WRIGHT & WRIGHT ARCHITECTS

Wright & Wright Architects LLP

The British Museum

Energy Centre Programme: East Road Building

SW001-WWA-1110-A_XX-TSP-A-9914

Architectural Specification

A4 - Authorised / Security Status: Official

C03

19-02-2024

New East Road Building of the Energy Centre Programme

Contents

C20
Demolition

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, 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 report to the Contract Administrator (CA), PDF distributed digitally to 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: Trees noted in arboriculture planning reports; protect in accordance with BS 5837. Retained Boundary walls incl. Southern Party wall to No. 6-7 Grange Hotel Garden Annex & Basement foundation walls to No.s 8-11 Montague Street and 43 Russell Square. Existing Garden walls retained and decorative railings above. Existing Jade Gallery support footing and stanchion/beam. Services as defined by the MEP Engineers Drawings/Specifications. All historic building fabric unless otherwise stated. Boundary walls except those parts noted on Demolition drawings for demolition and/or removal. Existing services retained and adjacent those parts noted on the Demolition Drawings. .

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 authority

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, 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 Services Engineer's Specification and Drawings.
2. Timing: Do not start deconstruction or demolition until disconnections are completed.
3. Disconnection of remaining services: Arrange with the appropriate authorities. Remove fittings and equipment not owned by those authorities.

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. 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. Methodology to be agreed and coordinated with temporary works engineer.
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. Existing brickwork toothed into party wall to be saw cut and partially left in place to provide stability to the wall.

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 Lucion 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 proposed 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 & Perimeter property spaces to be 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

Generally/ preparation

110 Scope of work

1. Schedule: Neighbouring property Yorkstone Paving and Party Wall Brickwork
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. All for making good to northern and southern boundary walls incl.
    - Lifting and reinstatement of Yorkstone paving to neighbouring gardens
    - Brick replacement to match existing brick type and bond
    - Mortar repointing to match existing mortar as section Z21.

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: Contract administrator and Contractor's representative
3. Timing: To suit Main Contractor's programme.
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: Yorkstones in neighbouring property gardens
    1.1. Identification: Attach labels or otherwise mark items using durable, non-permanent means, to identify location and describe refixing instructions, where applicable.
    1.2. Treatment following removal: As schedule
    1.3. Storage: Protect against damage, and store until required.
        1.3.1. Storage location: Submit proposals
    1.4. Reinstatement: Refit in original locations using original installation methods.
2. Items unsuitable or not required for reuse: As shown on Demolition Drawings
    2.1. Disposal: Submit proposals
3. 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 record with text description.
3. Documentation: Submit on completion of the work.
   3.1. Number of sets: Two hardcopy and an electronic version.

Workmanship generally

150 Power tools

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

155 Putlog scaffolding

1. Usage: Not permitted Permitted only with prior approval

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 mortar repairs. London Sock bricks for existing historic brickwork repairs.
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.

258 Existing templates

1. General: Templates for replacement stones are available for making copy templates.

265 Salvaged and second hand bricks

1. Source: From Demolition of existing Boundary Wall/Building 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 historic retained boundary walls

2. Bricks: From Demolition of existing Boundary Wall/Building as C20
3. Mortar: As section Z21.
   3.1. Standard: BS EN 998-2
   3.2. Mix: Submit proposals. 1:3 ready-mixed nonhydraulic lime putty:sand
   3.3. Sand source/ type: Well graded crushed stone to approval
4. Fixings: Submit proposals.
5. Joints: To match existing adjacent.
6. Other requirements: Brick replacement to match existing brick type and bond.

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.

390 Grouting joints

1. Grout mix: Nonhydraulic lime with pozzolanic admixture; mix subject to site trials
2. Joints that cannot be fully filled with bedding mortar: Grout thoroughly around replacement masonry units.
3. Grouting: Keep grout back from exposed face to allow for the depth of pointing, using an approved temporary sealing material. Prevent grout staining exposed face.

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.

