leave stump to wither.

### 140 Record of work

1. General: Record work carried out to masonry clearly and accurately using written descriptions, sketches, drawings and photographs, as necessary.
2. Specific records: Photographic records with text description.
3. Documentation: Submit on completion of the work.
    3.1. Number of sets: Two hard copies and an electronic copy.

## Workmanship generally

### 150 Power tools

1. Usage for removal of mortar: Permitted only with prior approval.

## 155 Putlog scaffolding

1. Usage: Not permitted.

## 160 Protection of masonry units and masonry

1. Masonry units: Prevent overstressing during transit, storage, handling and fixing. Store on level bearers clear of the ground, separated with resilient spacers. Protect from adverse weather and keep dry. Prevent soiling, chipping and contamination. Lift units at designed lifting points, where provided.
2. Masonry: Prevent damage, particularly to arrises, projecting features and delicate, friable surfaces. Prevent mortar/ grout splashes and other staining and marking on facework. Protect using suitable nonstaining slats, boards, tarpaulins, etc. Remove protection on completion of the work.

## 165 Structural stability

1. General: Maintain stability of masonry. Report defects, including signs of movement that are exposed or become apparent during the removal of masonry units.

## 170 Disturbance to retained masonry

1. Retained masonry in the vicinity of repair works: Disturb as little as possible.
2. Existing retained masonry: Do not cut or adjust to accommodate new or reused units.
3. Retained loose masonry units and those vulnerable to movement during repair works: Prop or wedge so as to be firmly and correctly positioned.

## 180 Workmanship

1. Skill and experience of site operatives: Appropriate for types of work on which they are employed.
    1.1. Documentary evidence: Submit on request.

## 185 Adverse weather

1. General: Do not use frozen materials or lay masonry units on frozen surfaces.
2. Air temperature: Do not bed masonry units or repoint:
    2.1. In cement gauged mortars when ambient air temperature is at or below 3°C and falling or unless it is at least 1°C and rising, unless mortar has a minimum temperature of 4°C when laid and the masonry is adequately protected.
    2.2. In hydraulic lime:sand mortars when ambient air temperature is at or below 5°C and falling or unless it is at least 3°C and rising.
    2.3. In nonhydraulic lime:sand mortars in cold weather, unless approval is given.
3. Temperature of the work: Maintain above freezing until mortar has fully set.
4. Rain, snow and dew: Protect masonry by covering during precipitation, and at all times when work is not proceeding.
5. Hot conditions and drying winds: Prevent masonry from drying out rapidly.
6. New mortar damaged by frost: Rake out and replace.

# Materials/ production/ accessories

## 210 Advance registration

1. Material registered in advance by the Employer: Obtain from the supplier named in Preliminaries section A56.
    1.1. Ordering: Supersede the Employer's registration and take over responsibility by an order to the supplier covering price, supply and delivery to suit the progress of the work.

## 215 Material samples

1. Representative samples of designated materials: Submit before placing orders.
   1.1. Designated materials: Sands for bedding and pointing.
2. Retention of samples: Unless instructed otherwise, retain samples on-site for reference. Protect from damage and contamination.

## 220 Recording profiles

1. Profiles: Take measurements from existing masonry units, as instructed, to allow accurate matching of replacements.
2. Recording in situ: If there are no suitable joints to allow use of inserts, seek instructions.
3. Drawings and templates: Prepare as necessary. Templates must be clearly and indelibly marked to identify use and location.

## 265 Salvaged and second hand bricks

1. Source: From demolition of existing boundary wall as C20.
2. Condition
   2.1. Free from matter such as mortar, plaster, paint, bituminous materials and organic growths.
   2.2. Sound, clean and reasonably free from cracks and chipped arrises.

# Dismantling/ rebuilding - Not Used

# Replacements and insertions

## 330 Preparation for replacement masonry

1. Defective material: Carefully remove to the extent agreed. Do not disturb, damage or mark adjacent retained masonry.
2. Existing metal fixings, frame members, etc.: Report when exposed.
3. Redundant metal fixings: Remove.
4. Recesses: Remove projections and loose material; leave joint surfaces in a suitable condition to receive replacement units. Protect from adverse weather if units are not to be placed immediately.

## 365 Replacement of bricks

1. Description: Replacement of bricks to retained boundary wall.
2. Bricks: From demolition of existing boundary wall as C20.
3. Mortar: As section Z21.
   3.1. Standard: BS EN 998-2.
   3.2. Mix: 1:3 ready-mixed nonhydraulic lime putty:sand, to approval.
   3.3. Sand source/ type: Well graded crushed stone to approval.
4. Fixings: Submit proposal.
5. Joints: To match existing adjacent.
6. Other requirements: Brick replacement to match existing adjacent brick bond or as specified by Structural Engineer.

## 385 Laying replacement masonry units

1. Exposed faces of new material: Keep to agreed face lines.
2. Faces, angles and features: Align accurately. Set out carefully to ensure satisfactory junctions with existing masonry and maintain existing joint widths.
3. Joint surfaces: Dampen to control suction as necessary.

4. Laying units: On a full bed of mortar, all joints filled.
5. Exposed faces: Keep clear of mortar and grout.

## Tooling/ dressing stone in situ - Not Used

## Mortar repairs

### 510 Preparation for mortar repairs

1. Repair area: Scribe area of masonry to be removed using straight horizontal and vertical lines parallel to joints. Where repair area abuts joints, maintain existing joint widths and do not bridge joints.
2. Decayed masonry: Cut back carefully to a minimum depth of 20 mm to a sound background. Where the depth of removal exceeds 50 mm, seek instructions.
3. Precautions: Do not weaken masonry by removing excessive material. Do not damage adjacent masonry.
4. Top and vertical reveals of repair area: Undercut.

### 515 Reinforcement for mortar repairs

1. Material: Austenitic stainless steel, phosphor bronze or copper alloy wire, 3 mm diameter.
2. Armatures: Form to suit profiles of mortar repair and provide effective reinforcement.
3. Cover to reinforcement: Not less than 18 mm.
4. Installation: Drill holes into background to receive reinforcement, and bond firmly with a suitable epoxy resin.

### 520 Mortar repairs

1. Description: Mortar repairs to scope of work outlined in clause C41/110.
2. Undercoats: As section Z21.
    2.1. Standard: BS EN 998-2.
    2.2. Mix: 1:2½ NHL 5 hydraulic lime: sand.
    2.3. Sand source/ type: Sand:stone dust mix; proportions determined by site trials.
    2.4. Building up: In layers where necessary, each layer not exceeding 12 mm.
3. Finishing coat: To match approved samples.

### 540 Applying mortar

1. Surfaces to receive mortar: Clean, and free from dust and debris. Dampen to control suction.
2. Applying coats: Build up in layers to specified thickness. Apply mortar firmly, ensuring good adhesion with no voids. Form a mechanical key to undercoats by combing or scratching to produce evenly spaced lines.
3. Allow each layer to achieve an initial set before applying subsequent coats. Prevent each layer from drying out rapidly by covering immediately with plastics sheeting and/ or dampening intermittently with clean water.
4. Finishing mortar coat: Form accurately to required planes/ profiles, and finish flush with adjacent masonry.
5. Protection: Protect completed repairs from adverse weather until mortar has set.

### 550 Scraped finish to mortar repairs

1. Procedure: Finish final coat of repair mortar proud of existing masonry face. When mortar is set, but not too hard, scrape back to required face line using fine saw blade or other suitable means, to achieve required finish.

## Crack repairs/ ties/ reinforcement

### 610 Mortar repair of cracks

1. Mortar: As section Z21.
   1.1. Standard: BS EN 998-2.
   1.2. Mix: 1:3:12 white cement:lime:sand, to approval.
2. Preparation: Clean out cracks to remove debris, dust and dirt. Dampen recesses, as necessary, to control suction.
3. Applying mortar: Press well into cracks so that they are fully filled. Ensure that mortar does not encroach upon exposed faces. Finish mortar flush with masonry face.

## Grouting rubble filled cores - Not Used

## Pointing/ repointing

### 810 Preparation for repointing

1. Existing mortar: Working from top of wall downwards, remove mortar carefully, without damaging adjacent masonry or widening joints, to a minimum depth of 30 mm.
   1.1. Loose or friable mortar: Seek instructions when mortar beyond specified recess depth is loose or friable and/ or if cavities are found.
2. Raked joints: Remove dust and debris.

### 820 Pointing

1. Description: Pointing to retained boundary and portico walls.
2. Preparation of joints: Rake out existing mortar.
3. Mortar: As section Z21.
   3.1. Standard: BS EN 998-2.
   3.2. Mix: 1:3 ready-mixed nonhydraulic lime putty:sand.
   3.3. Sand source/ type: Crushed stone fine pointing sand to approval.
4. Joint profile/ finish: To match existing adjacent.

### 840 Pointing with tools/ Irons

1. General: Press mortar well into joints using pointing tools/ irons that fit into the joints, so that they are fully filled.
2. Face of masonry: Keep clear of mortar. Use suitable temporary adhesive tape on each side of joints where necessary. Finish joints neatly.

### 860 Brushed finish to joints

1. Timing: After initial mortar set has taken place remove laitance and excess fines by brushing, to give a coarse texture. Do not compact mortar.

Ω End of Section

# C90
# Alterations - repair, refurbish, refit

## Summary

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## General

### 110 Descriptions

1. Location and details of alterations:
   1.1. Opening in the portico to 1A Montague Street:
      - Contractor to undertake survey to determine the existing conditions and structure of the portico wall, where opening is proposed, refer to drawings 1671 and 2181. Requirements to be finalised with guidance and following further discussion with Structural Engineer.
      - Structural engineer to specify demolition approach to create an opening to match adjacent existing door and top light to 1A Montague Street. Contractor to confirm requirement and the need for temporary support design, to specialist subcontractor's design.
      - All heritage details, including cornices, are to be protected during careful localised deconstruction of portico wall.
      - Following insertion of a heritage wood doorset, as clause L20/ 410, contractor to repair and refurbish walls, opening and other details, which may have been damaged during the demolition process, as required, on a like-for-like basis. Refer to drawing 5074. Details to be confirmed with Architects following surveys and opening up works.
      - Making good of existing masonry and associated finishes, including waterproofing, as clause C41. Wall and waterproofing finishes are to be taken into the depth of the newly created door reveals, thresholds and soffit.
   1.2. Lamppost reinstatement and rewiring to northeast of the White Wing:
      - Lamppost, previously removed as part of the Enabling Works, to be reinstated and rewired in a new position, northwest to the White Wing, mirroring another lamppost located southeast of the White Wing.
      - Contractor to ensure lamppost to be rewired to working order, prior to refit/ reinstatement using original installation methods to Structural Engineer's details, as clause C41/ 125. Refer to MEP and Structural Engineers' information.
      - Contractor to ensure lamppost to have rusts and scuffs cleaned, prior to refinishing of the lamppost on a like-for-like basis.
      - Specialist subcontractor to be engaged to provide method statement on best practice of repair and reinstatement.
   1.3. The White Wing pedestrian gates' stone sills, adjacent to the entry stairs from Montague Street:
      - Contractor to undertake and submit photographic surveys of the existing stone sills and associated stone posts and cast iron pedestrian gates.
      - Contractor to safely remove pedestrian gates from the associated adjacent structures. Gates and associated structures are to be protected and stored on site for the duration of construction.
      - Existing stone sills to be carefully removed, labelled, protected and set aside for reinstallation. Substrate zones beneath existing sills to be recorded.
      - Existing stone sills to be reinstalled on agreed new bedding/ substrate to achieve a level access or as close to this as possible within the acceptable constraints of the existing stone sill profiles and the surrounding adjacent ground levels.
      - Pedestrian gates to be reinstated and contractor to ensure the gates are in working order. Making good of existing adjacent stone paving and structures, as clause C41.
      - Specialist subcontractor to be engaged to provide method statement on best practice of dismantling, repair and reinstatement of stone sills and associated adjacent structures.

## 115 Survey report

1. Submittal: Report prepared as a schedule of works.
2. Timing: Before work commences on site.

## 120 Employer's property

1. Components and materials arising from alterations that are to remain the property of the employer: Pedestrian gates connected to stone sills, as clause C90 / 110/ 1.3.
   1.1. Protection: Maintain until items listed above are removed by the employer or reused in the works, or until the end of the contract.
2. Special requirements: Contractor to protect and store pedestrian gates on site. Gates to be reinstated following completion of works to stone sills.

## 130 Recycled materials

1. Materials arising from alterations: May 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

# E41
# Worked finishes to in situ concrete

## Summary

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**To be read with preliminaries/ general conditions.**

## 120 Directly finished concrete wearing surfaces

1. Description: Generally for steps and top of parapets and upstands.
2. Abrasion resistance class to BS 8204-2: AR1/DF.
3. Finish: Trowelled.
   3.1. Additional surface treatment: As clause 330.
   3.2. Slip resistance (minimum): PTV 36.
4. Curing: Submit proposals.

## 145 Control samples

1. Sample areas that are part of finished work: Sample area of smooth floated finish to floor slab and upstand, as clause 310.
2. Location: To be agreed.
3. Approval of appearance: Obtain before proceeding with remainder of the work.

## 150 Finishing

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

## 240 Wood floated finish

1. Surface on completion: Slightly coarse, even texture with no ridges or steps.

## 310 Smooth floated finish

1. Surface on completion: Even with no ridges or steps.

## 520 Surface sealer

1. Manufacturer: Watco UK Ltd
   1.1. Contact details
      1.1.1. Address: 195-205 Eastgate Court
      Guildford
      Surrey
      United Kingdom
      GU1 3AW
      1.1.2. Telephone: +44 (0)1483 418418
      1.1.3. Web: www.watco.co.uk
      1.1.4. Email: sales@watco.co.uk
   1.2. Product reference: Universal Sealer Dustproofer.
2. Substrate
   2.1. Moisture content: As recommended by sealer manufacturer. Test relative humidity to BS 8203, Annex A where required to verify suitability.
   2.2. Condition prior to application: Cured, clean and free from contaminants.
3. Primer: As per manufacturer's recommendations.
4. Application: Evenly to dry surfaces to form an effective seal but without a glossy finish.

## 530 Slip resistance testing of wearing surfaces

1. Test: To BS 7976-2 using a Transport Research Laboratory (TRL) Pendulum.
   1.1. Timing: Give adequate notice.
   1.2. Test results: Provide on receipt.

Ω End of Section

# F10
# Brick/ block walling

## Summary

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## Types of walling

### 110 Clay facing brickwork (Flemish bond)

1. Description: To outer leaf of substation.
2. Bricks: To BS EN 771-1.
   2.1. Manufacturer: Imperial Bricks Ltd.
      2.1.1. Product reference: Original London Stock, Yellow Stock.
3. Mortar: Tarmac TRUTONE coloured mortar, Yellow Y12 Medium; or Cemex Coloured Mortar, Yellow Dark. Final selection to be made by Client and Architect, subject to sample panel approval. As section Z21.
   3.1. Standard: To BS EN 998-2.
   3.2. Mix: To manufacturer's recommendations.
   3.3. Additional requirements: Coloured mortar to match bricks.
4. Bond: Flemish.
5. Joints: Bucket handle.

### 355 Concrete common blockwork

1. Description: To inner leaf of substation.
2. Blocks: To BS EN 771-3.
   2.1. Manufacturer: Thomas Armstrong (Concrete Blocks) Ltd
      2.1.1. Contact details
         2.1.1.1. Address: Whinfield Road
         Rowlands Gill
         Newcastle-upon-Tyne
         Tyneside
         United Kingdom
         NE39 1EH
         2.1.1.2. Telephone: +44 (0)1207 544214
         2.1.1.3. Web: www.thomasarmstrongconcreteblocks.co.uk
         2.1.1.4. Email: blocks@thomasarmstrong.co.uk
      2.1.2. Product reference: Solid Dense Concrete Block (Solid Dense Concrete Block 140 mm)
   2.2. Standard: To BS EN 771-3.
   2.3. Block description: Paint grade.
   2.4. Appearance: Dark grey.
   2.5. Configuration: Group 1.
   2.6. Compressive strength
      2.6.1. Mean value: 10.4 N/mm².
      2.6.2. Category: II.
   2.7. Freeze/ thaw resistance: Freeze thaw resistant.
   2.8. Thermal conductivity: 1.17 W/mK (inner leaf). 1.26 W/mK (outer leaf).
   2.9. Recycled content: 20%.
   2.10. Work sizes (length x width x height): 440 x 215 x 140 mm.
   2.11. Tolerance category: D1.
   2.12. Density
      2.12.1. Gross dry density: 1850-2100 kg/m³.
   2.13. Reaction to fire: Class A1 to BS EN 13501-1.

2.14. Water absorption by capillarity: 90 g/(m2 x s-0.5).
2.15. Water vapour permeability: 5/15 μ.
2.16. Thickness: 140 mm.
2.17. Weight: 266 kg/m²: walled weight. 25.2 kg: block weight.
2.18. Moisture movement: 0.6 mm/m.
2.19. Environmental Product Declaration (EPD): ISO 14001.
2.20. R-Value: 0.12 m² K/W.
2.21. Sound reduction: 51 dB (Rw).

## Testing

### 410 Compressive strength of mortar for each walling type

1. Testing authority: A UKAS-accredited laboratory.
2. Test method: To BS EN 1015-11.
3. Preliminary tests procedure: As follows:
   3.1. Specimens
      3.1.1. Number of specimens: Six.
      3.1.2. Type: 40 x 40 x 160 mm prism.
      3.1.3. Preparation: At least six weeks before walling commences.
   3.2. Specimen testing: Half of specimens at seven days. Remainder at 28 days.
      3.2.1. Retarded mixes: Extend curing periods to include retardation period.
   3.3. Response to result: If mean compressive strength at 28 days is not within the range given below repeat tests with more suitable sand or next higher mortar class.
4. Site tests procedure: As follows.
   4.1. Number of specimens: Six per 150m² of walling or per storey whichever the more frequent.
   4.2. Specimen types: As preliminary test, but prepared during construction.
   4.3. Specimen testing: Half of specimens at seven days. Remainder at 28 days.
      4.3.1. Retarded mixes: Extend curing periods to include retardation period.
5. Required test mean compressive strength at 28 days (N/mm²): To be within the following range:
   5.1. Walling type: All wall types.
      5.1.1. Preliminary tests minimum (N/mm²): 4.0.
      5.1.2. Preliminary tests maximum (N/mm²): 6.0.
      5.1.3. Site tests minimum (N/mm²): 11.
      5.1.4. Site tests maximum (N/mm²): No value.
6. Results: Submit.

### 415 Fresh mortar cement content

1. Test method: BREMORTEST in accordance with Building Research Establishment Information Paper 8/89.
2. Test specimens: Test mortar for the following wall types: F10/ 110 and 355 .
3. Results: Submit.

## Workmanship generally

### 430 Conditioning of clay bricks and blocks

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.

## 440 Conditioning of concrete bricks/ blocks

1. Autoclaved concrete bricks/ blocks delivered warm from manufacturing process: Do not use.
2. Age of nonautoclaved concrete bricks/ blocks: Do not use until at least four weeks old.
3. Avoidance of suction in concrete bricks/ blocks: Do not wet.
   3.1. Use of water retaining mortar admixture: Submit details.

## 460 Mortar designations

1. Mix proportions: For a specified designation select a mix from the following:
   1.1. Designation (i) (BS EN 998-2 M12 equivalent)
      1.1.1.1:0-¼:3 (Portland cement:lime:sand with or without air entraining additive).
      1.1.2.1:3 (Portland cement:sand and air entraining additive).
   1.2. Designation (ii) (BS EN 998-2 class M6 equivalent)
      1.2.1.1:½:4-5 (Portland cement:lime:sand with or without air entraining additive).
      1.2.2.1:3 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
      1.2.3.1:2½-3½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
      1.2.4.1:3-4 (Portland cement:sand and air entraining additive).
   1.3. Designation (iii) (BS EN 998-2 class M4 equivalent)
      1.3.1.1:1:5-6 (Portland cement:lime:sand with or without air entraining additive).
      1.3.2.1:3½-4 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
      1.3.3.1:4-5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
      1.3.4.1:5-6 (Portland cement:sand and air entraining additive).
   1.4. Designation (iv) (BS EN 998-2 class M2 equivalent)
      1.4.1.1:2:8-9 (Portland cement:lime:sand with or without air entraining additive).
      1.4.2.1:4½ (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
      1.4.3.1:5½-6½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
      1.4.4.1:7-8 (Portland cement:sand and air entraining additive).
2. Batching: Mix proportions by volume.
3. Mortar type: Continuous throughout any one type of masonry work.

## 500 Laying generally

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

## 520 Accuracy

1. Courses: Level and true to line.

2. Faces, angles and features: Plumb.
3. Permissible deviations
   3.1. Position in plan of any point in 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.
4. Other requirements: Notwithstanding clauses above, comply with any critical dimensions given on the drawings.

## 535 Height of lifts in walling using cement-gauged or hydraulic lime mortar

1. Quoins and advance work: Rack back.
2. Lift height (maximum): 1.2 m above any other part of work at any time.
3. Daily lift height (maximum): 1.5 m for any one leaf.

## 540 Height of lifts in walling using thin-layer mortar

1. Quoins and advance work: Rack back.
2. Lift height (maximum): 1.3 m above any other part of work at any time.

## 545 Levelling of separate leaves

1. Locations for equal levelling of cavity wall leaves: As follows:
   1.1. Every course containing vertical twist type ties or other rigid ties.
   1.2. Every third tie course for double triangle/ butterfly ties.
   1.3. Courses in which lintels are to be bedded.

## 560 Coursing brickwork

1. Gauge: Four brick courses including bed joints to 300 mm.

## 561 Coursing brickwork with existing

1. Gauge: Line up with existing brick courses.

## 580 Laying frogged bricks

1. Single frogged bricks: Frog uppermost.
2. Double frogged bricks: Larger frog uppermost.
3. Frog cavity: Fill with mortar.

## 585 Laying cellular bricks

1. Orientation: Cavities downward.

## 595 Lintels

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

## 610 Support of existing work

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

## 615 Brickwork to receive asphalt dpc

1. Substrate: Mortar bed finished flush, smooth and level.

## 620 Block bonding new walls to existing

1. Pocket requirements: Formed as follows:
   1.1. Width: Full thickness of new wall.
   1.2. Depth (minimum): 100 mm.
   1.3. Vertical spacing
      1.3.1. Brick to brick: 4 courses high at 8 course centres.
      1.3.2. Block to block: Every other course.
2. Pocket joints: Fully filled with mortar.

## 635 Jointing

1. Profile: Consistent in appearance.

## 645 Accessible joints not exposed to view

1. Jointing: Struck flush as work proceeds.

## 665 Pointing

1. Joint preparation: Remove debris. Dampen surface.
2. Mortar: As section Z21.
   2.1. Standard: To BS EN 998-2.
   2.2. Mix: 1:1:6 cement:lime:sand 4 N/mm² (class M4).
   2.3. Additional requirements: Coloured mortar to match bricks.
3. Profile: Bucket handle.

## 671 Fire-stopping

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

## 690 Adverse weather

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

## Additional requirements for facework

### 710 The term facework

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

### 730 Brick/ Concrete block samples

1. General: Before placing orders with suppliers submit for approval of appearance labelled samples of the following: F10/ 110 and F10/ 355.
2. Selection of samples: Representative of the range in variation of appearance.

### 750 Colour consistency of masonry units

1. Colour range: Submit proposals of methods taken to ensure that units are of consistent and even appearance within deliveries.
2. Conformity: Check each delivery for consistency of appearance with previous deliveries and with approved reference panels; do not use if variation is excessive.
3. 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

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

### 780 Ground level

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

### 790 Putlog scaffolding

1. Use: Not permitted in facework.

### 800 Toothed bond

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

### 830 Cleanliness

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

Ω End of Section

# F30
# Accessories/ sundry items for brick/ block/ stone walling

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Cavities

### 120 Cleanliness

1. Cavity base and faces, ties, insulation and exposed dpcs: Free from mortar and debris.

### 130 Perpend joint weepholes

1. Form: Open perpend joint.
2. Locations: Through outer leaf, immediately above base of cavity at cavity trays, stepped dpcs and external openings, at level of render bellcast bead, 75mm above top of cavity fill at base of cavity.
3. Provision: At not greater than 1000 mm centres and not less than two over each opening.
4. Samples:: Submit sample, including detail within sample panel for approval of treatment through proprietary cement gauged render.

### 155 Partial fill cavity mineral wool insulation

1. Manufacturer: Knauf Insulation Ltd
   1.1. Contact details
      1.1.1. Address: Knauf Insulation Limited
      Stafford Road
      St Helens
      Merseyside
      WA10 3LZ
      1.1.2. Telephone: +44 (0)1744 766 666
      1.1.3. Web: www.knaufinsulation.co.uk
      1.1.4. Email: technical.uk@knaufinsulation.com
   1.2. Product reference: Knauf Insulation - Rocksilk® RainScreen Slab - Rainscreen Cavity Insulation (RainScreen Slab (600 mm) 60 mm)
2. Standard: To BS EN 13162.
3. Third-party certification: Rocksilk® Rainscreen Slab - BBA Certificate - 19/5609. Eurofins Gold. Euroclass A1 Reaction to Fire Classification. Green Guide Rating A+. CE Marking. EPD (EN 15804+A2). Declare Red List Free EUCEB. CCPI Product - Verification Number 00600063/0426.
4. Form: Slab.
5. Facing: Unfaced.
6. Thickness (minimum): 60 mm.
7. Width (nominal): 600 mm.
8. Thermal conductivity (maximum): 0.034 W/m·K.
9. Fire performance: Euroclass A1 to BS EN 13501-1.
10. Recycled content: Up to 35%.
11. Vapour resistivity: 5.00 MN·s/g·m.
12. Wind load: 3.6 kPa (76 m/s).
13. Water absorption: <1 kg/m² tested in accordance with BS EN 1609.
14. Dimensional stability: Tested in accordance with BS EN 1604, stable.
15. Environmental Product Declaration (EPD): EPD available. In accordance with BS EN 15804+A2.
16. Green guide rating: A+.
17. Indoor air quality: Eurofins Gold achieved.
18. VOC emissions: Products manufactured with ECOSE® Technology generate low levels of dust, VOCs and contain no added formaldehyde or phenol.
19. U-value: 0.42 W/m2K.

20. Cavity barriers: Can be used as part of a system with Knauf Insulation cavity barriers: Rocksilk® Rainscreen FFCB.
21. Durability: Odourless, rot-proof, non-hygroscopic, do not sustain vermin and will not encourage the growth of fungi, mould or bacteria. The product will have a life equivalent to that of the wall structure in which it is incorporated.
22. Thermal resistance: 1.76 m²K/W.

## 160 Clay airbricks

1. Standard: To BS 493, Class 1.
2. Manufacturer: Wavin Limited
   2.1. Product reference: Hepworth Terracotta Square Hole YA15B.
3. Apertures: Total free airspace 4612 mm2.
4. Work sizes: 215 x 215 x 50 mm.
5. Material andcolour: Clay and buff.
6. Placement: Built in with no gaps at joints.

## 161 Airbricks in external walling, triple

1. Standard: To BS 493, Class 1.
2. Manufacturer: Rytons Building Products Ltd
   2.1. Contact details
      2.1.1. Address: Design House
      Orion Way
      Kettering Business Park
      Kettering
      Northamptonshire
      NN15 6NL
      2.1.2. Telephone: +44 (0)1536 511874
      2.1.3. Web: www.vents.co.uk
      2.1.4. Email: admin@rytons.com
   2.2. Product reference: Rytons A1® Fire-rated 9 × 9 AirLiner® (With Return Grille Triple Air Brick Flanged (A1RGTF))
3. Work sizes: 220 x 207 mm.
4. Material: Galvanized steel.
5. Integral accessories: 15 mm flange and corner screw holes.
6. Length: To suit the cavity.
7. Free area: 28 800 mm².
8. Fire performance: Class A1.
9. Apertures: Total free airspace 4612 mm2.
10. Work sizes: 215 x 215 x 50 mm.
11. Material andcolour: Submit proposals, TBC by Client and Architect.

## 180 Cavity closers

1. Manufacturer: ROCKWOOL Ltd
   1.1. Contact details
      1.1.1. Address: ROCKWOOL Ltd
      Wern Tarw
      Pencoed
      Bridgend

United Kingdom
CF35 6NY

1.1.2. Telephone: +44 (0)1656 862621

1.1.3. Web: https://www.rockwool.com/uk/

1.1.4. Email: customersupportcentre@rockwool.com

1.2. Product reference: RockClose® EN (Maximum Cavity Gap: 20 mm)

2. Accessories: Integral ROCKWOOL insulation. Integrated waterproofing layer.
3. To fit cavity width: Up to 20 mm.
4. Length (effective): 1200 mm.
5. Width: 100 mm.
6. Thickness: 30 mm.
7. Damp proof membrane: 1300 x 180 mm.
8. Thermal performance: To EN 13162:2012 + A1:2015, 0.035 W/mK.
9. Fire performance: To BS EN 1366-4, 60 minutes.
10. Reaction to fire: To EN 13501-1, A1 (stone wool core); B, s3, d0 (waterproofing layer).

## Reinforcing/ fixing accessories

### 215 Cavity wall ties (uninsulated cavity)

1. Description: For uninsulated cavity walls.
2. Standard: To BS EN 845-1.

2.1. Type: 1 (Masonry heavy duty).

3. Manufacturer: Leviat

3.1. Contact details

3.1.1. Address: President Way
President Park,
Sheffield
South Yorkshire
S4 7UR

3.1.2. Telephone: +44 (0) 114 275 5224

3.1.3. Web: www.leviat.com

3.1.4. Email: info.uk@leviat.com

3.2. Product reference: Ancon ST1 Wall Tie.

4. Material: Austenitic stainless steel.
5. Length: 200 mm, to suit cavity width.
6. Embedment length (minimum): 50 mm.

### 216 Cavity wall ties (partial fill cavity)

1. Description: For insulated cavity walls.
2. Standard: To BS EN 845-1.

2.1. Type: 1 (Masonry heavy duty).

3. Manufacturer: Leviat

3.1. Contact details

3.1.1. Address: President Way
President Park,
Sheffield

South Yorkshire
S4 7UR

3.1.2. Telephone: +44 (0) 114 275 5224

3.1.3. Web: www.leviat.com

3.1.4. Email: info.uk@leviat.com

3.2. Product reference: Ancon SDS T1 Wall Tie.

4. Material/ finish: Austenitic stainless steel.
5. Sizes: 225 mm, to suit cavity width.
6. Embedment length (minimum): 50 mm.
7. Tie-mounted insulation retaining:: As recommended by the manufacturer.

## 217 Cavity wall ties (cramp)

1. Standard: To BS EN 845-1.
   1.1. Type: 1 (Masonry heavy duty).
2. Manufacturer: Leviat
   2.1. Contact details
      2.1.1. Address: President Way
      President Park,
      Sheffield
      South Yorkshire
      S4 7UR
      2.1.2. Telephone: +44 (0) 114 275 5224
      2.1.3. Web: www.leviat.com
      2.1.4. Email: info.uk@leviat.com
   2.2. Product reference: Ancon SDB Frame Cramp.
3. Material/ finish: Austenitic stainless steel.
4. Sizes: 100 mm, to manufacturer's recommendations.

## 233 Fixing ties in masonry cavity walls with partial fill cavity insulation

1. Embedment in mortar beds (minimum): 50 mm.
2. Placement: Sloping slightly downwards towards outer leaf, without bending. Drip centred in the cavity and pointing downwards.
3. Spacing: Evenly space in non-staggered horizontal and vertical rows.
   3.1. Horizontal centres: 600 mm.
   3.2. Vertical centres: 450 mm.
4. Provision of additional ties: Within 225 mm of reveals of unbonded openings and at the vertical reveals of unsupported masonry.
   4.1. Spacing: At not more than 300 mm centres vertically.

## 251 Wall head restraint slip ties

1. Description: To heads of masonry walls.
2. Standard: To BS EN 845-1.
3. Manufacturer: Leviat
   3.1. Contact details
      3.1.1. Address: President Way
      President Park,
      Sheffield

South Yorkshire
S4 7UR

3.1.2. Telephone: +44 (0) 114 275 5224

3.1.3. Web: www.leviat.com

3.1.4. Email: info.uk@leviat.com

3.2. Product reference: Ancon IHR-B Head Restraint.

4. Material/ finish: Austenitic stainless steel.

5. Sizes: To suit blockwork cousing.

## Flexible damp-proof courses/ cavity trays

### 330 Damp-proof courses

1. Manufacturer: Delta Membrane Systems Ltd

1.1. Contact details

1.1.1. Address: Delta House
Merlin Way
North Weald
Epping
Essex
United Kingdom
CM16 6HR

1.1.2. Telephone: +44 (0)1992 523523

1.1.3. Web: https://www.deltamembranes.com

1.1.4. Email: info@deltamembranes.com

1.2. Product reference: Delta High Performance DPC.

### 345 Site-formed flexible sheet cavity trays

1. Manufacturer: Delta Membrane Systems Ltd

1.1. Contact details

1.1.1. Address: Delta House
Merlin Way
North Weald
Epping
Essex
United Kingdom
CM16 6HR

1.1.2. Telephone: +44 (0)1992 523523

1.1.3. Web: https://www.deltamembranes.com

1.1.4. Email: info@deltamembranes.com

1.2. Product reference: Delta High Performance DPC.

## Installation of dpcs/ cavity trays

### 415 Installation of horizontal dpcs

1. Placement: In continuous lengths on full even bed of fresh mortar, with 100 mm laps at joints and full laps at angles.

2. Width: At least full width of leaf unless otherwise specified. Edges of dpc not covered with mortar or projecting into cavity.

3. Overlying construction: Immediately cover with full even bed of mortar to receive next masonry course.

4. Overall finished joint thickness: As close to normal as practicable.

## 425 Installation of ground-level dpcs

1. Joint with damp-proof membrane: Continuous and effectively sealed.

## 435 Installation of stepped dpcs in external walls

1. External walls on sloping ground: Install dpcs not less than 150 mm above adjoining finished ground level.

## 445 Installation of sill dpcs

1. Form and placement: In one piece and turned up at back when sill is in contact with inner leaf.

## 455 Installation of coping/ capping dpcs

1. Placement: Bed in one operation to ensure maximum bond between masonry units, mortar and dpc.
2. Dpcs crossing cavity: Provide rigid support to prevent sagging.

## 475 Installation of site-formed cavity trays

1. Requirements to prevent downward ingress of water
   1.1. Profiles: To match those shown on drawings. Firmly secured.
   1.2. Joint treatment: Use continuous length wherever possible, otherwise lap at least 100 mm and seal to produce a free draining and watertight installation.
   1.3. Horizontal cavity trays: Support using cavity closer.
   1.4. Sloping cavity trays: Prevent sagging.
   1.5. Cleanliness: Free from debris and mortar droppings.

## 485 Installation of cavity trays over openings and other cavity bridgings

1. Length: To extend not less than 150 mm beyond ends of lintels/ bridgings.

## 495 Installation of gas-resistant dpcs/ cavity trays

1. Joint treatment: Use continuous length wherever possible, otherwise lap at least 150 mm and seal to form a gas and watertight installation.
2. Joint with damp-proof membrane: Overlap dpc/ cavity tray not less than 150 mm.

## 560 Installation of vertical dpcs

1. Form: In one piece wherever possible.
   1.1. Joints: Upper part overlapping lower not less than 100 mm.

## 570 Installation of jamb dpcs at openings

1. Joint with cavity tray/ lintel at head: Full underlap.
2. Joint with sill/ horizontal dpc at base: Full overlap.
3. Projection into cavity: Not less than 25 mm.
4. Relationship with frame: In full contact.

# Joints

## 610 Movement joints with sealant

1. Joint preparation and sealant application: As section Z22.

2. Filler: Compressible mineral wool backing rod wrapped with a glass fibre yarn.
   2.1. Manufacturer: Sika Limited
      2.1.1. Contact details
         2.1.1.1. Address: Watchmead
         Welwyn Garden City
         Hertfordshire
         AL7 1BQ
         2.1.1.2. Telephone: +44 (0)1707 394444
         2.1.1.3. Web: https://www.sika.co.uk
         2.1.1.4. Email: enquiries@uk.sika.com
      2.1.2. Product reference: Sika® Backer Rod Fire
   2.2. Fire performance
      2.2.1. Fire resistance: To EN 13501-2, up to class EI 240; To EN 1366-4, up to 4 hours.
      2.2.2. Reaction to fire: To EN 13501-1, Class A1.
   2.3. Material: Mineral fibre wool wrapped with glass fibre yarn.
   2.4. Size
      2.4.1. Thickness: To match design width of joint.
   2.5. Density: ~250 kg/m³.
3. Sealant
   3.1. Designation: ISO 11600, Class F-25LM.
   3.2. Manufacturer: Sika Limited.
      3.2.1. Product reference: SikaHyflex®-250
   3.3. Colour: TBC by Architect.

## 650 Pointing in flashings

1. Joint preparation: Free of debris and lightly wetted.
2. Pointing mortar: As for adjacent walling.
3. Placement: Fill joint and finish flush.

## 660 Pinning up to soffits

1. Top joint of loadbearing walls: Fill and consolidate with mortar.

## 670 Head of non-loadbearing walls

1. Restraints: As clause 251.
   1.1. Fixing: Secure to soffit.
2. Joint filler: Compressible filler as P12/ 360.
   2.1. Placement: Full, no gaps.

# Proprietary sills/ lintels/ copings/ dressings

## 745 Prestressed concrete lintels , 100 x 215 mm

1. Manufacturer: Naylor Concrete Products Ltd
   1.1. Contact details
      1.1.1. Address: Whaley Road
      Barugh Green
      Barnsley

South Yorkshire
S75 1HT

1.1.2. Telephone: +44 (0)1226 320810

1.1.3. Web: www.naylorconcrete.co.uk

1.1.4. Email: concrete@naylor.co.uk

1.2. Product reference: Submit proposals.

2. Standard: To BS EN 845-2.
3. Types: Single.
4. Characteristics
   4.1. Freeze/ thaw: Resistant.
   4.2. Resistance to fire: 240 minutes.
   4.3. Thermal conductivity: 1.52 W/m.K
   4.4. Water vapour permeability: NPD.

## 766 Cast stone coping units laid in hydraulic lime:sand mortar

1. Standard: To BS 1217.
2. Manufacturer: Chatsworth Stone Masonry Ltd.
3. Dimensions: Bespoke, as shown on drawings.
4. Finish/ colour: Submit proposals.
5. Mortar for bedding/ jointing: Hydraulic lime:sand, as section Z21.
   5.1. Sand: Graded crushed stone.
      5.1.1. Colour: To match coping.
      5.1.2. Source/ type: Sharp, well-graded sand to approval.
   5.2. Mix: As section F10.
6. Joints: Flush.
7. Placement: Submit proposals.

## Miscellaneous items - Not Used

Ω End of Section

# H71
# Lead sheet fully supported roof and wall coverings/ flashings

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Types of leadwork

### 470 Flashings

1. Description: To junctions between external walls and existing masonry boundary walls.
2. Lead
   2.1. Thickness: 2.00 or 2.24 mm (Code 5).
3. Dimensions
   3.1. Lengths: Not more than 1500 mm, as shown on drawings.
4. Fixing: Nail top edge at 150 mm centres and welt edge. Clip bottom edge at laps and 500 mm centres.

## General requirements/ preparatory work

### 510 Workmanship generally

1. Standard: In accordance with BS EN 14783 and BS EN 12588 and to BS 6915 and latest edition of 'Rolled lead sheet. The complete manual' published by the Lead Sheet Training Academy.
2. Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.
3. Operatives: Trained in the application of lead coverings/ flashings. Submit records of experience on request.
4. Preforming: Measure, mark, cut and form lead prior to assembly wherever possible.
5. Marking out: With pencil, chalk or crayon. Do not use scribers or other sharp instruments without approval.
6. Bossing and forming: Straight and regular bends, leaving sheets free from ripples, kinks, buckling and cracks.
7. Solder: Use only where specified.
8. Sharp metal edges: Fold under or remove as work proceeds.
9. Finished work: Fully supported, adequately fixed to resist wind uplift but also able to accommodate thermal movement without distortion or stress.
10. Protection: Prevent staining, discolouration and damage by subsequent works.

### 515 Lead-welding

1. In situ lead-welding: Not permitted.

### 520 Lead sheet

1. Production method
   1.1. Rolled, to BS EN 12588, or
   1.2. Machine cast and BBA-certified, or
   1.3. Sand cast, from lead free from bitumen, solder, other impurities, inclusions, laminations, cracks, air, pinholes and blowholes; to code thicknesses but with a tolerance (by weight) of ±10%.
2. Identification: Labelled to show compliance with the harmonized standard (hEN) BS EN 14783, where appropriate, and detail of the thickness/ code, weight and type.

### 555 Layout

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

## 560 Control samples

1. General: Complete areas of the finished work, and obtain approval of appearance before proceeding:
2. Size: Submit proposals.
3. Location: Submit proposals.

## 610 Suitability of substrates

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

## 630 Plywood overlay

1. Standard: Manufactured to an approved national standard and to BS EN 636, section 8 (plywood for use in humid conditions).
   1.1. Sheet size: 2400 or 1200 x 1200 mm and 6 mm thick.
2. Moisture content: Not more than 22% at time of covering. Give notice if greater than 16%.
3. Laying: Parallel to perimeter edges with cross joints staggered and a 0.5-1 mm gap between sheets.
4. Fixing: With 25 mm annular ringed shank copper or stainless steel nails, at 300 mm grid centres over the area of each sheet and at 150 mm centres along edges, set in 10 mm from perimeter edges and in pairs across joints.
   4.1. Nail heads: Set flush with or just below the surface.

## 640 Timber for use with leadwork

1. Quality: Planed, free from wane, pitch pockets, decay and insect attack (ambrosia beetle excepted).
2. Moisture content: Not more than 22% at time of fixing and covering. Give notice if greater than 16%.
3. Preservative treatment: Organic solvent as section Z12 and Wood Protection Association Commodity Specification C8.

# Fixing lead

## 705 Head fixing lead sheet

1. Top edge: Secured with two rows of fixings, 25 mm and 50 mm from top edge of sheet, at 75 mm centres in each row, evenly spaced and staggered.
2. Sheets less than 500 mm deep: May be secured with one row of fixings, 25 mm from top edge of sheet and evenly spaced at 50 mm centres.

## 710 Fixings

1. Nails to timber substrates: Copper clout nails to BS 1202-2, or stainless steel (austenitic) clout nails to BS 1202-1.
   1.1. Shank type: Annular ringed, helical threaded or serrated.
   1.2. Shank diameter: Not less than 2.65 mm for light duty or 3.35 mm for heavy duty.
   1.3. Length: Not less than 20 mm or equal to substrate thickness.
2. Screws to concrete or masonry substrates: Brass or stainless steel.
   2.1. Diameter: Not less than 3.35 mm.
   2.2. Length: Not less than 19 mm.
   2.3. Washers and plastic plugs: Compatible with screws and lead.

3. Screws to composite metal decks: Self tapping as recommended by the deck and lead manufacturer/ supplier for clips.

## 715 Clips

1. Manufacturer: Submit proposals.
2. Material
   2.1. Lead clips: Cut from sheets of same thickness/ code as sheet being secured.
   2.2. Stainless steel clips
      2.2.1. Thickness: 0.38 mm.
      2.2.2. Grade: BS EN 10088-1, 1.4301(304) terne-coated if exposed to view.
3. Dimensions
   3.1. Width: 50 mm where not continuous.
   3.2. Length: To suit detail.
4. Fixing clips: Secure each to substrate with either two screw or three nail fixings not more than 50 mm from edge of lead sheet. Use additional fixings where lead downstands exceed 75 mm.
5. Fixing lead sheet: Welt clips around edges and turn over 25 mm.

## 770 Wedge fixing into joints/ Chases

1. Joint/ chase: Rake out to a depth of not less than 25 mm.
2. Lead: Dress into joint/chase.
   2.1. Fixing: Lead wedges at not more than 450 mm centres, at every change of direction and with at least two for each piece of lead.
3. Sealant: Contractor's choice.
   3.1. Application: As section Z22.

## 780 Wedge fixing into damp-proof course joints

1. Joint: Rake/ cut out under damp-proof course to a depth of not less than 25 mm.
2. Lead: Dress lead into joint.
   2.1. Fixing: Lead wedges at not more than 450 mm centres, at every change of direction and with at least two for each piece of lead.
3. Sealant: Contractor's choice.
   3.1. Application: As section Z22.