520 Mortar repairs

1. Description: Mortar repairs to retained historic party walls
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 - Not Used

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 50 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 historic retained party 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

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

E20
Formwork for in situ concrete

Generally/ preparation

120 Formwork details

1. Provide the following: Surface of forms, form liners and other means of obtaining specified finish. Panel joints - layout where exposed to view. Construction joints - positions and types. Sealing methods - at panel joints, form tie holes and construction joints. Tie holes - layout where exposed to view

200 Proprietary underslab insulation

1. Manufacturer: As P10/140.

Construction

310 Accuracy

1. General requirement for formwork: Accurately and robustly constructed to produce finished concrete in the required positions and to the required dimensions.
2. Formed surfaces: Free from twist and bow (other than any required cambers).
3. Intersections, lines and angles: Square, plumb and true.

320 Joints in forms

1. Requirements including joints in form linings and between forms and completed work
   1.1. Prevent loss of grout, using seals where necessary.
   1.2. Prevent formation of steps. Secure formwork tight against adjacent concrete.

330 Inserts, holes and chases

1. Positions and details
   1.1. Dimensioned on drawings provided on behalf of the Employer: Do not change without consent.
   1.2. Undimensioned or from other sources: Submit proposals.
2. Positioning relative to reinforcement: Give notice of any conflicts well in advance of placing concrete.
3. Method of forming: Fix inserts or box out as required. Do not cut hardened concrete without approval.

405 Column shutters

1. Manufacturer: Submit proposals

470 Release agents

1. Use: All formwork where finish is exposed to view.
2. General: Achieve a clean release of forms without disfiguring the concrete surface.
3. Product types: Compatible with formwork materials, specified formed finishes and subsequent applied finishes. Use the same product throughout the entire area of any one finish.
4. Protection: Prevent contact with reinforcement, hardened concrete, other materials not part of the form face, and permanent forms.

480 Surface retarders

1. Use: Obtain approval.
2. Reinforcement: Prevent contact with retarder.

Striking

510 Striking formwork

1. Timing: Prevent any disturbance, damage or overloading of the permanent structure.

Formed finishes

600 Samples of finishes available for inspection

1. Quality of finish: Plain finish E20/620.
2. Location: *Panel built by CONSTRUCT at the Medway School of Engineering.*
3. Variations: None.

605 Control samples (part of the finished work)

1. Quality of finish: Plain finish E20/620.
2. Location: Obtain instructions.
3. Area (minimum): To be agreed.
4. Features to be included: Formwork joints, tie holes.
5. Approval of appearance: Obtain before proceeding with remainder of the work.

615 Finish to receive roof waterproofing

1. Finish: To roofing system manufacturer's requirement.
2. Permissible deviation of surfaces
   - 2.1. Sudden irregularities (maximum): 3 mm.
   - 2.2. Gradual irregularities (maximum): 3 mm, when measured from underside of a 1 m straightedge, placed anywhere on surface.
3. Surface blemishes
   - 3.1. Permitted: Blowholes less than 10 mm in diameter.
   - 3.2. Not permitted: Voids, honeycombing, segregation and other large defects.
4. Projecting fins: Remove.
5. Formwork tie holes: Filled with mortar.

620 Plain finish

1. Location: Generally for walls, columns, soffits and undersides of stairs.
2. Finish: Even and dense. Arrange formwork panels in a regular pattern as a feature of the surface.
3. Permissible deviation of surfaces
   - 3.1. Sudden irregularities (maximum): 3 mm.
   - 3.2. Gradual irregularities (maximum): 3 mm, when measured from the underside of a 1 m straightedge, placed anywhere on surface.
4. Variations in colour
   - 4.1. Permitted: Those caused by impermeable formwork linings.
   - 4.2. Not permitted: Those caused by contamination or grout leakage.
5. Surface blemishes

5.1. Permitted: Blowholes less than 10 mm in diameter and at an agreed frequency.

5.2. Not permitted: Voids, honeycombing, segregation and other large defects.

6. Formwork tie holes: In a regular pattern and filled with precast fibre-reinforced concrete plugs with rebated edge. Colour to match concrete.

750 Arrises, margins and junctions

1. Requirements: Finish E20/640 - square.

Ω End of Section

E41
Worked finishes to in situ concrete

To be read with preliminaries/ general conditions.