# Jointing lead

## 810 Forming details

1. Method: Bossing or lead-welding except where bossing is specifically required.
2. Lead-welded seams: Neatly and consistently formed.
   2.1. Seams: Do not undercut or reduce sheet thickness.
   2.2. Filler strips: Of the same composition as the sheets being joined.
   2.3. Butt joints: Formed to a thickness one third more than the sheets being joined.
   2.4. Lap joints: Formed with 25 mm laps and two loadings to the edge of the overlap.
3. Bossing: Carried out without thinning, cutting or otherwise splitting the lead sheet.
   3.1. Details where bossing must be used: Not applicable.

## 860 Drips with splash laps

1. Underlap: Dress into rebate along top edge of drip.
   1.1. Fixing: One row of nails at 50 mm centres on centre line of rebate.
2. Overlap: Dress over drip and form a 40 mm splash lap.

## 862 Drips with splash laps

1. Underlap: Dress up full height of drip upstand.
   1.1. Fixing: Two rows of nails to lower level substrate, 25 mm and 50 mm from face of drip. At 75 mm centres in each row, evenly spaced and staggered. Seal over nails with a soldered or lead-welded dot.
2. Overlap: Dress over drip and form a 75 mm splash lap.
   2.1. Fixing: Lead clips, lead-welded to underlap, with not less than one per bay.

## 880 Welted joints

1. Joint allowance: 50 mm overlap and 25 mm underlap.
2. Copper or stainless steel clips: Fix to substrate at not more than 450 mm centres.
3. Overlap: Welt around underlap and clips and lightly dress down.

Ω End of Section

# J31
# Liquid-applied waterproof roof coatings

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Types of coating

### 130 Inverted roof coating

1. Manufacturer: Bauder Ltd.
2. Description: Hot liquid applied, inverted, hot melt structural waterproofing roof system suitable for new build and intensive green roof applications and used primarily on concrete decks.
3. Product reference: Bauder Bakor Hot Melt Inverted Roof System - Hot Applied.
4. Substrate: Structural Concrete Deck:
    - To ensure a finished surface with a zero fall, a design fall of 1:80 should be used and a detailed structural analysis should account for construction tolerances, settlement and deflection under load.
    - Where green roofs require positive deck falls this must be taken into account.
    - The design should take account of construction tolerances, permitted deviations and deflections under load, as per item 4.4 of BS6229:2018.
    - The maximum permissible departure from datum, in accordance with BS 8204-2:2003+A2:2011. Screeds, bases and in situ floorings and concrete wearing surfaces code of practice shall be SR2 (5 mm).
    - No hollows, deflections or back-falls, wood float finished and fully cured.
    - Preparation: As clauses 420, 710, 740 and 741.

    4.1. Preparation: Bauder Polymer Primer, applied to the roof substrate and all upstands and skirtings. For application method and guidance information, refer clause as clause 720.

    4.1.1. Skirtings and vertical work: As horizontal work.
5. Waterproof coating: Bakor 790-11 Hot Melt Rubberised Bitumen.

    5.1. Application: As clauses 721 and 760.
6. Reinforcement: Bauder Polyester Reinforcement Sheet.
7. Thickness: 6 mm in two 3 mm coats, plus protection sheet/ surfacing as described below.
8. Upstands and details: Upstand detailing to be formed in Bakor 790-11, as clause 770.
9. Protection layer to upstands and details: BauderFLEX K4E, torch-on capping sheet, 4 mm thick, 250 g/m² polyester reinforced, elastomeric bitumen (charcoal grey finish). To be rolled into the second layer of Bauder Bakor 790-11 hot melt rubberised bitumen coating while it is hot. Installation as Clause 770.
10. Protection layer to field area: Bauder AP1 Access Sheet, glass tissue based, modified bitumen, sand finished membrane. To be rolled into the second layer of Bauder Bakor 790-11 hot melt rubberised bitumen coating while it is hot. Installation as clause 780.
11. Insulation: BauderGLAS Inverted Insulation, as clause 337, with a pre-applied inorganic coating is suitable for flat roofs subject to permanent loads of up to 400KPa. 160 mm design thickness to achieve the required ‘U’ Value, as clause 230, or 180 mm design thickness including BS 6229:2018 advisory minimum 10%.
    Note: The above U-Value figures are based on the thermal conductivity achieved during the KIWA Certification process, resulting in differing values for soft/hard landscaping applications. This product has zero ODP and a Green guide rating of ‘A+’. Installation as Clause 810.

    11.1. Vertical upstands insulation: Install BauderGLAS Inverted Upstand Insulation, after the completion of the chosen Bauder Waterproofing System. The vertical upstands should be insulated, typically an external wall to a conditioned/ habited space will be insulated in its own right, e.g. a cavity wall, but there is still a requirement for a nominal thickness of insulation on the external face of the wall to reduce thermal bridging at the roof/ wall intersection.
    BauderGLAS Inverted Upstand Insulation will be used at thermal break abutment upstands, a minimum of 300 mm in height from the deck surface to the top of the upstand, where the upstand does not exceed 150 mm above the roof finishes and will be fitted before the flat insulation so that it is retained at the base by BauderGLAS Inverted Upstand Insulation. Installation as clause 811.

12. Water control/ filter layer: Bauder JFRI WFRL Membrane (Water Flow Reducing Layer). Installation as clause 816.
13. Surfacing: Stone ballast, as clause 365.
14. Accessories: Harmer two way outlet, as clause R10/ 365.
15. Additional requirements: As clauses 210, 230, 240, 310, 410, 411, 412, 413, 414, 910, 920 and 940.
16. Guarantee information: As clause 950.

## Performance

### 210 Roof performance

1. General: Firmly adhered, free-draining and weathertight.

### 230 Thermal performance

1. Requirement: Determine type and thickness of insulation and integral or separate overlay to satisfy the following criteria:
    1.1. Thermal transmittance of roof (maximum): 0.25 W/m²K.
    1.2. Substrate surface: Suitably even, stable and robust to receive roof coatings.
    1.3. Insulation compliance: To a relevant European Standard, or Agrément-certified.

### 240 Fire performance

1. Classification: Broof(t4) in accordance with BS EN 13501-5.

## Products

### 310 Ancillary products and accessories

1. Type: As per coating manufacturer's recommendations.

### 337 Cellular glass insulation boards

1. Manufacturer: Bauder Ltd
    1.1. Contact details
        1.1.1. Address: 70 Landseer Road
        Ipswich
        Suffolk
        IP3 0DH
        1.1.2. Telephone: +44 (0)1473 257671
        1.1.3. Web: www.bauder.co.uk
        1.1.4. Email: info@bauder.co.uk
    1.2. Product reference: BauderGLAS Inverted Insulation.
2. Standard: To BS EN 13167.
    2.1. Reaction to fire: To BS EN 13501-1, Class A1
    2.2. Thermal conductivity: 0.038 W/mK.
    2.3. Thickness: 160 mm.
3. Board density (minimum): 100 kg/m³.
4. Edges: To manufacturer's standard.
5. Facing: To manufacturer's standard.

## 340 Inverted roof insulation

1. Manufacturer: Bauder Ltd.
   1.1. Product reference: BauderGLAS Inverted Upstand Insulation.
2. Insulation: Cellular glass to BS EN 13167.
3. Reaction to fire: To BS EN 13501-1, Class A1.
4. Thermal conductivity: 0.038 W/mK.
5. Compressive strength (minimum): 400 kPa.
6. Thickness: 56 mm.

## 365 Stone ballast

1. Supplier: Submit proposals.
2. Type: Washed, round aggregate.
3. Size: Graded 20-40 mm, free from fines and sharps.
4. Colour: Natural, submit proposals.

## 390 Water flow-reducing layer

1. Manufacturer: Bauder Ltd
   1.1. Contact details
      1.1.1. Address: 70 Landseer Road
      Ipswich
      Suffolk
      IP3 0DH
      1.1.2. Telephone: +44 (0)1473 257671
      1.1.3. Web: www.bauder.co.uk
      1.1.4. Email: info@bauder.co.uk
   1.2. Product reference: BauderJFRI WFRL Membrane (Water Flow Reducing Layer)
2. Material: Polypropylene.
3. Purpose: Water flow reducing layer.
4. Performance characteristics
   4.1. Water vapour resistance (minimum): 0.011 MNs/g.
   4.2. Fire performance: Reaction to fire to BS EN 13501-1, Euroclass E.
5. Third-party certification: British Board of Agrément (BBA) certificate.
6. Form: Spun-bonded.
7. Physical properties
   7.1. Colour: White.
   7.2. Weight (minimum): 0.1 kg/m².
   7.3. Dimensions
      7.3.1. Thickness (minimum): 0.45 mm.
      7.3.2. Width (minimum): 2.7 m.
      7.3.3. Roll length (minimum): 100 m.

# Execution generally

## 410 Adverse weather

1. Do not apply coatings:

1.1. In wet conditions or at temperatures below 5°C, unless otherwise permitted by coating manufacturer.

1.2. In high winds (speeds >7 m/s), unless adequate temporary windbreaks are erected adjacent to working area.

2. Unfinished areas of roof: Keep dry.

## 411 General workmanship requirements

1. Installation of the Bauder waterproofing system may only be carried out by trained and certified operatives approved by Bauder Ltd and who carry current ID badges. These should be available for inspection at all times.
2. Workmanship must comply with current industry Codes of Practice (or alternatively Bauder Ltd's specification where otherwise stated). Non-compliant workmanship will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued.
3. All waterproofing materials and system components must be supplied by Bauder Ltd, unless otherwise stated. Any sub-standard materials or un-authorised alternatives will be rejected. Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System must be carried out by properly trained and qualified tradesmen.
4. Any structural damage, peculiarities or details discovered that might affect the performance of the Bauder system, should be reported immediately to the client's representative and Bauder Limited in order that they may assist in overcoming the problem.
5. Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the Bauder Site Technician until all associated trades are complete and the roof areas are clear from all debris and protection layers.
6. It is imperative that the Bauder Approved contractor conforms to the workmanship criteria as listed above. Any deviation will result in the contract being considered unguaranteeable.
7. All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and re-commissioned on completion of the roofing works in accordance with the client's detailed specification.
8. Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new waterproofing.
9. If any items of plant/equipment are to be situated on the finished roof, a sacrificial layer of Bauder capping sheet is to be loose laid beneath. This is to extend a minimum 25mm past the point of contact on all sides. In the case of heavy items it may be necessary to introduce a load-spreading slab, please contact Bauder for further advice.
10. All lead work to be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Sheet Manufacturer.

## 412 Site inspections

1. Bauder site technicians will carry out regular inspections of the project during the course of the works.
2. The approved contractor must make provision for and arrange that the roof is independently electronically leak tested and provide a certificate to Bauder Ltd on completion, as a prerequisite for guarantee.
3. Bauder must be notified when the roof is ready for final inspection and the electronic leak test conducted and all related works and snagging complete.
4. No insulation, ballasting or landscaping work should be installed until Bauder have carried out a final inspection to the waterproofing and have passed this as suitable for guarantee. In addition, electronic leak detection tests must have been carried out and the test reports provided to Bauder. It is the responsibility of the roofing contractor to advise and organise this inspection with

Bauder. Bauder cannot guarantee any waterproofing that has been insulated and/or landscaped without this inspection having been carried out and passed as acceptable.

## 413 Healthy and safety information

1. Follow the advice shown in the “Responsible Specification Checklist” produced by the National Federation of Roofing Contractors.
2. Suitable precautions must be taken to prevent accidents occurring when roofing systems are being installed.
3. The contractor must ensure that adequate measures are taken to effectively prevent injury to members of the public, contractors and any other persons who may be affected by the works including the public.
4. Where microwave equipment is installed at roof level, care must be taken to prevent persons working on the roof from being exposed to large doses of microwave radiation.
5. Similarly, the contractor should liaise with the client to ensure that there are no extract outlets situated on the roof where noxious or harmful emissions could affect persons working. Suitable precautions will be necessary to prevent exposure where this situation arises.
6. The contractor is responsible for providing adequate firefighting equipment in the form of extinguishers during work on the roof. These should be kept in easily accessible locations and be suitably signed.
7. Whenever possible, access to the roof should be made via internal staircases rather than by temporary means. Where this is not available, it is the responsibility of the contractor to ensure a safe means of access, egress and a safe workplace.
   As far as roofs are concerned, edge protection in the form of scaffolding or a fixed structure should be in place to a height of 1.1 metres in accordance with the Workplace (Health, Safety and Welfare) Regulations 1992.
   Failing this, the hierarchy of controls should be applied from the Work at Height Regulations 2005. Means of access should be by fixed ladder, passenger hoist or scaffolding.
8. The contractor must ensure that suitable written method statements and risk assessments are available for the work being undertaken. In particular, it is essential that manual handling methods be fully assessed as roofing materials are heavy and can cause serious injury.
9. The contractor must ensure that suitable information about the roof covering is provided to the Client at the end of the work to ensure that work in future can be carried out safely. This information will form part of the Safety File.
10. All persons working on the roof should be provided with, and wear, suitable personal protective equipment and wet weather gear. Training must be provided to all contract staff on the safe use of the equipment.
11. The installer must observe Product Safety Datasheets, relevant to the materials being used as well as completing and complying with COSHH risk assessments.
12. We draw your attention to your duties under the Construction (Design and Management) Regulations 2015. Regulation 4, Client’s duties in relation to managing projects states that the client must make suitable arrangements for managing a project, including the allocation of sufficient time and other resources. Regulation 5, Appointment of the Principal Designer and the Principal Contractor states that where more than one contractor will be working on a project at any time, the client must appoint a Principal Designer and a Principal Contractor.
    Please note that although Bauder will assist with the roof waterproofing system design, we will not undertake the role of Principal Designer.
13. It is always the responsibility of the contractor to carry out a risk assessment on all aspects of the contract. The ‘Safe2Torch’ checklist is solely for guidance for the safe installation of torch-on reinforced bitumen membranes and use of gas torches in the workplace.

## 414 Landscaped inverted roofs (related requirements)

1. The following are vital to the accurate pricing, correct installation, and ultimately the long-term life of an inverted roof, and must, therefore, be included within the specification and tender documents:

1.1. It is assumed that the architect or his advisors have satisfied themselves that the roof structure and deck are suitable to receive the dead load of the proposed roof system, both during construction and on completion of the works.

1.2. A planned or contractual delay between the installation of the waterproofing and insulation/ ballast finish will almost certainly necessitate additional/ increased protection to the waterproofing. This protection may be temporary or permanent. The responsibility and cost of this possible extra protection should be clearly included within the tender documents.

1.3. Correct detailing design and construction is essential to the long-term life of the roof. It is essential, therefore, that detail drawings illustrating for the construction are included with the tender documents, in order to enable the contractor to tender accurately.

1.4. The waterproofing should be taken up all abutment upstands, protrusions, etc. a minimum of 150 mm above finished surface level, i.e. top of the ballast.

## 420 Suitability of substrates

1. Substrates generally:

   1.1. Secure, clean, dry, smooth, free from frost, contaminants, loose material, voids, protrusions and organic growths.

   1.2. Compatible with coating system.

2. Substrate design: New concrete substrates and structures should be designed and constructed in accordance with:

   - BS EN 1992-1-1:2004 Eurocode 2: Design of concrete structures. General rules and rules for buildings (+A: 2014).
   - BS 8500-2:2015 Concrete - complimentary British Standard to BS EN 206. Specification for constituent materials and concrete (A2: 2019).
   - BS EN 206:2013 Concrete - Specification, performance, production and conformity.
   - The maximum permissible departure from datum, in accordance with BS 8204-2:2003+A2:2011. Screeds, bases and in situ floorings concrete wearing surfaces code of practice shall be SR2 (5 mm).

   NBS Reference

   - E10 - In situ Concrete
   - E20 - Formwork for In Situ Concrete
   - E30 - Reinforcement for In Situ Concrete
   - E60 - Precast Concrete Floors and Roof Decks
   - M10 - Cement Based Levelling and Wearing Screeds

3. Concrete density: In situ concrete density should be as per the concrete manufacturer's specification and no less than 1842 kg/m³ for hot melt applications.

4. Preliminary work: The new concrete to be allowed to cure thoroughly, remove rough edges and surface defects. Rough surfaces should be scarified or ground to achieve acceptable surface for waterproofing. Complete, including:

   4.1. Formation of upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.

   4.2. Application of surface screed to create falls, if specified, or to remove surface irregularities.

   4.3. Open concrete plank joints should be grouted with sand and cement prior to specified waterproofing installation.

   4.4. Voids, cracks, holes, honeycombs and other damaged horizontal or vertical surfaces shall be repaired or reinforced before application of the membrane.

   4.5. Fixing of battens, fillets and anchoring plugs/ strips.

5. Moisture content and stability:

   - Must not impair the integrity of roof with a target moisture content of ≤5%.
   - Concrete should be allowed to hydrate (cure) for 28 days (unless specific information is made available regarding variations in concrete specification and design). To avoid

premature drying out, employ measures to minimise early age thermal cracking. Surface shall be dry.

- In situ concrete placed into a vented profiled metal deck permanent shuttering may take a minimum of 60 days to cure.
- Precast concrete planks should be fully cured prior to delivery to site.
- A minimum of 14 days from concrete installation should be allowed before 'Peel Bond Tests' are carried out with Bauder in attendance. If successful adhesion tests are carried out in accordance with Bauder requirements, installation of the waterproofing system can commence. Further guidance is provided in BS 8217:2005 clause 5.1.2 and 6.7.

6. Surface applied curing compounds:
    - Details of Surface Applied Curing Compounds, sodium silicate preferred, proposed or used shall be provided to the Bauder Approved Contractor/ Bauder Technical Department to ensure compatibility with the waterproofing system specified. Please refer to BS 13670:2009. Other acceptable curing methods are water cure, wet coverings and plastic sheets.
    - Surface Applied Curing Compounds that have been used and identified as incompatible with the specified waterproofing system shall be removed via scarification or sandblasting or alternative method approved by Bauder Technical.
7. Concrete surface finish: Concrete surfaces shall be to a wood float, wood trowelled equivalent, broom or Bauder approved finish and uniform. Steel float finishes and overworking of the concrete can lead to laitance, which will need to be removed prior to priming. Please refer to the manufacturer's Installation and Quality Assurance Manual for important information.
8. Deck falls: Refer to clauses 110/ 120/ 130 above, where applicable, for roof specific requirements:
    - No deflections or back-falls shall be present.
    - Falls are to comply with the drainage requirements of BS 6229:2018 and current codes of practice BS 8217:2005.
    - The design should take account of construction tolerances, permitted deviations and deflections under load, as per item 4.4 of BS6229:2018.
    - An engineer's deflection analysis and site level survey should be consulted before commencement of waterproofing. Measures to rectify back-falls or deflection shall be undertaken by the deck installer/ supplier prior to commencement of the waterproofing system.
9. Priming: Before priming and application of the membrane, the substrate shall be clean and dry, free from surface water, ice, snow or frost, dust, dirt, oil, grease or any foreign matter detrimental to the adhesion of the waterproofing system. Any scaling or laitance on the surface of the concrete shall be removed either by scarification, grinding, sandblasting or other Bauder approved method.
10. Adhesion tests
    - 10.1. Requirement: Carry out a test to determine substrate suitability to receive the waterproofing system.
    - 10.2. Curing times: It is imperative that the concrete substrate is allowed to cure sufficiently as per above recommendations.
    - 10.3. Nature of test: The contractor shall carry out a "peel" bond test to each roof area to be prepared for waterproofing. The testing should be carried out well in advance of the actual application, in case any remedial treatment is required, or further curing is necessary.
    - 10.4. Test: Clean a small area of the substrate being tested (1 m²) by using a soft broom/ brush to remove any dirt/ debris from the surface. Dry surface as required. Apply the specified primer to the substrate (500 mm²) which must be allowed to dry as per Bauder recommendations. Once the primer has dried, apply approx. 3-4 mm of the specified Bakor 790-11 Hot Melt Compound (400 mm²) and Bauder Protection Layer (300 mm²) as per Bauder recommendations. Carry out Peel Bond Test once build up has cooled and is ready to be tested. Cut a triangular shaped incision through the Bauder Protection Layer in the central zone of the test patch. If the membrane/build-up can be peeled up easily from the substrate, then the substrate is not ready (adhesive failure). This could be due to the deck requiring

extra cure time or be an issue of contamination or laitance within the surface. If Bakor 790-11 can be seen to be bonded to the deck surface and underside of the Bauder Protection Layer and can only be pulled apart by a failure within the Bakor 790-11 itself (cohesive failure), then the bond is considered satisfactory.
(An extended Bauder Peel Bond Test procedure description is available as a .pdf on request).
Bauder recommends that a second Peel Bond Test is done 24/48 hrs after the first to confirm the security of the first test results.

10.5. Test results: Submit and arrange for inspection. We recommend that all Peel Bond Tests are recorded via photo or video referencing the location.

## Existing substrates - Not Used

## New substrates/ vapour control layers/ warm deck roof insulation - Not Used

## Roof coating system

### 710 Adhesion tests

1. Requirement: Carry out in advance of specified waterproofing installation a Peel Bond Test to determine priming requirements and/ or deck suitability for specified waterproofing installation.
2. Nature of test: The Bauder Approved Contractor shall carry out the Peel Bond Test to each roof area, (or a minimum of every 75-100 m²) prepared for waterproofing, by applying Bakor 790-11 hot rubberised bitumen to the deck to test for proper adhesion. This must be carried out strictly in accordance with Bauder requirements, as set out in the Bakor Installation and Quality Assurance Manual.
3. Test results: Recorded by the Bauder Approved Contractor for reference or inspected and recorded by a Bauder Site Technician at time of test.

### 720 Applying primers

1. Primer product: Bauder Polymer Primer.
2. Purpose: Quick drying substrate primer to seal and prepare dry surfaces of a variety of common substrate material prior to the application of the Bauder Bakor Hot Melt Waterproofing System.
3. Before application: All surfaces must be dry, clean and free from dust, dirt, oil, grease and loose material. Smooth metal to be prepared using a wire brush.
4. Application method: Bauder Polymer Primer to be sprayed, brushed, or roller-applied uniformly to all surfaces receiving the new waterproofing, avoiding excessive application. Ponding of the primer is not recommended. The primer shall be thoroughly dry before applying the hot melt rubberised bitumen coating. Allow to dry for a minimum of 30 minutes.
5. Application rate: Between 4-6 m² per litre, dependent upon substrate porosity.
6. Drying time: Approximately 30 minutes, dependent upon ambient temperature and substrate porosity.
7. Coats: Fully bonded. Allow volatiles to dry off thoroughly between coats
8. Re-application: Necessary after 24 hours exposure if waterproofing has not yet been applied to maintain adhesion performance.
9. Caution: Use only outdoors in well-ventilated areas or with respiratory apparatus and keep away from all sources of ignition. Take necessary precautions to avoid the solvent vapour from entering the building's ventilation system.

### 721 Applying membrane to details

1. Description: Waterproofing membrane to be applied to structural details first, i.e. upstands, outlets, cracks, etc., prior to the main field area is waterproofed.
2. Note there are optional build-ups that can be applied to the details. The choice for any specific location will be dependent on a number of criteria, i.e. project size, number of visits to site

required by the waterproofing contractor, construction sequence, etc. For specific details or features where the specified detailing is considered inappropriate and an alternative technique is required, then Bauder should be contacted first for approval.

## 740 Movement joints in substrate

1. Product: Bauder Neoprene Reinforcing Sheet.
2. For movement joints up to 12 mm: Bauder Neoprene Reinforcing Sheet bedded in a preliminary application of Bakor 790-11 coating applied 3 mm thick to a width of 150 mm on each side of the expansion joint. Apply reinforcement while coating is still hot to ensure full adhesion. Smooth out wrinkles and press into coating to exclude air. Lap joints in length, ensuring a minimum 50 mm overlap.
   The Bakor 790-11 system is then applied directly over the reinforcement strip as per specification.
3. For movement joints between 12-25 mm: Bauder Neoprene bedded in a preliminary application of Bakor 790-11 coating applied 3 mm thick to a width of 150 mm on each side of the joint. Bauder Neoprene is to be looped down into the movement joint to a depth of 1.5 times the width of the joint opening. This loop is filled with Bakor 790-11. Apply reinforcement while coating is still hot to ensure full adhesion. Smooth out wrinkles and press into coating to exclude air. Lap joints in length, ensuring a minimum 50 mm overlap.
   The Bakor 790-11 system is applied directly over the reinforcement strip as per specification.

## 741 Movement joints in substrate

1. Product: Bauder Polyester Reinforcement Sheet and Bauder Neoprene Reinforcing Sheet.
2. For cracks between 1.5 - 3.0 mm: Bauder Polyester Reinforcement Sheet bedded in a preliminary application of Bakor 790-11 coating applied 3 mm thick to a width of 150mm on each side of the crack. Apply 150 mm polyester reinforcement while coating is still hot to ensure full adhesion and partial bleed through of the bitumen. Smooth out wrinkles and press into coating to exclude air. Lap joints in length, ensuring a minimum 50 mm overlap. Polyester reinforcement sheet should be coated with Bakor 790-11 in the event of impending wet weather or if the waterproofing is not going to be applied same day.
   The Bakor 790-11 system is then applied directly over the reinforcement strip as per specification.
3. For cracks between 3.0 - 12.0 mm: Bauder Neoprene, 150 mm, bedded in a preliminary application of Bakor 790-11 coating applied 3 mm thick to a width of 150 mm on each side of the joint. Apply reinforcement while coating is still hot to ensure full adhesion. Smooth out wrinkles and press into coating to exclude air. Lap joints in length, ensuring a minimum 50 mm overlap.
   The Bakor 790-11 system is applied directly over the reinforcement strip as per specification.

## 750 Preliminary local reinforcement

1. Appropriate 150 mm wide reinforcement sheet (see below), applied centrally to the nick of the upstand i.e. taken 75 mm up the vertical and 75 mm out to the horizontal. Apply to all junctions at abutment upstands, penetrations and outlets, also to joints and fixings in discontinuous unit substrates. Bed in a preliminary application of Bakor hot melt coating. Smooth out wrinkles and press into coating to exclude air. Lap all joints between lengths.
2. Bauder Neoprene Reinforcing Sheet: To be used in all other situations, i.e. plywood or OSB substrates with abutment upstands, or kerbs constructed from the same material, timber or metal sheeting. This reinforcement must also be used at all outlets, penetrations, fixings, etc.
3. Bauder Polyester Reinforcement Sheet: Suitable with concrete decks where the upstand is either monolithically cast in situ, subsequently cast in situ or constructed from brick or blockwork.

## 760 Application of roof coatings

1. Apply first layer of Bakor 790-11 hot melt rubberised bitumen coating at a working temperature of between 180 °C - 200 °C evenly to the deck to a minimum depth of 3 mm. This layer of coating

must be lapped onto the previously installed detailing at all abutment upstands, outlets, protrusions, etc., in order to achieve a monolithic coating over the entire deck area.

2. Bauder Polyester Reinforcement Sheet to be rolled out and bedded into the Bakor 790-11 while it is still hot, to ensure it is fully bonded and ensuring partial bitumen bleed through. Overlaps to be a minimum of 10 mm wide, ensuring that a layer of hot melt membrane is present between the layers.
3. Apply second layer of Bakor 790-11 hot melt rubberised bitumen coating at a working temperature of between 180 °C - 200 °C, evenly onto the Bauder Polyester Reinforcement Sheet to a minimum depth of 3 mm, providing a total minimum monolithic waterproofing layer of 6 mm.
4. Thickness: Regular thickness tests must be undertaken (and recorded for reference), using an approved depth gauge.
5. Continuity: Maintain full thickness of coatings around angles, junctions and features.
6. Rainwater outlets: Form with watertight joints.
7. Drainage systems: Do not allow liquid coatings to enter piped rainwater or foul systems.

## 770 Skirtings and upstands

1. Preliminary reinforcement strip: The correct reinforcement strip must first be applied at all right-angled abutments, penetrations, outlets, fixings, etc. before the application of the Bakor 790-11 detailing (except for when the alternative two-layer SBS membrane system is used). Please see clause 750. If unsure about the correct reinforcing material for any given situation, please refer to the Bauder Installation and Quality Assurance Manual or contact Bauder's Technical Department for confirmation or further information.
2. Waterproofing application
    2.1. First layer: Bakor 790-11 hot melt rubberised bitumen membrane applied 3 mm thick up the upstands and out onto the deck a minimum of 200 mm.
    2.2. Second layer: Bakor 790-11 hot melt rubberised bitumen membrane onto the deck and upstand over the reinforcement layer, 3 mm thick up the upstands and out onto the deck a minimum of 200 mm ensuring to "feather" down towards the edge.
    2.3. Reinforcement: Bauder Polyester Reinforcement Sheet to be embedded into the first layer of Bakor 790-11, up the upstands, and dressed down and out onto the flat by 75 mm. Laps to be a minimum of 10 mm. The reinforcing sheet must be applied when the hot melt rubberised bitumen is still hot, in order to ensure a full adhesion and a partial bitumen bleed through.
    2.4. Protection layer to upstands: As specified above.
    2.5. Termination bar: Bauder Termination Bar to be used to fix the waterproofing and access/ protection, which terminates on a vertical plane. Fixings to be at a minimum 300 mm centres. Bauder Mastic Sealant to be applied in a neat bead both behind and along the top edge of the termination bar.
3. Top edges of coatings: Where not protected by flashings, apply into chases cut to a minimum depth of 10 mm.
4. Completion of chases: When coatings are fully cured, prepare chase by priming with Bauder Mastic Sealant primer and apply sealant as per manufacturer's instructions.
    4.1. Sealant: Bauder Mastic Sealant.
        4.1.1. Colour: Black.
5. Upstand details (minimum height): 150 mm, to be taken from the finished landscaped roof surface as opposed to the waterproofing surface. Special attention should be paid to all structures, such as rooflights, counter-flashings, window and door sills, pipes, etc. Bauder cannot take responsibility for water ingress over waterproofing details constructed below the recommended minimum height.
6. Level thresholds: Acceptable, providing conforms to BS6229:2018 and current NHBC Standards, chapter, 7.1.
    6.1. Requirements:

- Minimum 75 mm upstand height. (This must be taken from the waterproofing or top of the insulation if an inverted roof).
- Falls are directed away from the door sill.
- Waterproofing is dressed up and under the door sill. Prior to installation of the door frame, the membranes must be dressed up the reveal to a minimum 150 mm in height.
- Door sill has a minimum 45 mm overhang.
- Provision is made for emergency overflow to prevent water getting to the waterproofing and sill interface.

6.2. Other requirements: Any level threshold details not meeting this standard cannot be guaranteed by Bauder.
Note: Bauder recommends the installation of a linear drain and grill plate, BauderGREEN ER MR 150/60, in front of the access door threshold, to help prevent rainwater splash back and snow build-up.

### 780 Coating protection layer

1. Product: Bauder AP1 Access Sheet.
2. Location: All areas, excluding upstand and details.
3. Material: 1.5 mm thick, glass tissue based, modified bitumen access to be rolled into the second layer of Bakor 790-11 hot melt rubberised bitumen coating while it is hot to ensure a full bond. A wide headed brush used when rolling in will assist in avoiding wrinkles and prevent entrapping air bubbles.
4. Laps: All laps to be a minimum of 75 mm and properly sealed by ensuring that there is hot melt bitumen within the overlaps.

### 784 Roof drainage outlets

1. Product: As clause R10/ 365.

## Surfacing

### 810 Laying inverted roof insulation (field areas)

1. Product: BauderGLAS Inverted Insulation.
2. Preparation: Clear roof of other trades.
3. Condition of substrate: Clean.
4. Thermal requirements: In compliance with Part L of the current Building Regulations.
5. Separating later: Not applicable.
6. Setting out: Loose lay insulation directly over the Access/ Protection/ Root Barrier Layer to brick pattern with staggered joints. Minimise cutting and avoid small pieces at perimeters and penetrations. Dependent upon the total thickness required, it may be necessary to construct the insulation using two layers of board. The manufacturer/ supplier can advise on the available combination options.

   6.1. Joints: Butt together.
7. Projections, upstands, rainwater outlets, etc.: Cut insulation cleanly and fit closely around.
8. Completion:

   8.1. Boards in good condition, well-fitting and stable.

   8.2. Cover to prevent wind uplift and flotation as soon as practicable.
9. Loading over inverted insulation (minimum): Stone ballast should be installed onto the Bauder Water Flow-reducing Layer (WFRL) membrane to a minimum depth required to achieve a permanent 80 kg/m² minimum and load which prevents wind uplift and flotation of the insulation in high winds and/ or heavy rainfall.

10. Additional loading at perimeters: On high buildings in more exposed areas, wind uplift may be a problem, and in these instances paving slab ballast must be considered. Paving slabs should be a minimum of 50 mm thick. The slabs should be laid on paving slab supports of minimum 175 mm diameter (or equivalent base area), and preferably circular in shape.
11. All final details must to be confirmed with Bauder before proceeding.
12. Please refer to Bauder Inverted Insulation Product Data Sheet for further installation guidance.
13. Since the introduction of BS 6229:2018, an advice Note in clause 4.6.2.2 – Inverted Roofs suggests that it is prudent to increase the design thickness of the thermal insulation of an inverted roof where a Water Flow Reducing Layer (WFRL) is being relied upon by “not less than 10%”. We have therefore provided in our specification both the design thickness for your target U-value and the design thickness plus the advisory minimum 10% increase in thickness (in both cases rounded up to the nearest board size). To ensure comparable tendering we recommend that you should clearly state if you are following the advice in the BS 6229:2018 Clause 4.6.2.2 Note. Bauder Ltd is aware that a number of manufacturers may not be advising their clients of this.

## 811 Laying inverted roof insulation (vertical upstands)

1. Product: BauderGLAS Inverted Upstand Insulation.
2. Attachment/ installation sequence:
    2.1. Upstand board height to be no greater than 150 mm above finished landscape level.
    2.2. Generally, the upstand insulation should be installed first, so it can be wedged in position at the base by the boards subsequently applied to the flat areas.
    2.3. However, if there are two or more layers (multilayers) of insulation to the field areas, the bottom layer(s) of insulation can sit at deck level and the upstand board can be installed on top and then wedged into position using the uppermost layer of the insulation to the field area. The uppermost layer must be a minimum of 100 mm thick.
    2.4. Top edge of BauderGLAS Inverted Upstand Insulation should be protected by a suitable cover flashing.
    2.5. Non-solvent PU Adhesive should be used to restrain the BauderGLAS Inverted Upstand Insulation, if required.
    2.6. Insulation boards must be installed tightly butted together.
3. Multiple board layers: Where an additional later is required to achieve the required u-value, the additional layer should be BauderGLAS Inverted Upstand Insulation and adhered to the face of the BauderGLAS Inverted Upstand Insulation, using the recommended non-solvent PU Adhesive. Please refer to the Bauder Product Data Sheet for further information.
4. Upstands formed at insulated wall abutments: BauderGLAS Inverted Upstand Insulation to be used at thermal break abutment upstands, where the upstand does not exceed 150 mm above the roof finishes. Installation in accordance with the above instructions and those found on our BauderGLAS Inverted Upstand Insulation.

## 816 Water flow-reducing layer (WFRL) installation

1. Setting out: To be rolled out loose over the insulation. The material should be dressed up all upstand abutments and details to the height of the surfacing.
2. Laps: The material is to be lapped a minimum of 300 mm in a direction that helps shed water from the roof rather than beneath the membrane.
3. The ballast loading/ landscaping should be applied immediately after the vapour permeable membrane to ensure it is secure against wind uplift.

## 840 Laying stone ballast

1. Condition of substrate: Clean.
2. Gravel guards: Fit to outlets.
3. Drainage layer: BauderGREEN SDF.

4. Application: Do not pile to excessive heights. Avoid opening large ballast bags at height. Spread evenly.
5. Loading (minimum): Sufficient to provide 80 kg/m² loading (minimum depth of 50mm but dependent upon stone type and supplier).
6. Installation: 20 - 40mm rounded washed pebbles to be installed onto BauderGREEN SDF drainage layer at to a minimum required loading of 80 kg/ m² (or 50 mm minimum depth) which prevents wind uplift and flotation of the insulation in high winds and/ or heavy rainfall .
7. Additional loading at perimeters: On high buildings in more exposed areas, wind uplift may be a problem and in these instances paving slab ballast must be considered. Paving slabs should be a minimum of 50 mm thick. The slabs should be laid on paving slab supports of minimum 175 mm diameter (or equivalent base area).
   All final details must to be confirmed with Bauder before proceeding.

## Completion

### Disclaimer

1. Bauder reserves the right to amend information and product specifications without prior notice. All reasonable care has been taken to ensure that the information is current and correct at the time of issue. Please note that any future regulation changes could result in this specification requiring an update. In the case of a previous roof survey, a new survey will be necessary to establish if the condition has further deteriorated and therefore if the specification requires amendment. The specifier is responsible for ensuring that this specification information is still current prior to issue, as Bauder Ltd can accept no liability for any resulting errors or omissions. Any deviation or modification to this specification without Bauder's consent may result in the system not achieving the stated Fire Performance or Guarantee Requirements.

## 910 Inspection

1. Coating surfaces: Check when cured for pinholes and discontinuities.
   1.1. Defective areas: Apply another layer of coating.
2. Interim and final roof inspections: In accordance with the manufacturer's requirements for guarantee.
3. Notification for final inspection:
   3.1. Final inspection is a requirement for issue of the guarantee and must be carried out in strict accordance with Bauder Limited's requirements.
   3.2. The final inspection of the waterproofing and the electronic roof integrity test, as per clause 920, must be carried out and test certificate sent to Bauder prior to any landscaping products/ materials being installed. This is mandatory for the issue of the guarantee. Safe access to carry out this inspection must be provided.
   3.3. There are/ maybe further roof 'sign-off' inspections required to complete the roof(s) for this specification. If so, please note the below.
4. Other requirements: Refer to preliminaries/ general conditions.
5. If project needs to follow NHBC requirements: The waterproofing must be visually inspected and electronically tested for waterproofing integrity, faults rectified and retested prior to the installation of any landscaping products. The results of the test(s) should be made available to the NHBC.

## 920 Electronic roof integrity test

1. Timing of test: Immediately prior to installation of the landscaping.
2. Condition of roof prior to testing
   2.1. Coating: Complete to a stage where integrity can be tested.
   2.2. Surface: Clean.
3. Test results: Copy of reports to be retained as part of the project records.

4. Waterproof integrity certificate: Submit copy to Bauder for processing of guarantee, on completion of successful testing confirming waterproofing integrity.

## 940 Completion

1. Roof areas: Clean.
   1.1. Outlets: Clear.
   1.2. Flashings: Dressed into place.
2. Work necessary to provide a weathertight finish: Complete.
3. Storage of materials on finished surface: Not permitted.
4. Completed coatings: Protect against damage, from traffic and adjacent or high level working.

## 950 Guarantee

1. A 20-year system product and workmanship guarantee is to be provided upon completion following a Final Inspection by Bauder. Details regarding the full terms and conditions are available separately from Bauder Ltd upon request. The Bauder products must be installed by a Bauder Approved Contractor and the completed roof, subject to an electronic waterproofing integrity test by an approved and certified testing company that confirms the roof as issue-free and successfully watertight, before the installation of any surfacing. A copy of the testing certification must be forwarded to Bauder Ltd for approval prior to the guarantee being issued.

Ω End of Section

# J40
# Flexible sheet waterproofing/ damp-proofing

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## To be read with preliminaries/ general conditions.

### 110 Soft blinding to hardcore beds

1. Material: Pulverized fuel ash or soft sand.
   1.1. Thickness (minimum): 50 mm.
2. Finish on completion: Smooth, consolidated bed free of sharp projections.

## Types of tanking/ damp proofing

### 295 Geocomposite studded cavity drainage/ venting membrane

1. Manufacturer: Delta Membrane Systems Ltd
   1.1. Contact details
      1.1.1. Address: Delta House
      Merlin Way
      North Weald
      Epping
      Essex
      United Kingdom
      CM16 6HR
      1.1.2. Telephone: +44 (0)1992 523523
      1.1.3. Web: https://www.deltamembranes.com
      1.1.4. Email: info@deltamembranes.com
   1.2. Product reference: Delta Geo-Drain - Waterproofing And Drainage Membrane
2. Standards: To BS EN 13252.
3. Certification: CE marked.
4. Accessories: As per manufacturer's recommendations.
5. CompressiveStrength: 400 kN/m².
6. Installation depth: 10 m.
7. Service temperature range: -30°C to–+80°C.

### 297 Waterproofing/ damp-proofing/ gas-retardant membrane

1. Manufacturer: Delta Membrane Systems Ltd
   1.1. Contact details
      1.1.1. Address: Delta House
      Merlin Way
      North Weald
      Epping
      Essex
      United Kingdom
      CM16 6HR
      1.1.2. Telephone: +44 (0)1992 523523
      1.1.3. Web: https://www.deltamembranes.com
      1.1.4. Email: info@deltamembranes.com
   1.2. Product reference: Delta DualProof - Pre Applied Waterproofing Membrane (Machine direction (MD))
2. Material: Polypropylene.
3. Purpose: Protection layer.
4. Third-party certification: CE marked and DIN certified.
5. Performance characteristics

5.1. Tensile strength (minimum): 1254 N/50 mm.
5.2. Tear resistance: 641 N/50 mm.
5.3. Elongation to break: 110%.
5.4. Fire performance: To DIN EN ISO 11925-2 and EN 13501-1, class E.
6. Form: Woven.
7. Physical properties
7.1. Weight (minimum): 1470 g/m².
7.2. Dimensions
7.2.1. Thickness (minimum): 1.7 mm.
8. Watertightness: To DIN EN 1928 B: Watertight.
9. Resistance: Resistance to impact (to DIN EN 12691): Watertight.

## Workmanship

### 310 Workmanship generally

1. Condition of substrate
1.1. Clean and even textured, free from voids and sharp protrusions.
1.2. Moisture content: Compatible with damp-proofing/ tanking.
2. Air and surface temperature: Do not apply sheets if below minimum recommended by membrane manufacturer.
3. Condition of membrane at completion
3.1. Neat, smooth and fully supported, dressed well into abutments and around intrusions.
3.2. Completely impervious and continuous.
3.3. Undamaged. Prevent puncturing during following work.
4. Permanent overlying construction: Cover membrane as soon as possible.

### 320 Inspection

1. Give notice: Before covering any part of membrane with overlying construction.

### 345 Cold-applied bonding compounds

1. Type and application: As recommended for the purpose by the membrane manufacturer.

### 350 Angles in bonded damp-proofing/ tanking

1. Preformed rot-proof fillet to internal angles
1.1. Size (minimum): 50 x 50 mm, splay-faced.
1.2. Bedding: Bitumen mastic or bonding compound.
2. Reinforcing strip to all angles
2.1. Material: As damp-proofing/ tanking.
2.2. Width (minimum): 300 mm.
2.3. Timing: Apply before main sheeting.
3. Dressing of main sheeting onto adjacent surfaces (minimum): 100 mm.

### 360 Junctions with projecting dpcs/ cavity trays

1. Adjoining surfaces: Clean and dry.
2. Dpcs/ cavity trays: Lap and fully bond/ seal with sheeting.
2.1. Laps (minimum): 150 mm.

2.2. Bonding/ sealing: As per manufacturer's recommendations.

Ω End of Section

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

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

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

### 890 Calcium silicate boards

1. Description: To soffit, above door openings.
2. Substrate: Varies.
3. Board: Calcium silicate composition, non-combustible external board.
   - 3.1. Manufacturer/ Supplier: Promat UK
     - 3.1.1. Contact details
       - 3.1.1.1. Address: Passive Fire Protection
         Gordano House, Marsh Lane
         Easton-in-Gordano
         Bristol
         BS20 0NE
       - 3.1.1.2. Telephone: 0800 145 6033
       - 3.1.1.3. Web: https://www.promat.com/en-gb/construction/
       - 3.1.1.4. Email: technical@promat.co.uk
     - 3.1.2. Product reference: PROMATECT®-HD
   - 3.2. Colour/ Pattern/ Finish: As per manufacturer's standard.
   - 3.3. Thickness: 9 mm.
   - 3.4. Fire performance
     - 3.4.1. Reaction to fire: Class A1 reaction to fire to BS EN 13501-1.
     - 3.4.2. Resistance to fire: As per manufacturer's standard.
   - 3.5. Edges: Square.
4. Setting out: Long edges running along supports.
   - 4.1. Gap between adjacent boards: None permitted.
5. Fixing to supports
   - 5.1. Fasteners: As per manufacturer's standard.
   - 5.2. Fixing centres (maximum):
   - 5.3. Around board edges: As per manufacturer's standard.
   - 5.4. Fixing distance from edges (minimum): As per manufacturer's standard.
6. Joint treatment: As per manufacturer's standard.