120 Directly finished concrete wearing surfaces Floor and roof slabs

1. Description: Generally for floor and roof slabs.
2. Abrasion resistance class to BS 8204-2: AR1/DF
3. Finish: Wood floated finish.
   3.1. Additional surface treatment: Refer to J31/615A.
4. Curing: Submit proposals.

120 Directly finished concrete wearing surfaces Stairs

1. Description: Generally for stair treads, risers, landings, tops of parapets.
2. Abrasion resistance class to BS 8204-2: AR1/DF
3. Finish: Trowelled finish.
   3.1. Additional surface treatment: As E41/330.
   3.2. Slip resistance (minimum): PTV 36.
4. Curing: Submit proposals.

145 Control samples

1. Sample areas that are part of finished work: Provide sample in situ for inspection.
2. Location: Submit proposals.
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.

330 Trowelled finish for wearing surfaces

1. Surface on completion: Uniform and smooth, free from trowel marks and blemishes and suitable to receive applied nosing as L30/590.

520 Concrete sealers

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: Powerfloat Sealer Matt Anti-slip
2. Composition: Epoxy resin-based.
3. Primer: Not required.
4. Category: Surface penetrating.
5. Colour: Clear.
6. Coverage: 40 m² per 5 L.
7. Finish:: Matt, anti-slip

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

Types of walling

110A Clay facing Flemish bond brickwork Option 1

1. Bricks: To BS EN 771-1.
    1.1. Manufacturer: Wienerberger Ltd
        1.1.1. Contact details
            1.1.1.1. Address: Wienerberger House
            Brooks Drive
            Cheadle Royal Business Park
            Cheadle
            Cheshire
            United Kingdom
            SK8 3SA
            1.1.1.2. Telephone: +44 (0)161 4918200
            1.1.1.3. Web: www.wienerberger.co.uk
            1.1.1.4. Email: WBUKMarketing@wienerberger.com
        1.1.2. Product reference: Smeed Dean Weathered Yellow Stock (24230300).
    1.2. Standard: To BS EN 771-1.
    1.3. Brick description: Pressed soft mud brick.
    1.4. Appearance: Flat/sanded.
    1.5. Work size (length x width x height): 215 x 102.5 x 65 mm.
    1.6. Tolerances
        1.6.1. Mean value: T1.
        1.6.2. Range: R1.
    1.7. Compressive strength
        1.7.1. Mean compressive strength (minimum): ≥15 N/mm².
    1.8. Density
        1.8.1. Gross dry: 1380 kg/m³.
        1.8.2. Tolerance: D1.
    1.9. Water absorption: ≤22%.
    1.10. Thermal conductivity: 0.510 W/mk.
    1.11. Reaction to fire: Class A1 to BS EN 13501-1.
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: None
3. Bond: Flemish
4. Joints: Bucket handle