## 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.

### 930 Additional supports

1. Additional studs, noggings/ dwangs (Scot) and battens
   - 1.1. Provision: In accordance with board manufacturer's recommendations and as follows:
     - 1.1.1. Tongue and groove jointed rigid board areas: To all unsupported perimeter edges.
     - 1.1.2. Butt jointed rigid board areas: To all unsupported edges.
   - 1.2. Size: Not less than 50 mm wide and of adequate thickness.

1.3. Quality of timber: As for adjacent timber supports.

1.4. Treatment (where required): As for adjacent timber supports.

## 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.

## 980 Open joints

1. Perimeter joints, expansion joints and joints between boards: Free from plaster, mortar droppings and other debris.
2. Temporary wedges and packings: Removed on completion of board fixing.

Ω End of Section

# L10
# Windows/ rooflights/ screens/ louvres

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## General

### 110 Evidence of performance

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

### 120 Pre-construction survey

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

### 140 Control samples

1. Procedure
   1.1. Finalize component details.
   1.2. Fabricate one of each of the following designated items as part of the quantity required for the project.
   1.3. Obtain approval of appearance and quality before proceeding with manufacturer of the remaining quantity.
2. Designated items: Refer to drawing 4270.

## Products

### 650 Metal pressure vents with weather louvres

1. Manufacturer: AFP Air Tech Ltd.
   1.1. Product reference: SHX-UN700 Universal Pressure Vent.
2. Material: Steel.
   2.1. Finish as delivered: Powder-coated, submit proposals.
3. Fire performance: Manufacturer's standard to BS EN 1363-1 / 1364-1.
4. Number of louvre banks: Refer drawings.
5. Louvre blade pitch and angle: Manufacturer's standard.
6. Accessories/ other requirements: External weather louvre.
   6.1. Product reference:: DWL700 Dynamic Weather Louvre.
   6.2. Material: Steel.
   6.3. Finish as delivered: Powder-coated, submit proposals.
7. Fixing: Manufacturer's standard.

## Execution

### 710 Protection of components

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

## 765 Window installation generally

1. Installation: Into prepared openings.
2. Gap between frame edge and surrounding construction
   2.1. Minimum: 2 mm.
   2.2. Maximum: 5 mm.
3. Distortion: Install windows without twist or diagonal racking.

## 770 Damp-proof courses in prepared openings

1. Location: Ensure correct positioning in relation to window frames. Do not displace during fixing operations.

## 781 Fixing of steel frames

1. Standard: As section Z20.
2. Fasteners: As per manufacturer's recommendations.
   2.1. Spacing: When not pre-drilled or specified otherwise, position fasteners not less than 50 mm and not more than 190 mm from ends of each jamb, adjacent to each hanging point of opening lights and at maximum 900 mm centres.

## 790 Fire-resisting frames

1. Gap between back of frame and reveal: Completely fill with intumescent mastic or tape.

## 810 Sealant joints

1. Sealant
   1.1. Manufacturer: Contractor's choice.
      1.1.1. Product reference: Contractor's choice.
   1.2. Colour: To closely match window/ vent frame's finish colour.
   1.3. Application: As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.

## 820 Ironmongery

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

Ω End of Section

# L20
# Doors/ shutters/ hatches

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## General

### 110 Evidence of performance

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

### 112 Timber procurement

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

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

1. UKCA/ UKNI/ CE marked fire-resisting and smoke control pedestrian doorsets: To BS EN 16034 and in conjunction with BS EN 13241, BS EN 14351-1 and BS EN 14351-2.
2. Door products: As defined in BS EN 12519.
3. Evidence of fire performance: Provide certified evidence, in the form of a product conformity certificate, directly relevant fire test report or engineering assessment, that each door/ door assembly/ doorset supplied will comply with the specified requirements for fire-resisting and/ or smoke control if tested to BS 476-22, BS EN 1634-1, BS EN 1634-3 or is UKCA/ UKNI/ CE marked to BS EN 16034. Specified values should not be a combination of both standards. Such certification must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.
4. Components, assemblies or sets will be marked to the relevant UKCA/ UKNI/ CE marking European product standard (hEN), national product standard and/ or third-party certification rating.

### 120 Non-fire-resisting pedestrian doors/ door assemblies/ doorsets

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

### 150 Site dimensions

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

## 170 Control samples

1. Procedure
   1.1. Finalize component details.
   1.2. Fabricate one of each of the following designated items as part of the quantity required for the project.
   1.3. Obtain approval of appearance and quality before proceeding with manufacture of the remaining quantity.
2. Designated items: Refer to drawing 4270.

# Products

## 410 Wood doorsets

1. Description: Non-fire rated external doorset to 1A Montague Street.
2. Manufacturer: Contractor's choice.
3. Door leaf: Solid core door leaf with 8 panels with stud details to match adjacent door leaf at 1A Montague Street.
4. Core: Manufacturer's choice.
5. Thickness: Submit proposals, to match adjacent door.
6. Facings: Submit proposals.
7. Lippings: Concealed lippings to long edges.
8. Finish as delivered: Prepared and primed, as section M60
9. Frame and architraves
   9.1. Type: Square profile, to match adjacent door's details.
10. Wood species: Submit proposals.
11. Finish as delivered: Paint finish, as clause M60/ 130.
12. Beading: Internal, to match adjacent door.
13. Ironmongery: As Ironmongery Schedule.
14. Perimeter seals: EPDM weatherseal.
15. Fire performance
    15.1. Fire resistance: Manufacturer's standard.
    15.2. Smoke leakage: Manufacturer's standard.
    15.3. Reaction to fire: Not required.
16. Other requirements: Contractor to submit a full shop drawing based on an on-site survey of the adjacent existing doorset. Solid overpanel to be replicated, dimensions to match adjacent doorset. Existing inward opening door frame details to be adapted as required for proposed outward opening door. Doorset to be coordinated with locking requirements set out by the UKPN.
17. Fixing: Plugged and screwed.

## 480 Steel external doorsets, single

1. Description: Fire and blast resistant, 4 hour fire rated, steel composite door.
2. Manufacturer: Sunray Doors Ltd.
   2.1. Contact details
      2.1.1. Address: Kingsnorth Industrial Estate
      Wotton Road
      Ashford, Kent
      TN23 6LL
      2.1.2. Telephone: 01233 639039

2.1.3. Web: www.sunraydoors.co.uk

2.1.4. Email: sales@sunraydoors.co.uk

2.2. Product reference: FireLock® Door.

3. Standard: Fire resistant to BS 476 Part 22, 1987 and blast resistant to 37kN/m² per UKPN's specification.
4. Dimensions and configurations: Standard single "SM" with structural opening of 798 x 2175 mm high to UKPN's specifications.
5. Door leaf: Type SM, single leaf door. 6 mm mild steel plate with 100 x 6 mm flat bar, welded to both sides to give strength and rigidity.
6. Frame and architraves: Heavy duty angle frame, 80 x 80 x 8 mm mild steel angle to all four sides with 100 mm lugs on the inside to fixing into the structure (fixings supplied).
7. Finishes: One coat of red oxide primer, to manufacturer's standard, ready for onsite finishing after installation by others.
8. Ironmongery: Manufacturer's standard and UKPN's specifications, to include a multi-point and panic bar system with Sunray 6000 hasp and staple externally. Internal three-point operation, heavy duty mild steel locking assembly secured by external padlockable handle or alternatively padlocked internally without external access.
9. Perimeter seals: Frame to be sealed with manufacturer
approved fire retardant mastic sealant
Everbuild fire sealant 400.
10. Fixing: Doorsets are supplied with fixings, including sleeve anchors.
Door frames second fixed within structural openings using packing shims and expansion anchors to masonry/ concrete openings.
Two heavy duty rising butt hinges with one plain hinge to ensure closure of the active leaf. All hinges are welded into position, assembled and tested prior to leaving the factory.
11. Other requirements: Required statutory signage to be allowed for, to comply with the Electricity Safety, Quality and Continuity Regulations 2002 and UKPN requirements.

## 481 Steel external doorsets, double

1. Description: Fire and blast resistant, 4 hour fire rated, steel composite door.
2. Manufacturer: Sunray Doors Ltd.

2.1. Contact details

2.1.1. Address: Kingsnorth Industrial Estate
Wotton Road
Ashford, Kent
TN23 6LL

2.1.2. Telephone: 01233 639039

2.1.3. Web: www.sunraydoors.co.uk

2.1.4. Email: sales@sunraydoors.co.uk

2.2. Product reference: FireLock® Door.

3. Standard: Fire resistant to BS 476 Part 22, 1987 and blast resistant to 37kN/m² per UKPN's specification.
4. Dimensions and configurations: Standard double "DM" with structural opening of 1585 x 2175 mm high to UKPN's specifications.
5. Door leaf: Type DM, double leaf door. 6 mm mild steel plate with 100 x 6 mm flat bar, welded to both sides to give strength and rigidity.
6. Frame and architraves: Heavy duty angle frame, 80 x 80 x 8 mm mild steel angle to all four sides with 100 mm lugs on the inside and a heavy duty channel mullion, bolted into place. Inactive door leaves also bolted onto the mullion using fixings supplied.
7. Finishes: One coat of red oxide primer, to manufacturer's standard, ready for onsite finishing after installation by others.

8. Ironmongery: Manufacturer's standard and UKPN's specifications, to include a multi-point and panic bar system with Sunray 6000 hasp and staple externally. Internal three-point operation, heavy duty mild steel locking assembly secured by external padlockable handle or alternatively padlocked internally without external access.
9. Perimeter seals: Frame to be sealed with manufacturer approved fire retardant mastic sealant
   Everbuild fire sealant 400.
10. Fixing: Doorsets are supplied with fixings, including sleeve anchors.
    Door frames second fixed within structural openings using packing shims and expansion anchors to masonry/ concrete openings.
    Two heavy duty rising butt hinges with one plain hinge to ensure closure of the active leaf. All hinges are welded into position, assembled and tested prior to leaving the factory.
11. Other requirements: Required statutory signage to be allowed for, to comply with the Electricity Safety, Quality and Continuity Regulations 2002 and UKPN requirements.

## Execution

### 710 Protection of components

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

### 730 Priming and sealing

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

### 750 Fixing doorsets

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

### 760 Building in

1. General: Not permitted unless indicated on drawings.

### 780 Damp-proof courses in prepared openings

1. Location: Correctly positioned in relation to door frames. Do not displace during fixing operations.

### 790 Fixing of wood frames

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

### 800 Fixing of loose thresholds

1. Spacing of fixings: Maximum 150 mm from each end and at 600 mm maximum centres.
2. Position and level: Ensure threshold is level and square to door frame and leaf.
3. Sealing: Ensure that voids are minimal and are sealed adequately.

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

1. Installation: By a firm currently registered under a third-party-accredited fire door installer scheme in accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.

## 810 Fire-resisting and smoke control doors/ door assemblies/ doorsets/ roller shutters and curtains – contractor-installed

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

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

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

## 820 Sealant joints

1. Sealant
   1.1. Manufacturer: Submit proposals.
      1.1.1. Product reference: Submit proposals.
   1.2. Colour: To closely match adjacent door frame's finish colour.
   1.3. Application: As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.
   1.4. Fire performance: To BS 8214:2016, 120 minutes with smoke control.

## 830 Fixing ironmongery generally

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

## 840 Fixing ironmongery to fire-resisting door assemblies

1. General: All items fixed in accordance with door leaf manufacturer's recommendations ensuring that integrity of the assembly, as established by testing, is not compromised.
2. Holes for through fixings and components: Accurately cut.
   2.1. Clearances: Not more than 8 mm unless protected by intumescent paste or similar.
   2.2. Lock/ latch cases for fire doors requiring >60 minutes integrity performance: Coated with intumescent paint or paste before installation.

## 850 Location of hinges

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

## 860 Installation of emergency and panic exit devices

1. Standard: Unless specified otherwise, install an internal multi-point/ three-point locking panic bar system fitted to manufacturer's standard.

Ω End of Section

# L35
# Fixed utilitarian access systems

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## General

### 140 Walkway system

1. Description: To floor areas above the electrical trenches.
2. Method of provision: Proprietary prefabricated
3. Dimensions: As drawing
4. Basic component material: Galvanized carbon steel.
5. Decking: Solid top GRP grating panels, as clause 470.
6. Assembly connectors: Submit proposals, as per manufacturer's recommendations.
7. Fixing to superstructure: Submit proposals.

## System performance

### 212 Contractor's design

1. Design responsibility: Determine section and panels sizes and strengths and type, sizes and numbers of fixings
2. Structural requirements:
   - 2.1. Generally: As section B50.
     - 2.1.1. Modifications: To UKPN's requirements.
   - 2.2. Design: Complete in accordance with the designated code of practice to satisfy specified performance criteria.
3. Functional requirements: Walkway to interface with incoming and connecting services at low level below structural slab within electrical trenches.
4. Design and production information: As Preliminaries section A31.
5. Timing of submissions: As Preliminaries section A31.
6. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

### 214 Completion of design

1. Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
   - 1.1. Standards: To UKPN's requirements.
2. Structural requirements:
   - 2.1. Generally: As section B50.
   - 2.2. Design: Complete in accordance with the designated code of practice to satisfy specified performance criteria.

## Products

### 470 Solid GRP gratings

1. Manufacturer: Lionweld Kennedy Group
   - 1.1. Contact details
     - 1.1.1. Address: Marsh Road
       Middlesbrough
       Cleveland
       TS1 5JS
     - 1.1.2. Telephone: +44 (0)1642 245151
     - 1.1.3. Web: www.lk-uk.com
     - 1.1.4. Email: sales@lk-uk.com

1.2. Product reference: Flowdeck 41.

2. Panels: Solid gritted top gratings.
   2.1. Thickness: 41 mm.
3. Solid plates: To BS 4592-5.
4. Finish: Anti-slip.
   4.1. Colour: Submit proposals, to UKPN's specifications.
5. Fixings: As section Z20.
6. Other requirements: Grating covers are sized to be individually lifted without binding against adjacent covers and shall have a maximum individual weight of 18 kg with 100 x 30 mm hand hole at each end for lifting.

## Fabrication

### 510 Fabrication generally

1. Shop drawings: Submit.

## Execution

### 620 Execution generally

1. Structural members: Do not subject to nondesign loading. Do not modify, cut, notch or make unspecified holes.
2. Frameworks: Assemble and brace, including temporary members required for installation.
   2.1. Temporary support: Do not use access systems as temporary support or strutting for other work.
3. External durability of fastenings: Corrosion resistant material or with a corrosion resistant finish.
4. Bolted joints
   4.1. Contact between dissimilar metals: Avoid.
   4.2. Bolts and washers: Select types, sizes and quantities of fasteners or packings and spacings to retain supported components without distortion or loss of support.
5. Welded joints
   5.1. Standards
      5.1.1. Aluminium alloys: TIG or MIG welding to BS EN 1011-4.
      5.1.2. Carbon steel: Metal arc welding to BS EN 1011-1 and -2.
      5.1.3. Stainless steel: TIG welding to BS EN 1011-3.
   5.2. Surfaces to be jointed: Clean.
   5.3. Tack welds: Use only for temporary attachment.
   5.4. Traces of flux residue, slag and weld spatter: Remove.
   5.5. Surface of welds: Grind smooth.
   5.6. Joints: Fully bonded with no holes of cracks.
6. Finished components
   6.1. Free: From distortion, cracks, burrs and sharp arrises.
   6.2. Corner junctions of identical sections: Mitre.
   6.3. Handrails: Smooth and continuous, with no sharp edges.

### 660 Anchoring

1. Fixing positions: Coordinate location of holding down bolts and wall fixings with services fixing positions.

2. Edge distance and spacing (minimum): Unless otherwise specified, locate anchors to permit the development of their full shear and pull out capacities.

## Completion

### 910 Cleaning

1. General: Clean surfaces and wipe down finishes.

### 920 Inspection

1. Notice for inspection (minimum): 3 days.

### 930 Documentation

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

Ω End of Section

# M10
# Cement based levelling/ wearing screeds

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Types of screed

### 115 Cement:sand levelling screeds

1. Substrate: In situ concrete slab.
2. Screed construction: Bonded.
3. Thickness
   3.1. Nominal: 50 mm, refer to drawings. Flowcrete Heavy Duty Isocrete K-Screed or similar approved with bonding agent to manufacturer's recommendations.
4. Mix
   4.1. Proportions (cement:sand): 1:3-4.5.
5. In situ crushing resistance (ISCR) category: A (3 mm maximum indentation).
6. Flatness/ Surface regularity class: SR1.
7. Finish: Smooth floated, as clause 530.
   7.1. To receive: Resin-based coating, as clause M60/ 180.
8. Other requirements: Movement joints, to manufacturer's recommendations and British Standards, and to be agreed with subcontractor and CA prior to works commencing.

## Generally/ preparation

### 205 Design life of screeds

1. Duration: 70 years.
   1.1. Subject to reasonable wear and tear.
2. Location: All areas.
3. Condition of use: Subject to correct loading and traffic usage throughout duration.

### 210 Suitability of substrates

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

### 215 Surface hardness of substrates to receive polymer modified wearing screeds

1. General: Substrates must restrain stresses that occur during setting and hardening of wearing screeds.
2. Test for surface hardness: To BS EN 12504-2 using a rebound hammer with compliance values as follows:
   2.1. Rebound hammer value (minimum)
      2.1.1. Screed thickness 15 mm or less: 25.
      2.1.2. Screed thickness greater than 15 mm: 30.
3. Report: Submit details of areas where substrate surface hardness does not comply with these values.

## 220 Proprietary levelling/wearing screeds

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

## 230 Control samples

1. General: Complete areas of finished work and obtain approval of appearance before proceeding.
2. Screed type: As clause M10/115.

## 250 Conduits under floating screeds

1. Haunching: Before laying insulation for floating screeds, haunch up in 1:4 cement:sand on both sides of conduits.

## 251 Conduits cast into or under screeds

1. Reinforcement: Overlay with reinforcement selected from:
   1.1. 500 mm wide strip of steel fabric to BS 4483, reference D49, or
   1.2. Welded mesh manufactured in rolls from mild steel wire minimum 1.5 mm diameter to BS 1052, mesh size 50 x 50 mm.
2. Placing reinforcement: Mid depth between top of conduit and the screed surface.
   2.1. Width of reinforcement (minimum): 300 mm.
3. Screed cover over conduit (minimum): Refer to drawing 4174, as per UKPN's requirements.

## 255 Pipe ducts/ trunking

1. Preformed access ducts: Before laying screed, fix securely to substrates and level accurately in relation to finished floor surface.

## 260 Fully bonded construction

1. Preparation: Generally in accordance with BS 8204-1.
2. Removing mortar matrix: Shortly before laying screed, expose coarse aggregate over entire area of hardened substrate.
3. Texture of surface: Suitable to accept screed and achieve a full bond over complete area.
4. Bonding coat: Manufacturer's standard.

## 270 Partially bonded construction

1. Preparation: Generally in accordance with BS 8204-1.
2. Substrate surface: Brushed finish with no surface laitance.
   2.1. Texture of surface: Suitable to accept screed and achieve a bond over complete area.
3. Bonding coat: Manufacturer's standard.

## 280 Unbonded construction

1. Separation: Lay screed over a suitable sheet dpm or a separating layer.
   1.1. Type: Manufacturer's standard.
2. 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.

## Batching/ mixing

### 302 Cements

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

### 305 Aggregates

1. Sand: To BS EN 13139.
   1.1. Grading limits: In accordance with BS 8204-1, Table B.1.
2. Coarse aggregates for fine concrete levelling screeds
   2.1. Standard: To BS EN 12620.
   2.2. Designation: 4/10.
3. Lightweight aggregates: In accordance with BS 8204-1, Annex A.

### 307 Admixtures

1. Standard: In accordance with BS 8204-1, Table 1.
2. Calcium chloride: Do not use in admixtures.

### 310 Batching with dense aggregates

1. Mix proportions: Specified by weight.
2. Batching: Select from:
   2.1. Batch by weight.
   2.2. Batch by volume: Permitted on the basis of previously established weight:volume relationships of the particular materials. Use accurate gauge boxes. Allow for bulking of damp sand.

### 311 Batching with lightweight aggregates

1. Standard: In accordance with BS 8204-1, Annex A.
2. Mix proportions: Specified by volume.
3. Batching: Use accurate gauge boxes.

### 330 Mixing

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

### 335 In situ crushing resistance (ISCR)

1. Standards and category: In accordance with BS 8204-1, table 4.
   1.1. Testing of bonded and unbonded screeds: To Annex D.
   1.2. Testing of floating levelling screeds: To Annex E.

### 340 Adverse weather

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

## Laying

### 350 Screeding to falls

1. Minimum screed cover: Maintain at the lowest point.
2. Falls: Gradual and consistent.
   2.1. Gradient (minimum): Refer to drawings.

### 351 Screeding to ramps

1. Screed cover: Thickness varies, screed to falls of 1 in 12 minimum.
2. Falls: Gradual and consistent.

### 355 Flatness/ Surface regularity of floor screeds

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

### 365 Flatness/ Surface regularity of roof screeds

1. Sudden irregularities: Not permitted.
2. Deviation of surface: Measure from underside of a 2 m straightedge (between points of contact), placed anywhere on surface.
   2.1. Permissible deviation (maximum): 6 mm.

### 375 Compaction of screeds

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

### 460 Strip movement joints

1. Description: Where required.
2. Manufacturer: Contractor's choice.
   2.1. Product reference: Submit proposals.
   2.2. Size: 5 mm.
3. Installation: Set securely into screed to exact finished level of floor. Extend joints through to substrate.
   3.1. Secure fixing to substrate: To manufacturer's recommendation.

## Finishing/curing

### 510 Finishing generally

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

### 520 Wood floated finish

1. Finish: Slightly coarse, even texture with no ridges or steps.

## 530 Smooth floated finish

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

## 550 Trowelled finish to wearing screeds

1. Floating: To an even texture with no ridges or steps.
2. Trowelling: Successively trowel at intervals, applying sufficient pressure to close surface and give a uniform smooth finish free from trowel marks and other blemishes.

## 650 Curing

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

## 680 Surface sealer to wearing screed.

1. Manufacturer: Watco UK Ltd
   1.1. Contact details
      1.1.1. Address: 195-205 Eastgate Court
      Guildford
      Surrey
      United Kingdom
      GU1 3AW
      1.1.2. Telephone: +44 (0)1483 418418
      1.1.3. Web: www.watco.co.uk
      1.1.4. Email: sales@watco.co.uk
   1.2. Product reference: Universal Sealer Dustproofer
2. Composition: Water-based micronised acrylic.
3. Wet film thickness (minimum): 160 microns.
4. Coverage: 30 m² per 5 L.
5. Volatile organic compound (VOC) level: 10 g/L.

Ω End of Section

# M20
# Plastered/ rendered/ roughcast coatings

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Types of coating

### 160 Proprietary cement gauged render

1. Description: Two-pass, thorough-coloured render.
2. Manufacturer: Saint-Gobain Weber.
3. Contact details
   - 3.1. Address: Dickens House
     Enterprise Way
     Flitwick
     Bedfordshire
     MK45 5BY
   - 3.2. Telephone: +44 (0)1525 718877
   - 3.3. Web: www.uk.weber
   - 3.4. Email: specifications@netweber.co.uk
4. Product reference: Weberpral M.
5. Substrate: Masonry cavity walls.
   - 5.1. Preparation: In accordance with manufacturers instructions. Allow for cleaning and removal of loose debris. Background to be cleaned and free from any contaminants that may prevent a satisfactory bond and adhesion to wall/ substrate.
6. Thickness:: 10 and 25 mm, refer drawing 4070.
7. Glass fibre reinforcement: Weber standard meshcloth.
8. Surface treatment: To manufacturer's recommendations.
9. Accessories/ Other requirements: To manufacturer's recommendations.
10. Coverage: 21 kg/m² at 15mm application dependent.
11. Curing time: Curing with a fine spray of clean water may be necessary during rapid drying conditions, In hot climates curing as above is essential for 3 – 5 days after application.
12. Type: Scraped finish to create architectural grooves/ Ashlar recesses.
13. Fire performance:: A1 Non combustible.
14. Application: Strictly follow installation procedures as defined by manufacturer.
15. Finish: Paint finish as per clause M60 /171.

### 330 Lime render

1. Substrate: Existing masonry and/ or waterproofing membrane generally.
   - 1.1. Preparation: All surfaces must be clean, suitably dry, sound and free from anything that may interfere with the adhesion of the material to be applied. Read fully and take particular note of the product data sheets and follow the surface preparation and suitability checks in full. All brick, stone blockwork mortar joints are to be flush pointed and should have a minimum of 7 days curing allowed before the application of the render. Could be done with EcoMorta ® Base coat. During prolonged wet spells this period is likely to increase. If the render is applied onto wet mortar joints there is a possibility of the joint lines showing through the render finish.
     It has been assumed in the preparation of this specification that the existing substrate is well constructed brickwork and there are no surface defects, delamination or cracks. Where cracks are evident the application company must be satisfied these have been dealt with in the appropriate manner.
2. Manufacturer: Saint-Astier®
3. Contact details
   - 3.1. Address: 75 Cowcross Street
     LONDON

United Kingdom
EC1M 6EL

3.2. Telephone: +44 7534 806947

3.3. Web: https://www.stastier.co.uk/

3.4. Email: contact_uk@saint-astier.com

4. Suction control: Submit proposals of stipple key, as per clause 538, if necessary.
5. Mesh reinforcement: As per clause 648.
6. Undercoats: Dry mix coat render/ mortar, as per clauses 538 and 725.
   6.1. Product reference/ Type: EcoMortar® Base.
   6.2. Thickness (excluding dubbing out and keys): As existing and to manufacturer's recommendations, taking into considerations the final coat to match existing depth of plaster on walls adjacent.
7. Final coat: Dry mix coat render/ mortar, as per clause 777.
   7.1. Product reference: EcoMortar® Finish.
   7.2. Thickness: As existing and to manufacturer's recommendations, taking into considerations the final coat to match existing depth of plaster on walls adjacent.
   7.3. Finish: To match existing.
8. Finish: Apply silicate-based masonry paint finish, as per clause M60/ 172.
9. Other requirements: Overall build up, including final coat, to match existing depth of plaster on walls adjacent. Do not decorate renovating plaster within 24 hours of application of final coat.

## General

### 413 Samples

1. General: Provide representative samples of the following: 160 and 330 for approval.

### 418 Control samples

1. Complete sample areas, being part of the finished work, in locations as follows: As clause M20/ 160, refer to drawing 4270.

### 421 Scaffolding

1. General: Prevent putlog holes and other breaks in coatings.

### 424 Special protection of historic plasterwork

1. General: Prevent damage and disturbance to retained plasterwork.
2. Protection methods: Submit proposals.

## Materials and marking of mortar

### 430 Ready-to-use cement gauged mortars

1. Time and temperature limitations: Use within limits prescribed by mortar manufacturer
   1.1. Retempering: Restore workability with water only within prescribed time limits.

### 438 Cements for mortars

1. Cement: To BS EN 197-1.
   1.1. Types: Portland cement, CEM I.
2. Portland slag cement, CEM II.
3. Portland fly ash cement, CEM II.

3.1. Strength class: 32.5, 42.5 or 52.5.

4. White cement: To BS EN 197-1.
   4.1. Type: Portland cement, CEM1.
   4.2. Strength class: 52.5.
5. Sulfate resisting Portland cement: To BS EN 197-1.
   5.1. Strength class: 42.5.

## 440 Sand for cement gauged mortars

1. Standard: To BS EN 13139.
   1.1. Grading: 0/2 or 0/4 (CP or MP); Category 2 fines.
2. Colour and texture: Consistent. Obtain from one source.

## 443 Lime for cement gauged mortars

1. Standard: To BS EN 459-1.
   1.1. Type: CL 90S.

## 445 Pigment for coloured mortars

1. Standard: To BS EN 12878.

## 449 Admixtures for cement gauged mortars

1. Suitable admixtures: Select from:
   1.1. Air entraining (plasticizing) admixtures: To BS EN 934-2 and compatible with other mortar constituents.
   1.2. Other admixtures: Submit proposals.
2. Prohibited admixtures: Calcium chloride and any admixture containing calcium chloride.

## 450 Chloride content of mortars

1. Chloride content (maximum): 0.1% by dry mass.

## 478 Hydraulic lime

1. Standard: To BS EN 459-1.
   1.1. Type: Natural hydraulic lime (NHL).

## 481 Ready prepared lime putty

1. Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.
   1.1. Maturation: In pits/ containers that allow excess water to drain away.
   1.2. Density of matured lime putty: 1.3-1.4 kg/L.
2. Maturation period before use (minimum): 90 days.
3. Storage: Prevent drying out or wetting: Protect from frost.

## 495 Mixing

1. Render mortars (site prepared)
   1.1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
   1.2. Mix proportions: Based on damp sand. Adjust for dry sand.
   1.3. Lime:sand: Mix thoroughly. Allow to stand, without drying out, for at least 16 hours before using.
2. Mixes: Of uniform consistence and free from lumps. Do not retemper or reconstitute mixes.

3. Contamination: Prevent intermixing with other materials.

### 497 Cold weather

1. General: Do not use frozen materials or apply coatings on frozen or frost bound substrates.
2. External work: Avoid when air temperature is at or below 5°C and falling or below 3°C and rising. Maintain temperature of work above freezing until coatings have fully hardened.
3. Internal work: Take precautions to enable internal coating work to proceed without detriment when air temperature is below 3°C.

## Preparing substrates

### 510 Suitability of substrates

1. Soundness: Free from loose areas and significant cracks and gaps.
2. Cutting, chasing, making good, fixing of conduits and services outlets and the like: Completed.
3. Tolerances: Permitting specified flatness/ regularity of finished coatings.
4. Cleanliness: Free from dirt, dust, efflorescence and mould, and other contaminants incompatible with coatings.

### 527 Raking out for key

1. Joints in existing masonry: Rake out to a depth of 13 mm (minimum).
    1.1. Dust and debris: Remove from joints.

### 531 Roughening for key

1. Substrates: Roughen thoroughly and evenly.
    1.1. Depth of surface removal: Minimum necessary to provide an effective key.

### 538 Stipple key

1. Materials
    1.1. Cement: To BS EN 197-1.
    1.2. Sand: Clean, coarse.
    1.3. Admixture: SBR bonding agent, Agrément certified.
2. Mix proportions (cement:sand): 1:1.5–2.
3. Consistency: Thick slurry, well stirred.
4. Application: Brushed and stippled to form deep, close textured key.
5. Curing: Controlled to achieve a firm bond to substrate.

### 541 Bonding agent application

1. General: Apply evenly to substrate to achieve effective bond of plaster/ render coat. Protect adjacent joinery and other surfaces.

### 551 Removal and renewal of existing plaster/ render

1. Location and extent: Agree, at least on a provisional basis, before work commences. Minimize extent of removal and renewal.

### 556 Removing defective existing render

1. Render for removal: Detached, hollow, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.
2. Removing defective render: Cut out to regular rectangular areas with straight edges.

2.1. Horizontal and vertical edges: Square cut or slightly undercut.

2.2. Bottom edges to external render: Do not undercut.

2.3. Render with imitation joints: Cut back to joint lines.

3. Cracks

3.1. Fine hairline cracking/ crazing: Leave.

3.2. Other cracks: Obtain instructions.

4. Dust and loose material: Remove from exposed substrates and edges.

### 566 Removing defective existing plaster

1. Plaster for removal: Detached, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.

1.1. Hollow, detached areas: Obtain instructions in areas, where historic plaster may be present.

2. Stained plaster: Submit proposals.

3. Removing defective plaster. Cut back to a square, sound edge.

4. Faults in substrate (structural deficiencies, damp, etc.): Submit proposals.

5. Cracks

5.1. Fine hairline cracking/ crazing: Leave.

5.2. Other cracks: Obtain instructions.

6. Dust and loose material: Remove from exposed substrates and edges.

### 568 Existing damp affected plaster/ render

1. Plaster affected by rising damp: Remove to a height of 300 mm above highest point reached by damp or 1 m above dpc, whichever is higher.

2. Perished and salt contaminated masonry

2.1. Mortar joints: Rake out.

2.2. Masonry units: Submit proposals.

3. Faults in substrate (structural deficiencies, additional sources of damp, etc.): Submit proposals.

4. Drying out substrates: Establish drying conditions. Leave walls to dry for as long as possible before plastering.

5. Dust and loose material: Remove from exposed substrates and edges.

## Backings/ beads/ joints

### 600 Additional framing supports for backings

1. Framing: Accurately position and securely fix to give full support to fixtures, fittings and service outlets.

2. Support board edges and perimeters: As recommended by board manufacturer to suit type and performance of board.

### 634 Beads/ stops

1. Description: Render stop bellcast bead.

2. Manufacturer: Expamet Ltd.

2.1. Product reference: 547 (F3000).

3. Material: Stainless steel to BS EN 13658-2:2005.

### 636 Beads/ stops for external use

1. Standard: In accordance with BS EN 13914-1, Table 4.

2. Material: Stainless steel to BS EN 13658-2.

### 640 Beads/ stops generally

1. Location: External angles and stop ends except where specified otherwise.
2. Corners: Neat mitres at return angles.
3. Fixing: Secure, using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
   3.1. Beads/ stops for external render: Fix mechanically.
4. Finishing: After coatings have been applied, remove surplus material while still wet, from surfaces of beads/ stops exposed to view.

### 646 Crack control at junctions between dissimilar solid substrates

1. Locations: Where defined movement joints are not required. Where dissimilar solid substrate materials are in same plane and rigidly bonded or tied together.
2. Crack control materials
   2.1. Isolating layer: Building paper to BS 1521.
   2.2. Metal lathing: Externally: Stainless steel ribbed expanded metal.
3. Installation: Fix metal lathing over isolating layer. Stagger fixings along both edges of lathing.
4. Width of installation over single junctions
   4.1. Isolating layer: 150 mm.
   4.2. Lathing: 300 mm.
5. Width of installation across face of dissimilar substrate material (column, beam, etc. with face width not greater than 450 mm)
   5.1. Isolating layer: 25 mm (minimum) beyond junctions with adjacent substrate.
   5.2. Lathing: 100 mm (minimum) beyond edges of isolating layer.

### 648 Fibre glass reinforcement mesh

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

## Mouldings/ decorative plasterwork - Not Used

## Internal plastering

### 710 Application generally

1. Application of coatings: Firmly and in one continuous operation between angles and joints. Achieve good adhesion.
2. Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
   2.1. Accuracy: Finish to a true plane, to correct line and level, with angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.
3. Drying out: Prevent excessively rapid or localized drying out.

### 715 Flatness/ surface regularity

1. Sudden irregularities: Not permitted.
2. Deviation of plaster surface: Measure from underside of a straight edge placed anywhere on surface.
   2.1. Permissible deviation (maximum) for plaster not less than 13 mm thick: 3 mm in any consecutive length of 1800 mm.

### 720 Dubbing out

1. General: Correct substrate inaccuracies.
2. New smooth dense concrete and similar surfaces: Dubbing out prohibited unless total plaster thickness is within range recommended by plaster manufacturer.
3. Thickness of any one coat (maximum): 10 mm.
4. Mix: As undercoat.
5. Application: Achieve firm bond. Allow each coat to set sufficiently before the next is applied. Cross scratch surface of each coat.

### 725 Undercoats generally

1. General: Rule to an even surface. Cross scratch to provide a key for the next coat.
2. Undercoats on metal lathing: Work well into interstices to obtain maximum key.
3. Undercoats gauged with Portland cement: Do not apply next coat until drying shrinkage is substantially complete.

### 742 Thin coat plaster

1. Preparation for plasters less than 2 mm thick: Fill holes, scratches and voids with finishing plaster.

### 747 Projection plaster

1. Application: Evenly and in one continuous operation between angles and joints.
2. Finish: A level open textured surface before finishing manually.

### 777 Smooth finish

1. Appearance: A tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks. Avoid water brush, excessive trowelling and over polishing.

### 778 Wood float finish

1. Appearance: An even overall texture. Finish with a dry wood float as soon as wet sheen has disappeared.

## External rendering

### 810 Application generally

1. Application of coatings: Firmly and in one continuous operation between angles and joints. Achieve good adhesion.
2. Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
    2.1. Accuracy: Finish to a true plane, to correct line and level, with angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.
3. Drying: Prevent excessively rapid or localized drying out.

### 815 Flatness/ surface regularity of rendering to receive ceramic tiles

1. Sudden irregularities: Not permitted.
2. Deviation of render surface: Measure from underside of a 2 m straight edge placed anywhere on surface.
    2.1. Permissible deviation (maximum): 3 mm.

### 820 Dubbing out rendering

1. General: Correct substrate inaccuracies.

2. Thickness of any one coat (maximum): 16 mm.
   2.1. Total thickness (maximum): 20 mm, otherwise obtain instructions.
3. Mix: As undercoat.
4. Application: Achieve firm bond. Allow each coat to set sufficiently before the next is applied. Comb surface of each coat.

## 830 Anchored mesh reinforcement

1. Application of first undercoat: Through and round mesh to fully bond with solid substrate.

## 840 Undercoats generally

1. General: Rule to an even surface. Comb to provide a key for the next coat. Do not penetrate the coat.
2. Undercoats on metal lathing: Work well into interstices to obtain maximum key.

## 856 Final coat – plain floated finish

1. Finish: Even, open texture free from laitance.

## 880 Curing and drying

1. General: Prevent premature setting and uneven drying of each coat.
2. Curing coatings: Keep each coat damp by covering with polyethylene sheet and/ or spraying with water.
   2.1. Curing period (minimum): As the render manufacturer's recommendations.
   2.2. Final coat: Hang sheeting clear of the final coat.
3. Drying: Allow each coat to dry thoroughly, with drying shrinkage substantially complete before applying next coat.
4. Protection: Protect from frost and rain.

Ω End of Section

# M60
# Painting/clear finishing

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Coating systems

### 130 Gloss paint

1. Description: Paint finish to new wood doorset as L20/ 410 at 1A Montague Street.
2. Manufacturer: Dulux Trade, brand of AkzoNobel
   - 2.1. Contact details
     - 2.1.1. Address: AkzoNobel Decorative Paints
       Wexham Road
       Slough
       Berkshire
       SL2 5DS
     - 2.1.2. Telephone: +44 (0)333 222 7070
     - 2.1.3. Web: https://www.duluxtradepaintexpert.co.uk/en
     - 2.1.4. Email: project.support@akzonobel.com
   - 2.2. Product reference: Quick Dry Gloss
3. Sheen: Gloss.
4. Colour: To be agreed, as closely matching existing adjacent door at 1A Montague Street.
5. Form: Liquid.

### 170 Masonry dust sealant coating

1. Manufacturer: Watco UK Ltd
   - 1.1. Contact details
     - 1.1.1. Address: 195-205 Eastgate Court
       Guildford
       Surrey
       United Kingdom
       GU1 3AW
     - 1.1.2. Telephone: +44 (0)1483 418418
     - 1.1.3. Web: www.watco.co.uk
     - 1.1.4. Email: sales@watco.co.uk
   - 1.2. Product reference: Watco Wallseal.
2. Surfaces: Exposed internal concrete common blockwork walls as F10/ 355 and concrete skirtings/ upstands and ceilings.
   - 2.1. Preparation: Brush down to remove surface contaminants.
3. Undercoats: As recommended by manufacturer.
   - 3.1. Number of coats: As recommended by manufacturer.
4. Finishing coats: As recommended by manufacturer.
   - 4.1. Number of coats: As recommended by manufacturer.

### 171 Masonry paint finish

1. Manufacturer: Dulux Trade, brand of AkzoNobel
   - 1.1. Contact details
     - 1.1.1. Address: AkzoNobel Decorative Paints
       Wexham Road
       Slough
       Berkshire
       SL2 5DS
     - 1.1.2. Telephone: +44 (0)333 222 7070

1.1.3. Web: https://www.duluxtradepaintexpert.co.uk/en

1.1.4. Email: project.support@akzonobel.com

1.2. Product reference: Weathershield Smooth Masonry Paint

2. Surfaces: External proprietary cement gauged render as M20/ 160 and exposed clay facing brickwork as F10/ 110.
3. Texture: Smooth.
4. Coats: As recommended by manufacturer.
5. Colour: Submit proposals, TBC with Architect.
6. Additives: Fungicide.

## 172 Silicate-based masonry paint

1. Manufacturer: Keim Mineral Paints Ltd

1.1. Contact details

1.1.1. Address: Santok Building
Deer Park Way
Donnington Wood
Telford
Shropshire
TF2 7NA

1.1.2. Telephone: +44 (0)1952 231250

1.1.3. Web: https://www.keim.com/en-gb/

1.1.4. Email: sales@keimpaints.co.uk

1.2. Product reference: Keim Soldalit-ME Paint (Colours)

2. Surfaces: Lime rendered external masonry walls as M20/ 330.

2.1. Preparation: Remove any loose and flaking material with wire brushes and cold chisels if necessary. Patch apply all surfaces with primer, brush applied and worked well into all surfaces, this will help reduce any high surface porosity and should be left for a minimum period of 12 hours before further decoration.

3. Execution: Applying coating system.
4. VOC content: 0–0.002 kg/L.
5. Coverage: 0.45 kg/m².
6. Moisture vapour permeability: ≤ 0.01 m.
7. Application method: Brush, roller, air-less spray.
8. Primer: KEIM Soldalit Fixativ.
9. Coats: As recommended by manufacturer.
10. Colour: Submit proposals, to match closely match adjacent wall finish.

## 180 Floor coating

1. Manufacturer: Watco UK Ltd

1.1. Contact details

1.1.1. Address: 195-205 Eastgate Court
Guildford
Surrey
United Kingdom
GU1 3AW

1.1.2. Telephone: +44 (0)1483 418418

1.1.3. Web: www.watco.co.uk

1.1.4. Email: sales@watco.co.uk

1.2. Product reference: Watco Universal Sealer Dustproofer.

2. Surfaces: Cement:sand levelling screeds as M10/ 115.
   2.1. Preparation: Ensure surfaces are clean and dry.
3. Initial coats: As recommended by manufacturer.
   3.1. Number of coats: As recommended by manufacturer.
4. Finishing coats: As recommended by manufacturer.
   4.1. Number of coats: As recommended by manufacturer.

## Generally

### 215 Handling and storage

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

### 220 Compatibility

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

### 280 Protection

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

### 300 Control samples

1. Sample areas of finished work: Carry out, including preparation, as follows:
2. Types of coating Location
3. M60/ 170. M60/ 171. M60/ 172. M60/ 180.
4. Approval of appearance: Obtain before commencement of general coating work.

### 320 Inspection by coating manufacturers

1. General: Permit manufacturers to inspect work in progress and take samples of their materials from site if requested.

## Preparation

### 400 Preparation generally

1. Standard: In accordance with BS 6150.
2. Refer to any pre-existing CDM Health and Safety File.
3. Refer to CDM Construction Phase Plan where applicable.
4. Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
5. Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
6. Substrates: Sufficiently dry in depth to suit coating.

7. Efflorescence salts: Remove.
8. Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
9. Surface irregularities: Remove.
10. Joints, cracks, holes and other depressions: Fill flush with surface, to provide smooth finish.
11. Dust, particles and residues from preparation: Remove and dispose of safely.
12. Water based stoppers and fillers
    12.1. Apply before priming unless recommended otherwise by manufacturer.
    12.2. If applied after priming: Patch prime.
13. Oil based stoppers and fillers: Apply after priming.
14. Doors, opening windows and other moving parts
    14.1. Ease, if necessary, before coating.
    14.2. Prime resulting bare areas.

## 420 Fixtures and fittings

1. Removal: Before commencing work remove: coverplates, vents, signages, racking brackets and other surface mounted fixtures/ equipments.
2. Replacement: Refurbish as necessary, refit when coating is dry.

## 425 Ironmongery

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

## 440 Previously coated surfaces generally

1. Preparation: In accordance with BS 6150, clause 11.5.
2. Contaminated or hazardous surfaces: Give notice of:
    2.1. Coatings suspected of containing lead.
    2.2. Substrates suspected of containing asbestos or other hazardous materials.
    2.3. Significant rot, corrosion or other degradation of substrates.
3. Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
4. Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
5. Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.
6. Alkali affected coatings: Completely remove.
7. Retained coatings
    7.1. Thoroughly clean to remove dirt, grease and contaminants.
    7.2. Gloss-coated surfaces: Provide key.
8. Partly removed coatings
    8.1. Additional preparatory coats: Apply to restore original coating thicknesses.
    8.2. Junctions: Provide flush surface.
9. Completely stripped surfaces: Prepare as for uncoated surfaces.

## 481 Uncoated wood

1. General: Provide smooth, even finish with arrises and moulding edges lightly rounded or eased.

2. Heads of fasteners: Countersink sufficient to hold stoppers/fillers.
3. Resinous areas and knots: Apply two coats of knotting.