110A Clay facing Flemish bond brickwork Option 2

1. Bricks: To BS EN 771-1.
    1.1. Manufacturer: Imperial Bricks Ltd
        1.1.1. Contact details

1.1.1.1. Address: Crowgreaves Farm
Stableford
Bridgnorth
Shropshire
United Kingdom
WV15 5LT

1.1.1.2. Telephone: +44 (0)174 6330994

1.1.1.3. Web: www.imperialbricks.co.uk

1.1.1.4. Email: sales@imperialbricks.co.uk

1.1.2. Product reference: Original London Stock, Yellow Stock (IMPERIAL157/65).

1.2. Standard: To BS EN 771-1.

1.3. Brick description: Through colour clay handmade brick.

1.4. Appearance: Flat/sanded.

1.5. Work size (length x width x height): 215 x 102.5 x 65 mm.

1.6. Tolerances

1.6.1. Mean value: TM.

1.6.2. Range: RM.

1.7. Compressive strength

1.7.1. Mean compressive strength (minimum): Mean value 15.7 N/mm².

1.8. Water absorption: 21%.

1.9. Reaction to fire: Class A1 to BS EN 13501-1.

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: None

3. Bond: Flemish

4. Joints: Bucket handle

110B Clay facing stretcher bond brickwork Option 1

1. Bricks: To BS EN 771-1.

1.1. Manufacturer: Wienerberger Ltd

1.1.1. Contact details

1.1.1.1. Address: Wienerberger House
Brooks Drive
Cheadle Royal Business Park
Cheadle
Cheshire
United Kingdom
SK8 3SA

1.1.1.2. Telephone: +44 (0)161 4918200

1.1.1.3. Web: www.wienerberger.co.uk

1.1.1.4. Email: WBUKMarketing@wienerberger.com

1.1.2. Product reference: Smeed Dean Weathered Yellow Stock (24230300).

1.2. Standard: To BS EN 771-1.

1.3. Brick description: Pressed soft mud brick.

1.4. Appearance: Flat/sanded.

1.5. Work size (length x width x height): 215 x 102.5 x 65 mm.

1.6. Tolerances
1.6.1. Mean value: T1.
1.6.2. Range: R1.
1.7. Compressive strength
1.7.1. Mean compressive strength (minimum): ≥15 N/mm².
1.8. Density
1.8.1. Gross dry: 1380 kg/m³.
1.8.2. Tolerance: D1.
1.9. Water absorption: ≤22%.
1.10. Thermal conductivity: 0.510 W/mk.
1.11. Reaction to fire: Class A1 to BS EN 13501-1.

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)

3. Bond: Half-lap stretcher

4. Joints: Bucket handle

110B Clay facing stretcher bond brickwork Option 2

1. Bricks: To BS EN 771-1.
1.1. Manufacturer: Imperial Bricks Ltd
1.1.1. Contact details
1.1.1.1. Address: Crowgreaves Farm
Stableford
Bridgnorth
Shropshire
United Kingdom
WV15 5LT
1.1.1.2. Telephone: +44 (0)174 6330994
1.1.1.3. Web: www.imperialbricks.co.uk
1.1.1.4. Email: sales@imperialbricks.co.uk
1.1.2. Product reference: Original London Stock, Yellow Stock (IMPERIAL157/65).
1.2. Standard: To BS EN 771-1.
1.3. Brick description: Through colour clay handmade brick.
1.4. Appearance: Flat/sanded.
1.5. Work size (length x width x height): 215 x 102.5 x 65 mm.
1.6. Tolerances
1.6.1. Mean value: TM.
1.6.2. Range: RM.
1.7. Compressive strength
1.7.1. Mean compressive strength (minimum): Mean value 15.7 N/mm².
1.8. Water absorption: 21%.
1.9. Reaction to fire: Class A1 to BS EN 13501-1.

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: None

3. Bond: Half-lap stretcher
4. Joints: Bucket handle

355A Concrete common blockwork Type A

1. Description: To inner leaves and internal walls on ground and first floors.
2. Blocks: To BS EN 771-3.
   2.1. Manufacturer: Ibstock Plc
      2.1.1. Contact details
         2.1.1.1. Address: Leicester Road
         Ibstock
         Leicestershire
         LE67 6HS
         2.1.1.2. Telephone: +44 (0)1909 775 000
         2.1.1.3. Web: www.ibstock.co.uk/forticrete
      2.1.2. Product reference: H2 (Hi-Light®) Solid shot-blasted block, Ivory.
   2.2. Standard: To BS EN 771-3.
   2.3. Appearance: Medium off-white in colour with a rough textured surface.
   2.4. Configuration: Group 1.
   2.5. Compressive strength
      2.5.1. Mean value: 10.4 N/mm².
   2.6. Thermal conductivity: 0.82 W/m·K.
   2.7. Work sizes (length x width x height): 440 x 140 x 215 mm.
   2.8. Tolerance category: D1.
   2.9. Density
      2.9.1. Net dry density: 2100 kg/m³.
   2.10. Reaction to fire: Class A1.
   2.11. Water absorption by capillarity: 5/15 μ.
   2.12. Weighted sound reduction index, Rw: 51 dB.
   2.13. Unit weight: 19.4 kg.
   2.14. Configuration: Group 2.
3. Mortar: As section Z21.
   3.1. Standard: To BS EN 998-2
   3.2. Mix: 1:1:6 cement:lime:sand 4 N/mm² (class M4)
   3.3. Additional requirements: Mortar samples to be submitted. In situ sample area to be provided for inspection.
4. Bond: Half-lap stretcher

355B Concrete common blockwork Type B

1. Description: To inner leaves and internal walls on ground and first floors.
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 90mm).