### 521 Uncoated steel – manual cleaning

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

### 560 Uncoated concrete

1. Release agents: Remove.

### 570 Uncoated masonry/ Rendering

1. Loose and flaking material: Remove.

### 611 Wall coverings

1. Retained wall coverings: Check that they are in good condition and well adhered to substrate.
2. Previously covered walls: Wash down to remove paper residues, adhesive and size.

### 622 Organic growths

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

## Application

### 711 Coating generally

1. Application standard: In accordance with BS 6150, clause 9.
2. Conditions: Maintain suitable temperature, humidity and air quality during application and drying.
3. Surfaces: Clean and dry at time of application.
4. Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.
5. Overpainting: Do not paint over intumescent strips or silicone mastics.
6. Priming coats
   - 6.1. Thickness: To suit surface porosity.
   - 6.2. Application: As soon as possible on same day as preparation is completed.
7. Finish
   - 7.1. Even, smooth and of uniform colour.
   - 7.2. Free from brush marks, sags, runs and other defects.
   - 7.3. Cut in neatly.
8. Doors, opening windows and other moving parts: Ease before coating and between coats.

### 720 Priming joinery

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

## 730 Workshop coating of concealed joinery surfaces

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

## 740 Concealed metal surfaces

1. General: Apply additional coatings to surfaces that will be concealed when component is fixed in place.
   1.1. Components: Underside of fence rails.

## 770 External doors

1. Bottom edges: Prime and coat before hanging doors.

## 780 Bead glazing to coated wood

1. Before glazing: Apply first two coats to rebates and beads.

## 800 Glazing

1. Etched, sand blasted and ground glass: Treat or mask edges before coating to protect from contamination by oily constituents of coating materials.

## 810 Water-repellent

1. Application: Liberally flood surface, giving complete and even coverage.

Ω End of Section

# N91
# External signage and interpretation

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Signage outline

### 110 Proprietary signage system

1. Sign type: Safety sign, as clause 510.
2. Electrical supplies: Not required.

### 120 Bespoke signage system

1. Sign type: Identification signage, as clauses 565.
2. Materials: Brass, with identification text laser-engraved in contrasting RAL finish. Contractor to submit proposals on text and finish, by way of shop drawings.

## System performance

### 205 Design of signage systems

1. Design: Complete detailed design and submit before commencing work.
2. Proposals: Submit drawings, schedules, technical information, calculations and manufacturer's literature before commencing work.

### 210 External signage generally

1. Signage systems generally: Complete to BS 559, including components, inserts, accessories and fixings necessary to complete the system.
2. External signage: To BS 559, clause 6.1.
3. Content: Signs including facing information, components, inserts, accessories and fixings necessary to complete the system.
4. Geometric shapes, colours and layout: To BS ISO 7001.
5. Wind loads: To BS EN 1991-1-4.

### 215 Design life

1. Duration: Ten years.
   1.1. Subject to reasonable wear and tear.
2. Environment: Road.
3. Condition of use: Subject to regular maintenance.

### 220 Safety signage requirements

1. General: To relevant parts of BS ISO 3864-1.
2. Safety meaning: To BS ISO 3864-1.
3. Geometric shapes, colours and layout: To BS ISO 3864-1 and BS ISO 3864-4.
4. Water safety: To BS EN ISO 7010.
5. Escape route: To BS ISO 16069.

## Products

### 305 Signage products generally

1. Materials: To BS 559.
2. Colorimetric and photometric properties: To BS ISO 3864-4.
3. Fabricated letters: To BS 559, clause 6.6.
4. Fixings: To BS 559, clause 6.11 and section Z12.

## Materials

### 415 Brass

1. Component thickness: 2 mm.
2. Perimeters: Manufacturer's standard, submit proposals.
3. Finish: Brushed.
4. Additional requirements: Laser engraving to manufacturer's standard.

### 445 Plastics and composite materials

1. Standards
   1.1. Recycled plastics: To BS EN 15343.
   1.2. Recycled plastics - PET: To BS EN 15348.
   1.3. Recycled plastics - PVC: To BS EN 15346.
   1.4. Recycled plastics - waste: To BS EN 15347.
2. Material: Polyvinyl chloride (PVC).
3. Finish: Manufacturer's standard.
4. Component thickness: Manufacturer's standard.

## Fabrication

### 505 Signage samples

1. Sign type: As clauses 110 and 120.
   1.1. Action: Submit labelled samples.
   1.2. Conformity: Retain samples on site for the duration of the contract, or until instructed to remove them.
   1.3. Delivered product: To conform to labelled samples.

### 510 Safety sign

1. Description: Harmonised safety sign, to include the following in vertical order: Danger of Death sign, ownership label and unique site reference.
2. Manufacturer: Submit proposals.
3. Material: Rigid plastics sheet
   3.1. Finish: As manufactured.
4. Layout and dimensions: Submit proposals.
5. Symbols and graphics: Manufacturer’s standard range.
   5.1. Colour: Manufacturer’s standard range.
   5.2. Size: Manufacturer’s standard range.
6. Background colour: Manufacturer’s standard range.
7. Fixing accessories: Manufacturer's standard.
8. Additional requirements: Safety sign in accordance with Electricity Safety, Quality and Continuity Regulations 2002, as outlined in Guidance for the Application of Safety Signs and Identification Labelling, EDS 09-0019 v6.0.

### 565 Plaque/ wall-mounted sign

1. Description: Identification signage for a 24-hour, dedicated UKPN access.
2. Material: Brass.
   2.1. Finish: Brushed.

2.2. Background colour: Manufacturer's standard range, submit proposals.

3. Layout and dimensions: To be confirmed, to conform with other plaque along Montague Street.
   3.1. Lettering
      3.1.1. Manufacturing process: Laser engraved, with contrasting RAL colour to maintain legibility of signage.
      3.1.2. Other requirements: Font, size and colours to be confirmed, following further discussion with the UKPN.
4. Method of fixing: Wall-mounted, screw-fixed.
5. Fixing accessories: Concealed, vandal-proof fixings or as manufacturer's standard.
6. Additional requirements: Fixing to closely match the plaque/ signage finish.

## Execution/ erection/ installation

### 610 Fixing signs generally

1. Generally: Where not specified precisely, select methods of jointing and fixing, and types, sizes and spacings of fasteners in compliance with section Z20.
2. Installation: To BS 559.
   2.1. Secure, plumb and level.
3. Strength of fasteners: Sufficient to support all live and dead loads.
4. Fasteners and/ or adhesives: As section Z20.
5. Fasteners for external signs: Corrosion-resistant material or with a corrosion-resistant finish. Isolate dissimilar metals to avoid electrolytic corrosion.
6. Fixings showing on surface of sign: Must not detract from the message being displayed.
7. Temporary support: Do not subject members to non-design loadings.
8. Protection of users
   8.1. Fasteners for signs must not have sharp edges or protrusions that would cause injury to users.
   8.2. Fasteners for tactile/ Braille signs must not have protrusions that would cause confusion to users.

### 615 Building signs into existing structures

1. Components being built in: Accurately position and support securely. Set in mortar and point neatly to match adjacent material.
2. Temporary support: Maintain for 48 hours (minimum) and prevent disturbance.

## Completion

### 905 Inspection of signs

1. Standard for timber structures: In accordance with BS EN 1995-1-1.
2. Timing: Two weeks after request by contract administrator.
3. Period of notice (minimum): Three working days.
4. Maintenance inspection: Check and tighten fixings six to eight weeks after completion of structure.
5. Access: Provide access for inspection and maintenance of luminaires and other technologies.

### 910 Testing of signs and structures

1. Standard for testing timber structures: In accordance with BS EN 1995-1-1.
2. Evaluation of conformity for road traffic signs: To BS EN 12899-1, section 10.

## 915 Cleaning of signs/ graffiti removal

1. Method: As approved by manufacturer.
2. Subsequent treatment: Submit proposals.

## 920 Documentation

1. Submit
   1.1. Copies of structural design calculations/ test reports.
   1.2. General product information.
   1.3. Installation information.
   1.4. Inspection and maintenance reports.
   1.5. Manufacturer's maintenance instructions.
   1.6. Guarantees, warranties, test certificates, record schedules and logbooks.
2. Submission: Two weeks prior to date when principal contractor expects work to be complete

Ω End of Section

# P10
# Sundry insulation/ proofing work

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Types of insulation

### 320 Breather membrane

1. Manufacturer: DuPont™ Tyvek®
   1.1. Contact details
      1.1.1. Address: HERE
      470 Bath Road,
      Arno's Vale,
      Bristol
      Avon
      United Kingdom
      BS4 3AP
      1.1.2. Telephone: +44 (0) 117 452 9050
      1.1.3. Web: www.construction.tyvek.co.uk
      1.1.4. Email: tyvek.construction@dupont.com
   1.2. Product reference: Tyvek® FireCurb®
2. Standard: To BS EN 13859-2.
3. Performance characteristics: Fire resistant.
4. Class (minimum): W1.
5. Material: High Density Poly Ethylene (HDPE).
6. Form: Flash-spun-bonded.
7. Third-party certification: British Board of Agrément (BBA) Certificate.
8. Weight (minimum): 68 g/m².
9. Thickness (minimum): 0.175 mm.
10. Accessories: To manufacturer's reccommendations.
11. Reaction to fire (EN 13501-1): B-s1, d0.
12. Temperature resistance: -40°C to +100°C.
13. Water vapour transmission: 0.014 m.

Ω End of Section

# P12
# Fire-stopping systems

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## General

### 160 Linear gap sealing

1. Description: In fire-resisting walls.
2. Gap width or height (nominal): 10 mm.
3. Gap filler: Sealant backing material, as clause 385.
4. Capping sealant: Fire-resisting silicone, as clause 390.
   4.1. Colour: Submit proposals.

## System performance - Not Used

## Products

### 305 Product certification

1. Certification: For products specified generically, submit evidence of compliance with the specification.
2. Acceptable evidence: Agrément certificate.

### 335 Intumescent foam

1. Manufacturer: Adshead Ratcliffe & Co. Ltd.
   1.1. Product reference: Arbo AR240.

### 338 Intumescent mastic

1. Manufacturer: ROCKWOOL Ltd.
   1.1. Product reference: FirePro® Acoustic Intumescent Sealant.

### 342 Fire-resisting mortar

1. Manufacturer: Promat UK Ltd.
   1.1. Product reference: PROMASEAL® Mortar.

### 360 Mineral wool linear firestop

1. Standard: To BS EN 13162.
2. Surface treatment: Unfaced.
3. Manufacturer: ROCKWOOL Ltd
   3.1. Contact details
      3.1.1. Address: ROCKWOOL Ltd
      Wern Tarw
      Pencoed
      Bridgend
      United Kingdom
      CF35 6NY
      3.1.2. Telephone: +44 (0)1656 862621
      3.1.3. Web: https://www.rockwool.com/uk/
      3.1.4. Email: customersupportcentre@rockwool.com
   3.2. Product reference: FirePro Linear Firestop Systems.

### 385 Sealant backing material

1. Manufacturer: ROCKWOOL Ltd.

1.1. Product reference: Submit proposals.

### 390 Intumescent sealant

1. Type: Fire-resisting acrylic.
2. Manufacturer: ROCKWOOL Ltd.
   2.1. Product reference: FirePro® Acoustic Intumescent Sealant.

## Execution

### 620 Workmanship generally

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

### 650 Installing flexible intumescent gap sealer

1. Fitting of strips: Compress strips and fit into gap so that, as they decompress, the strips wedge themselves in the void.
2. Shrink wrapping: Manufacturer's standard.
3. Joints
   3.1. Ends of strips: Fit intumescent 'end piece' at both ends of run of fire stop laminate.
   3.2. Joints between strips: Fit two intumescent 'end pieces' at each butt joint.

### 660 Applying intumescent foam

1. New joints: Remove builders' debris, mortar droppings, grease, and other contaminants.
2. Old joints: Clean and remove existing sealant from each joint.
3. Priming: Lightly moisten substrate with water.
4. Application: Fill joint to approximately half its depth, and allow foam to expand to face of joint.
5. Trimming: Trim excess foam to give a neat, flush appearance.

### 710 Installing mineral wool batts

1. Installing batts: Fit tight into void between the penetrating services and the surrounding construction to form a solid barrier.
   1.1. Brackets: Manufacturer's standard.
2. Face of batts: Flush with the surface of wall, floor or soffit.
3. Joints between batts: Butt joints, seal with acoustic intumescent sealant.
4. Gaps between services and barrier: Seal with fire-resisting sealant.

### 740 Inserting sealant backing material

1. Preparation: Removed debris from service penetration.
2. Installation: Insert joint filler to full depth of joint leaving sufficient depth to apply sealant.

### 745 Applying sealants generally

1. Application: As section Z22.

## Completion

### 910 Cleaning

1. Masking tapes: Remove.

2. Cleaning: Clean off splashes and droppings. Wipe down finishes.

## 920 Inspection

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

Ω End of Section

# P21
# Door/ window ironmongery

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Pre-tender

### 10 Quantities and locations

1. Quantities and locations of ironmongery: As Ironmongery Schedule.
2. Fixing: As sections L10 and L20.

## General

### 122 Ironmongery from listed proprietary ranges

1. Source: One only of the following manufacturers/ suppliers and ranges: Assa Abloy, Croft, 3v and Sunray .
2. Notification: Submit details of selected range, manufacturer and/ or supplier.
3. Principal material/ finish: As Ironmongery Schedule.
4. Items unavailable within selected range: Submit proposals.

### 130 Approved suppliers

1. Source: Obtain ironmongery from one of the following: Assa Abloy, Croft, 3v and Sunray .
2. Notification: Submit details of selected supplier.

### 170 Ironmongery for fire doors

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

### 180 Strength class or category of duty for door ironmongery

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

## Door hanging devices

### 320 Door hinges

1. Description: Refer to Ironmongery Schedule.

## Window hanging devices - Not Used

## Door operating devices - Not Used

## Door securing devices

### 515 Door locks

1. Description: Refer to Ironmongery Schedule.
2. Standard: To BS EN 12209.

### 540 Door latches

1. Description: Refer to Ironmongery Schedule.
2. Standard: To BS EN 12209.
3. Latch spring strength: Select to prevent unsprung lever handles drooping.

### 565 Padlocks

1. Description: Refer to Ironmongery Schedule.
2. Standard: To BS EN 12320.

## Window securing devices - Not Used

## Door furniture

### 620 Door knobs

1. Description: Refer to Ironmongery Schedule.
2. Standard: To BS EN 1906.

### 710 Escutcheons

1. Description: Refer to Ironmongery Schedule.

## Window furniture - Not Used

Ω End of Section

# Q25
# Slab/ brick/ sett/ cobble pavings

## Summary

## Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## General - Not Used

## System performance - Not Used

## Products

### 310 Natural stone paving slabs

1. Standard: To BS EN 1341.
2. Supplier: Marshalls plc
   2.1. Contact details
      2.1.1. Address: Landscape House
      Lowfields Business Park
      Elland
      West Yorkshire
      HX5 9HT
      2.1.2. Telephone: +44 (0)330 0574472
      2.1.3. Web: https://www.marshalls.co.uk
      2.1.4. Email: specification.support@marshalls.co.uk
   2.2. Product reference: Scoutmoor Yorkstone.
3. Petrographical description/ stone type: Fine grained sandstone.
4. Finish: Diamond sawn.
5. Sizes: 900 x 600 x 50 mm, refer to drawings.
   5.1. Plan dimension deviation class: P1.
   5.2. Diagonal deviation class: D1.
   5.3. Thickness deviation class: T0.
6. Arrises: Square.
7. Breaking strength: Class 1.
8. Slip resistance: SRV to BS EN 14231 of 69 (min).

## Execution

### 610 Material samples

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.
   1.1. Designated materials: Natural stone slab pavings; reference sample to BS EN 1341.

### 620 Adverse weather

1. General
   1.1. 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.
   1.2. Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.
2. Paving with mortar joints and/ or bedding
   2.1. Protect from frost damage, rapid drying out and saturation until mortar has hardened.
3. Paving laid and jointed in sand/ fine aggregate
   3.1. Stockpiled laying course sand/ fine aggregate: Protect from saturation.
   3.2. Exposed areas of unbound laying course and uncompacted areas of unbound paving: Protect from heavy rainfall.
   3.3. Saturated unbound laying course: Remove and replace, or allow to dry before proceeding.

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

## 625 Laying pavings – general

1. Appearance: Smooth and even with regular joints and accurate to line, level and profile.
2. Falls: To prevent ponding.
3. Bedding of paving units: Firm so that rocking or subsidence does not occur or develop.
   3.1. Bedding/ Laying course: Consistently and accurately graded, spread and compacted to produce uniform thickness and support for paving units.
4. Slopes: Lay paving units upwards from the bottom of slopes.
5. Paving units: Free of mortar and sand stains.
6. Cutting: Cut units cleanly and accurately, without spalling, to give neat junctions with edgings and adjoining finishes.

## 630 Levels of paving

1. Permissible deviation from specified levels
   1.1. Generally: +/-6 mm.
2. Height of finished paving above features
   2.1. At gullies: +6 to +10 mm.
   2.2. At drainage channels and kerbs: +3 to +6 mm.

## 637 Regularity of paved surfaces

1. Maximum undulations in the surface of pavings (except tactile paving surfaces) under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface): 3 mm.
2. Joints between paving units or utility access covers
   2.1. Joints flush with the surface: Difference in level between adjacent units to be no more than twice the joint width (with a 5 mm maximum difference in level).
   2.2. 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.
   2.3. Unfilled joints: Difference in level between adjacent units to be no greater than 2 mm.
3. Sudden irregularities: Not permitted.

## 640 Colour banding

1. General: Unless premixed by manufacturer, select from at least 3 separate packs in rotation to avoid colour banding.

## 645 Protection

1. Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
2. Materials storage: Do not overload pavings with stacks of materials.
3. Handling: Do not damage paving unit corners, arrises, or previously laid paving.
4. Mortar-bedded pavings: Keep free from traffic after laying, with minimum period to manufacturer's recommendations.
5. Access: Restrict access to paved areas to prevent damage from site traffic and plant.

## 650 Cementitious bases and sub-bases

1. General: Protect from moisture loss, if not covered by another pavement course within 2 hours of completion.

## 655 Condition of sub-bases/ bases before spreading laying course

1. Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.
2. Granular surfaces: Lay and compact so as to be sound, clean, smooth and close-textured enough to prevent migration of bedding/ laying course materials into the sub-base during compaction and use, free from movement under compaction plant and free from compaction ridges, cracks and loose material.
3. Prepared existing and new bound bases (roadbases): Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.
4. Sub-base/ Roadbase level tolerances: To BS 7533-101, annex A.
5. Levels and falls: Accurate and within the specified tolerances.
6. Drainage outlets: Within 0-10 mm of the required finished level.
7. Features in unbound paving (including mortar-bedded restraints and drainage ironwork): Complete to required levels; adequately bed and haunch in mortar.
8. Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS 7533-4.

# Completion

## 915 Completion of paving with dry sand or fine aggregate-filled joints

1. Sand dressing: Leave a thin layer of dry jointing sand/ fine aggregate over the paving.
2. Final compaction of the surface course: In accordance with BS 7533-3.
3. Vacuum cleaning machines: Not allowed.

## 930 Slip resistance testing

1. Surfaces to be tested: Ramped and flat paved areas.
    1.1. Surface condition: Dry and wet.
2. Timing: Two weeks prior to handover, but after initial cleaning.
3. Period of notice (minimum): Three working days.
4. Test standard: To BS 7976-2
    4.1. Testing authority: A UKAS-accredited laboratory.
    4.2. Witnessing/ Certification: Arrange for tests to be witnessed/ certified by: Employer's agent.
    4.3. Report: Submit.
        4.3.1. Format: As required under BS 7976.

Ω End of Section

# Q40
# Fencing

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Fencing systems - Not Used

## Gates, posts and stiles

### 570 Steel gates (double)

1. Manufacturer: CLD Physical Security Systems
   1.1. Contact details
      1.1.1. Address: MODSEC House
      Moston Road
      Sandbach
      Cheshire
      United Kingdom
      CW11 3HL
      1.1.2. Telephone: +44 (0)1270 764751
      1.1.3. Web: https://www.cld-systems.com
      1.1.4. Email: info@cld-systems.com
   1.2. Product reference: CLD LockMaster
2. Standard: To BS 1722-14:2017, BS EN ISO 141:2009, BS EN 13438:2013.
3. Dimensions
   3.1. Span: To be confirmed following measurement on site.
   3.2. Height: 2470 mm.
4. Posts: Steel.
5. Hardware
   5.1. Hinges: Refer drawing 5070.
   5.2. Operating: Gate closers.
6. Finish as delivered
   6.1. Applied finish: Polyester powder-coated.
7. Colour and finish: RAL colour TBC.
8. Configuration: Double.
9. Panels: 20 x 20 mm Solid steel square profile at regular spacings, refer to drawings.
10. Post foundations: Set posts in holes 450 mm square x 950 mm deep minimum.
11. Size: 80 x 80 mm.
12. Locking: TBC with the client.

### 571 Steel gates (single)

1. Manufacturer: CLD Physical Security Systems
   1.1. Contact details
      1.1.1. Address: MODSEC House
      Moston Road
      Sandbach
      Cheshire
      United Kingdom
      CW11 3HL
      1.1.2. Telephone: +44 (0)1270 764751
      1.1.3. Web: https://www.cld-systems.com
      1.1.4. Email: info@cld-systems.com
   1.2. Product reference: CLD LockMaster
2. Standard: To BS 1722-14:2017, BS EN ISO 141:2009, BS EN 13438:2013.

3. Dimensions
   3.1. Span: To be confirmed following measurement on site.
   3.2. Height: 2670 mm.
4. Posts: Steel.
5. Hardware
   5.1. Hinges: Refer drawing 5070.
   5.2. Operating: Gate closers.
6. Finish as delivered
   6.1. Applied finish: Polyester powder-coated.
7. Colour and finish: RAL colour TBC.
8. Configuration: Single gate with a fence panel.
9. Panels: 20 x 20 mm Solid steel square profile at regular spacings, refer to drawings.
10. Post foundations: Set posts in holes 450 mm square x 950 mm deep minimum.
11. Size: 80 x 80 mm.
12. Locking: TBC with the client.

## Accessories - Not Used

## Execution

### 710 Installation generally

1. Set out and erect
   1.1. Alignment: Straight lines.
   1.2. Tops of posts: Consistent and level, refer drawing 5070.
   1.3. Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.
   1.4. Fixings: All components securely fixed.

### 715 Competence

1. Operatives: Contractors must employ competent operatives.
2. Qualifications: Submit certification of training.
   2.1. NHSS 'Sector Scheme 2A' subcategories: (b) and (d).
   2.2. NHSS 'Sector Scheme 2C' subcategories: Not required.

### 780 Making good galvanized surfaces

1. Treatment of minor damage (including on fasteners and fittings): Low melting point zinc alloy repair rods or powders made for this purpose, or at least two coats of zinc-rich paint to BS 4652.
2. Thickness: Apply sufficient material to provide a zinc coating at least equal in thickness to the original layer.

### 790 Site painting

1. Timing: Prepare surfaces and apply finishes as soon as possible after fixing.

## Completion

### 910 Cleaning

1. General: Leave the works in a clean, tidy condition.
2. Surfaces: Clean immediately before handover.

## 920 Fixings

1. All components: Tighten.
   1.1. Timing: Before handover.

## 930 Gates

1. Hinges, latches and closers: Adjust to provide smooth operation. Lubricate where necessary.
   1.1. Timing: Before handover.

Ω End of Section

# Q50
# Site/ street furniture/ equipment

## Summary

## Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Gates, barriers and parking controls - Not Used

## Site and street furniture

### 220 Benches

1. Description: Stone clad, reinforced concrete, cantilevered benches with bronze PVD handrail details, as draiwng 4176.
2. Manufacturer: Submit proposals.
3. Material: Scoutmoor Yorkstone.
   3.1. Finish: Submit proposals to Architect for agreement.
   3.2. Colour: Submit proposals to Architect for agreement.
   3.3. Mortar jointing: Colour matched to stone. Submit proposals to Architect for agreement.
4. Size: As drawing 4176.
5. Accessories/ Special requirements: Bronze PVD coated steel armrests to each end with concealed fixings, as drawing 4176. Armrests to be 50 mm diameter, concealed fixed/ welded to 15 mm diameter vertical support rails. Contractor to submit proposals for bronze PVD coating to Architect for agreement.
6. Method of fixing: Benches to be fixed level. Reinforced concrete bench structure to be bolted to monolithic reinforced concrete footing to Structural Engineer's design and specifications. Contractor to submit proposals on fixing of stone to reinforced concrete structure to Architect for agreement.

## Installation

### 510 Concrete foundations generally

1. Standard: To BS 8500-2.
2. Concrete: As section E10.
3. Admixtures: Do not use.
4. Foundation holes: Neat vertical sides.
5. Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

Ω End of Section

# R10
# Rainwater drainage systems

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## General

### 110 Gravity rainwater drainage system

1. Rainwater outlets: Proprietary.
2. Pipework: Aluminium.
3. Below ground drainage: Refer to Civil Engineer's information.
4. Disposal: Refer to Civil Engineer's information.

## System performance

### 210 Design

1. Design: Complete the design of the rainwater drainage system.
2. Standard
   - 2.1. To BS EN 12056-3, clauses 3–7, Annex A and National Annexes.
   - 2.2. To BS EN 12056-5, clauses 3, 4, 6 and 11.
3. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

### 221 Collection and distribution of rainwater

1. General: Complete, and without leakage or noise nuisance.

### 230 Design parameters - general

1. Design rate of rainfall: As BS EN 12056-3, National Annex NB.2.
   - 1.1. Category: 1.
2. Design life of building: 75 years.
3. Available capacity of existing below ground drainage (maximum): Refer to Civil Engineer's information.

## Products

### 365 Proprietary rainwater outlets

1. Manufacturer: Alumasc Water Management Solutions
   - 1.1. Contact details
     - 1.1.1. Address: Station Road
       Burton Latimer
       Kettering
       Northamptonshire
       NN15 5JP
     - 1.1.2. Telephone: +44 (0)1536 383810
     - 1.1.3. Web: www.alumascwms.co.uk
     - 1.1.4. Email: info@alumascwms.co.uk
   - 1.2. Product reference: Harmer Two Way Outlet (3TW - 3")
2. Material: Aluminium.
3. Grating: Flat.
4. Spigots: Threaded.
5. Fire rating (to BS EN 13501): A2.
6. Flowrate: 1.47 L/s.
7. Outlet size: 3".

## 370 Aluminium hopper and downpipe

1. Manufacturer: Alumasc Water Management Solutions
   1.1. Contact details
      1.1.1. Address: Station Road
      Burton Latimer
      Kettering
      Northamptonshire
      NN15 5JP
      1.1.2. Telephone: +44 (0)1536 383810
      1.1.3. Web: www.alumascwms.co.uk
      1.1.4. Email: info@alumascwms.co.uk
   1.2. Product reference: Alumasc Rainwater Flushjoint Square Pipe (CP33)
2. Standard: To BS 8530: 2010.
3. Third-party product certification: BS 9101: 2017.
4. Form: Extruded.
5. Section: Square.
6. Size (nominal): 75 x 75 mm.
7. Minimum thickness or gauge: 2 mm.
8. Finish and colour
   8.1. Finish: Polyester powder coated.
   8.2. Colour: RAL colour TBC by Architect.
   8.3. Film thickness (minimum): 60-80 Microns.
9. Integral accessories: Hopper heads, pipe clips and shoes.
   9.1. Hopper heads size: 300 x 180 x 200 mm.
   9.2. Finish: Polyester powder coated.
   9.3. Colour: RAL colour TBC by Architect.
   9.4. Film thickness (minimum): 60-80 Microns.
10. Fire rating (to BS EN 13501): A2 to BS EN 13501: 2018.
11. Type: Spigot jointed system.
12. Materials: Aluminium, LM6 Marine Grade.

# Custom made products - Not Used

# Execution

## 600 Preparation

1. Work to be completed before commencing work specified in this section
   1.1. Below ground drainage. Alternatively, make temporary arrangements for dispersal of rainwater without damage or disfigurement of the building fabric and surroundings.
   1.2. Painting of surfaces which will be concealed or inaccessible.

## 605 Installation generally

1. Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
2. Plastics and galvanized steel pipes: Do not bend.
3. Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
4. Protection

4.1. Fit purpose made temporary caps to prevent ingress of debris.

4.2. Fit access covers, cleaning eyes and blanking plates as the work proceeds.

## 630 Installing rainwater outlets

1. Fixing: Secure. Fix before connecting pipework.
   1.1. Method: Refer to drawings and manufacturer's recommendations.
2. Junctions between outlets and pipework: Accommodate movement in structure and pipework.

## 635 Fixing pipework

1. Pipework: Fix securely, plumb and/ or true to line.
2. Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
3. Externally socketed pipes and fittings: Fix with sockets facing upstream.
4. Additional supports: Provide as necessary to support junctions and changes in direction.
5. Vertical pipes
   5.1. Provide a loadbearing support at least at every storey level.
   5.2. Tighten fixings as work proceeds so that every storey is self supporting.
   5.3. Wedge joints in unsealed metal pipes to prevent rattling.
6. Wall and floor penetrations: Isolate pipework from structure.
   6.1. Pipe sleeves: As section P31.
   6.2. Masking plates: Fix at penetrations if visible in the finished work.
7. Expansion joint pipe sockets: Fix rigidly to buildings. Elsewhere, provide brackets and fixings that allow pipes to slide.

## 640 Fixing vertical pipework

1. Bracket fixings: Plugged and screwed into masonry.
2. Distance between bracket fixing centres (maximum): To manufacturer's recommendations.

## 650 Jointing pipework and gutters

1. General: Joint with materials and fittings that will make effective and durable connections.
2. Jointing differing pipework and gutter systems: Use adaptors intended for the purpose.
3. Cut ends of pipes and gutters: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
4. Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
5. Junctions: Form with fittings intended for the purpose.
6. Jointing material: Strike off flush. Do not allow it to project into bore of pipes and fittings.
7. Surplus flux, solvent jointing materials and cement: Remove.

## 660 Jointing external pipework

1. Jointing: Low modulus silicone sealant over a polyethylene foam backing insert.

## 670 Installing full-bore flow drainage pipework

1. Fixing: Secure. Prevent movement during extreme operating conditions including oscillating pressure and cavitation. Provide for thermal movement.
2. Number of joints, bends and offsets: Minimize.
3. Condition on completion: Smooth, consistent bore, clean and free from distortion, wrinkling, cracks and other defects.

### 675 Cutting coated pipework and gutters

1. Cutting: Recoat bare metal.

### 700 Access for testing and maintenance

1. General: Install pipework and gutters with adequate clearance to permit testing, cleaning and maintenance, including painting where necessary.
2. Access fittings and rodding eyes: Position so that they are not obstructed.

## Completion

### 900 Testing generally

1. Dates for testing: Give notice.
   1.1. Period of notice (minimum): 5 days.
2. Preparation
   2.1. Pipework: Complete, securely fixed, free from defects, obstruction and debris before testing.
3. Testing
   3.1. Supply clean water, assistance and apparatus.
   3.2. Do not use smoke to trace leaks.
4. Records: Submit a record of tests.

### 910 Gutter test

1. Preparation: Temporarily block all outlets.
2. Testing: Fill gutters to overflow level and after 5 minutes closely inspect for leakage.

### 915 Maintenance instructions

1. General: At completion, submit printed instructions recommending procedures for maintenance of the rainwater installation, including full details of recommended inspection, cleaning and repair procedures.

### 920 Immediately before handover

1. Construction rubbish, debris, swarf, temporary caps and fine dust which may enter the rainwater system: Remove. Do not sweep or flush into the rainwater system.
2. Access covers, rodding eyes, outlet gratings and the like: Secure complete with fixings.

Ω End of Section

# Z11
# Purpose made metalwork

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

**To be read with preliminaries/ general conditions.**

## 310 Materials generally

1. Grades of metals, section dimensions and properties: To appropriate British Standards. When not specified, select grades and sections appropriate for the purpose.
2. Prefinished metal: May be used if methods of fabrication do not damage or alter appearance of finish, and finish is adequately protected.
3. Fasteners: To appropriate British Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.

## 320 Steel long and flat products

1. Hot rolled structural steels (excluding structural hollow sections and tubes): To BS EN 10025-1.
2. Fine grain steels, including special steels: To BS EN 10025-3 and -4.
3. Steels with improved atmospheric corrosion resistance: To BS EN 10025-5.

## 330 Steel plate, sheet and strip

1. Plates and wide flats, high yield strength steel: To BS EN 10025-6.

## 340 Hot rolled steel plate, sheet and strip

1. Flat products, high yield strength for cold forming: To BS EN 10149-1, -2 and -3.
2. Carbon steel sheet and strip for cold forming: To BS EN 10111.
3. Narrow strip, formable steel and steel for general engineering purposes: To BS 1449-1.8 and BS 1449-1.14.

## 350 Cold rolled steel plate, sheet and strip

1. Steel sections: To BS EN 10162.
2. Flat products, high yield strength micro-alloyed steels for cold forming: To BS EN 10268.
3. Carbon steel flat products for cold forming: To BS EN 10130 and BS EN 10131.
4. Uncoated carbon steel narrow strip for cold forming: To BS EN 10139 and BS EN 10140.
5. Narrow strip steel for general engineering purposes: To BS EN 10132-1, -2, and -3.
6. Carbon steel flat products for vitreous enamelling: To BS EN 10209.

## 360 Coated steel flat products

1. Hot dip zinc coated carbon steel sheet and strip for cold forming: To BS EN 10346 and BS EN 10143.
2. Hot dip zinc coated structural steel sheet and strip: To BS EN 10143 and BS EN 10346.
3. Hot dip zinc-aluminium (za) coated sheet and strip: To BS EN 10346.
4. Hot dip aluminium-zinc (az) coated sheet and strip: To BS EN 10346.
5. Organic coated flat products: To BS EN 10169.

## 370 Steel structural hollow sections (SHS)

1. Non alloy and fine grain steels, hot finished: To BS EN 10210-1 and -2.
2. Non-alloy and fine grain steels, cold formed welded: To BS EN 10219-2.
3. Weather resistant steels, hot finished: To BS 7668.

## 380 Other steel sections

1. Equal flange tees: To BS EN 10055.

2. Equal and unequal angles: To BS EN 10056-1 and -2.
3. Wire, carbon steel for general engineering purposes: To BS 1052.
4. Wire and wire products, general: To BS EN 10218-2.
5. Tubes
   5.1. Seamless circular: To BS EN 10297-1.
   5.2. Seamless cold drawn: To BS EN 10305-1.
   5.3. Welded and cold sized square and rectangular: To BS EN 10305-5.
   5.4. Welded circular: To BS EN 10296-1.
   5.5. Welded cold drawn: To BS EN 10305-2.
   5.6. Welded cold sized: To BS EN 10305-3.

### 400 Stainless steel products

1. Chemical composition and physical properties: To BS EN 10088-1.
2. Sheet, strip and plate: To BS EN 10088-2.
3. Semi-finished products bars, rods and sections: To BS EN 10088-3.
4. Wire: To BS EN 1088-3.
5. Tubes
   5.1. Welded circular: To BS EN 10296-2.
   5.2. Seamless circular: To BS EN 10297-2.

### 410 Aluminium alloy products

1. Designations
   1.1. Designation system, chemical composition and forms: To BS EN 573-1, -2, -3 and -5.
   1.2. Temper designations: To BS EN 515.
2. Sheet, strip and plate: To BS EN 485-1 to -4.
3. Cold drawn rods, bars and tubes: To BS EN 754-1 and -2.
4. Extruded rods, bars, tubes and profiles: To BS EN 755-1 and -2.
5. Drawn wire: To BS EN 1301-1, -2 and -3.
6. Rivet, bolt and screw stock: To BS 1473.
7. Structural sections: To BS 1161.

## Fabrication

### 515 Fabrication generally

1. Contact between dissimilar metals in components: Avoid.
2. Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
   2.1. Moving parts: Free moving without binding.
3. Corner junctions of identical sections: Mitre.

### 520 Cold formed work

1. Profiles: Accurate, with straight arrises.

### 525 Adhesive bonding

1. Preparation of surfaces of metals to receive adhesives
   1.1. Degrease.
   1.2. Abrade mechanically or chemically etch.

1.3. Prime: To suit adhesive.

2. Adhesive bond: Form under pressure.

## 530 Stainless steel fabrication

1. Guillotining or punching: Do not use for metal thicknesses greater that 10 mm.
2. Thermal cutting
   2.1. Carbonation in the heat affected zone: Remove, after cutting.
3. Bending
   3.1. Plates or bars: Cold bending radius not less than material thickness.
   3.2. Tubes: Cold bending radius not less than 2 x tube diameter.
4. Welding: In addition to general welding requirements:
   4.1. Protect adjacent surfaces from weld spatter.
   4.2. Pickle all welds before post fabrication treatments.
5. Protection: Provide protection to fabricated components during transit and on site.

## 555 Brazing

1. Standard: To BS EN 14324.
2. Testing
   2.1. Destructive testing: To BS EN 12797.
   2.2. Nondestructive testing: To BS EN 12799.

# Finishing

## 710 Finishing welded and brazed joints visible in complete work

1. Standard: To BS EN ISO 8501-3.
   1.1. Preparation grade: Submit proposals.
2. Butt joints: Smooth, and flush with adjacent surfaces.
3. Fillet joints: Neat.
4. Grinding: Grind smooth where indicated on drawings.

## 745 Preparation for application of coatings

1. General: Complete fabrication, and drill fixing holes before applying coatings.
2. Paint, grease, flux, rust, burrs and sharp arrises: Remove.

## 750 Liquid organic coating for aluminium alloy components

1. Standard: To BS 4842.

## 780 Galvanizing

1. Standard: To BS EN ISO 1461.
2. Preparation
   2.1. Vent and drain holes: Provide in accordance with BS EN ISO 14713-1 and -2. Seal after sections have been drained and cooled.
   2.2. Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
   2.3. Welding slag: Remove.
   2.4. Component cleaning: To BS EN ISO 8501-3.
   2.5. Grade: St 2½.

## Completion

### 910 Documentation

1. Submit
   1.1. Manufacturer's maintenance instructions.
   1.2. Guarantees, warranties, test certificates, record schedules and log books.

### 920 Completion

1. Protection: Remove.
2. Cleaning and maintenance: Carry out in accordance with procedures detailed in fabricators' guarantees.

Ω End of Section

# Z20
# Fixings and adhesives

## Summary

## Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Products

### 310 Fasteners generally

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

### 320 Packings

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

### 330 Nailed timber fasteners

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

### 340 Masonry fixings

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

### 350 Plugs

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

### 360 Anchors

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

### 370 Wood screws

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

### 380 Miscellaneous screws

1. Type: To suit the fixing requirement of the components and substrate.
   1.1. Pattern: Self-tapping, metallic drive screws, or power driven screws.

2. Washers and screw cups: Where required to be of same material as screw.

### 390 Adhesives

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

### 410 Powder actuated fixing systems

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

## Execution

### 610 Fixing generally

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

### 620 Fixing through finishes

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

### 630 Fixing packings

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

### 640 Fixing cramps

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

### 650 Nailed timber fixing

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

### 660 Screw fixing

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

### 670 Pelleted countersunk screw fixing

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

3. Finished level of pellets: Flush with surface.

## 680 Plugged countersunk screw fixing

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

## 690 Using powder actuated fixing systems

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

## 700 Applying adhesives

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

Ω End of Section

# Z21
# Mortars

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Cement gauged mortars

### 110 Cement gauged mortar mixes

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

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

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

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

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

### 135 Site made lime:sand for cement gauged masonry mortars

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

### 160 Cements for mortars

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

## 180 Admixtures for site made cement gauged mortars

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

## 190 Retarded ready to use cement gauged mortar

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

## 200 Storage of cement gauged mortar materials

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

## 210 Making cement gauged mortars

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

# Lime:sand mortars

## 310 Lime:sand mortar mixes

1. Manufacturer: Limetec Ltd.
2. Product: Hydraulic lime mortar.
3. Mix proportions:
   3.1. Mortar class: Moderately hydraulic.
   3.2. Lime:sand ratio: 1:2.25
   3.3. Hydraulic lime mix designation: HLM2.5
   3.4. Typical compressive strength: 2.5 N/mm² at 91 days.
   3.5. Mortar durability class: 5 - 6.
4. Colour: Submit proposals.
5. Other requirements: In accordance with manufacturer's requirements.

## 320 Sand for lime:sand masonry mortars

1. Type: Sharp, well graded.

1.1. Quality, sampling and testing: To BS EN 13139.

1.2. Grading/ Source: As specified elsewhere in relevant mortar mix items.

## 345 Admixtures for hydraulic lime:sand mortars

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

## 350 Storage of lime:sand mortar materials

1. Sands and aggregates: Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.
2. Ready prepared nonhydraulic lime putty: Prevent drying out and protect from frost.
3. Nonhydraulic lime:sand mortar: Store on clean bases or in clean containers that allow free drainage. Prevent drying out or wetting and protect from frost.
4. Bagged hydrated hydraulic lime: Store off the ground in dry conditions.

## 360 Making lime:sand mortars generally

1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
2. Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
3. Contamination: Prevent intermixing with other materials, including cement.

## 370 Site prepared nonhydraulic lime:sand mortars

1. Mixing: Mix materials thoroughly by compressing, beating and chopping. Do not add water.
   1.1. Equipment: Roller pan mixer or submit proposals.
2. Maturation period before use (maximum): Seven days.

## 400 Making hydraulic lime:sand mortars

1. Mixing hydrated hydraulic lime:sand: Follow the lime manufacturer's recommendations for each stage of the mix.
   1.1. Water quantity: Only sufficient to produce a workable mix.
2. Working time: Within limits recommended by the hydraulic lime manufacturer.

Ω End of Section

# Z22
# Sealants

## Summary

## Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

## Products

### 310 Joints

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

## Execution

### 610 Suitability of joints

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

### 620 Preparing joints

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

### 630 Applying sealants

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

Ω End of Section

# Z31
# Powder coatings

## Summary

### Revision history

| Date | No. | Title | Status | Revision | Note |
|---|---|---|---|---|---|
| 25/10/2024 | SW001-WWA-1145-C_XX-TSP-A-9974 | Architectural Specification | A4 - Authorised & Accepted Stage 4 \| Security Status: Official | C01 | |

**To be read with preliminaries/ general conditions.**

## 120 Powder-coating materials

1. Manufacturer: Submit proposals.
2. Selected manufacturer: Submit details before commencement of powder coating, including:
    - Name and contact details.
    - Details of accreditation schemes.
    - Technical data of product, including current Agrément certificates.

## 210 Working procedures

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

## 220 Powder-coating applicators

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:
        - Name and contact details.
        - Details of accreditation schemes.

## 225 Guarantees

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

## 230 Control samples

1. Prior to ordering materials for the works, obtain approval of appearance for
    1.1. Powder-coated samples: Of various grades and forms of background metal to be used, showing any colour, texture and gloss variation.
    1.2. Fabrication samples: Showing joint assembly, how powder-coating is affected and how any cut metal edges are finished and protected.
    1.3. Where manual application is required, controlled samples should be coated and inspected for colour and gloss stability
2. Samples to include the following information:
    - Product reference.
    - Colour.
    - Reference number.
    - Name.
    - Gloss level.

## 250 Component design

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

## 310 Pretreatment of aluminium components

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: 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.

## 320 Pretreatment of steel components

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: To BS EN 13438.
3. Rinsing requirements: Use demineralized water. Drain and dry.

## 430 Extent of powder coatings

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

## 435 Application of powder coatings

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

1. For aluminium components: BS EN 12206-1.

2. For steel components: 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.

## 450 Aluminium alloy fabrications

1. Units may be assembled
   1.1. Before powder-coating
   1.2. From components powder-coated after cutting to size
   1.3. Where approved, from components powder-coated before cutting to size
2. Exposure of uncoated background metal: Not acceptable.
3. Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

## 460 Steel fabrications

1. Unit assembly: Wherever practical, before powder-coating.
2. Exposure of uncoated background metal: Not acceptable.
3. Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

## 470 Fixings

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

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

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.

## 520 Protection in hazardous locations

1. Minimum thickness of 60 micrometres across significant and/ or primary surfaces
2. All cut edges, drilled holes and mitres to be fully sealed
3. Cleaning: Carried out once every three to twelve months (dependent on proximity to pollutant).

## 535 Documentation

1. Submit the following information for each batch of powder-coated components
   1.1. Supplier.
   1.2. Trade name.
   1.3. Colour.
   1.4. Type of powder.
   1.5. Method of application.
   1.6. Batch and reference number.
   1.7. Statutory requirements.
   1.8. Test certificates.
   1.9. Maintenance instructions.

## 540 Completion

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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