2.2. Standard: To BS EN 771-3.

2.3. Block description: Standard.

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 90 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. Moisture movement: <0.6 mm/m.

2.17. Environmental Product Declaration (EPD): ISO 14001.

2.18. R-Value: 0.08 m² K/W.

2.19. Sound reduction: 48 dB (Rw).

2.20. Unit weight: 17.2 kg.

2.21. Configuration: Group 1

2.22. Additional requirements: None

3. Mortar: As section Z21.

3.1. Standard: To BS EN 998-2

3.2. Mix: 1:1:6 cement:lime:sand 4 N/mm² (class M4)

3.3. Additional requirements: Mortar samples to be submitted. In situ sample area to be provided for inspection.

4. Bond: Half-lap stretcher

355C Cellular glass thermal blockwork

1. Description: To floor-wall base elements.
2. Blocks: To BS EN 771-3.

2.1. Manufacturer: FOAMGLAS®

2.1.1. Contact details

2.1.1.1. Address: 31-35 Kirby Street
London

United Kingdom
EC1N 8TE

2.1.1.2. Telephone: +443301227638

2.1.1.3. Web: www.foamglas.co.uk

2.1.1.4. Email: technical@foamglas.co.uk

2.1.2. Product reference: FOAMGLAS® PERINSUL HL

2.2. Standard: To BS EN 13167.

2.3. Recycled content: ≥60%.

2.4. Work sizes (length x width x height): 450 x 140 x 215 mm, laid to suit wall thickness configurations.

2.5. Density: 200 kg/m³.

2.6. Compressive strength (minimum): ≥2.75 MPa to EN 826 annexe A.

2.7. Thermal conductivity (maximum): λD ≤0.058 W/m·K.

2.8. Water vapour resistance: μ = ∞.

2.9. Sound reduction: ≥28 dB at 100 mm thickness.

2.10. Third party product certification: British Board of Agrement (BBA Perinsul 14/5111).

2.11. Reaction to fire: Euroclass E (Core material Euroclass A1).

2.12. Facing: Bitumen coated and laminated with a PE/ glass fleece composite top and bottom (black and green).

2.13. Edges: 90 degrees.

2.14. Configuration: Group 1

2.15. Additional requirements: Install as per manufacturer's requirements with continuous and free of mortar and debris placement.

385 Engineering brickwork

1. Description: To below ground brickworks and Transformer Rooms according to UKPN requirements.
2. Bricks: To BS EN 771-1.
   2.1. Manufacturer: Wienerberger Ltd
      2.1.1. Product reference: Class A Engineering Bricks.
   2.2. Mean compressive strength: Greater than or equal to 125 N/mm².
      2.2.1. Category: I.
   2.3. Water absorption: Equal to or less than 4.5%
   2.4. Freeze/ thaw category: F2.
   2.5. Active soluble salts content category: S2.
   2.6. Additional requirements: Walls shall be constructed of 215 mm fully bonded brickwork, with common bricks to be frogged and laid with frogs facing upward.
3. Mortar: As section Z21.
   3.1. Standard: To BS EN 998-2
   3.2. Mix: 1:½:4½ cement:lime:sand
   3.3. Additional requirements: None
4. Bond: English.
5. Joints: Neat struck joints.

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: As 110A and 110B
     - 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/ 110A and 110B .
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. AAC block thin mortar adhesive and gypsum block adhesive joints: Fill vertical joints. Lay blocks on a full bed.
3. Clay block joints
   3.1. Thin-layer mortar: Lay blocks on a full bed.
   3.2. Interlocking perpends: Butted.
4. Bond where not specified: Half-lap stretcher.
5. Vertical joints in brick and concrete block facework: Even widths. Plumb at every fifth cross joint.

520 Accuracy

1. Courses: Level and true to line.
2. Faces, angles and features: Plumb.
3. Permissible deviations
   3.1. Position in plan of any point in 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.

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.

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.

580 Laying frogged bricks

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

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.

635 Jointing

1. Profile: Consistent in appearance.

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: None
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: All brick types.
2. Selection of samples: Representative of the range in variation of appearance.

745 Masonry sample panels

1. Sampling frequency: A panel for each type and delivery of masonry unit.
2. Selection of masonry units: Reasonably representative of the average quality of the whole order to be delivered
3. Panel types
   3.1. Walling type: F10/110A and F10/110B.
      3.1.1. Size: 1200 x 1200mm.
      3.1.2. Other requirements: To include pointing, window frame and Orsogril panel, refer to drawing 4230.

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

Cavities

120 Cleanliness

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

130 Perpend joint weep holes

1. Form: Open perpend joint.
2. Locations: Through outer leaf immediately above base of cavity, at cavity trays, stepped dpcs and external openings. 75 mm above top of cavity fill at base of cavity.
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. Refer to drawing 4230.

150 Cellular glass insulation boards

1. Manufacturer: FOAMGLAS®
   1.1. Contact details
      1.1.1. Address: 31-35 Kirby Street
      London
      United Kingdom
      EC1N 8TE
      1.1.2. Telephone: +443301227638
      1.1.3. Web: www.foamglas.co.uk
      1.1.4. Email: technical@foamglas.co.uk
   1.2. Product reference: FOAMGLAS® T3+
2. Standard: To BS EN 13167.
3. Reaction to fire: Euroclass A1 To EN 13501-1.
4. Third party product certification: Environmental Product Declaration (ISO 14025 and EN 15804): EPD-PCE-20150042-IBA1-DE.
5. Thermal conductivity (maximum): λD ≤0.036 W/mK.
6. Thickness: 100 mm and 200 mm, refer to Architect's drawings.
7. Compressive strength (minimum): ≥500 kPa to EN 826 annexe A.
8. Density: 100 kg/m³.
9. Recycled content: ≥ 60%.
10. Facing: Unfaced.
11. Edges: 90 Degrees.
12. Water vapour resistance: μ = ∞.
13. Face size (nominal length x width): 600 x 450 mm
14. Additional requirements: Install as per manufacturer's requirements.

155 Mineral wool slab insulation

1. Manufacturer: ROCKWOOL Ltd
   1.1. Contact details
      1.1.1. Address: ROCKWOOL Ltd
      14th Floor, Chiswick Tower

389 Chiswick High Road
London
W4 4AJ

1.1.2. Telephone: +44 (0)1656 862621

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

1.1.4. Email: info@rockwool.com

1.2. Product reference: NyRock® Cavity Slab 032 (Thickness 200 mm)

2. General requirements: Insulation products generally.
3. Standard: To BS EN 13162.
4. Thickness: 200 mm.
5. Facing: Unfaced.
6. Edges: Square.
7. Thermal conductivity (maximum): 0.032 W/mK.
8. Fire performance: To EN 13501-1, Euroclass A1.
9. Width: 455 mm.
10. Length: 1200 mm.
11. Vapour resistivity: 5.9 MNs/gm.
12. Placement: Secure against face of inner leaf.
    12.1. Residual cavity: Clear and unobstructed.
13. Joints between boards, at closures and penetrations: No gaps and free from mortar and debris.

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: info@rockwool.com

    1.2. Product reference: ROCKWOOL® ROCKCLOSE® (20–100 mm thick (non-standard))
2. To fit cavity width: Refer to Architect's drawings.
3. Length (effective): 1200 mm.
4. Execution: Installing dcps.
5. Thickness: To suit required cavities.
6. Width: To suit required cavities.
7. Fire performance: One-hour fire integrity and 30 minutes' insulation.
8. Thermal resistance: Manufacturer's standard.

Reinforcing/ fixing accessories

214 Cavity wall ties

1. Standard: To BS EN 845-1.
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 SBD Frame Cramp.

3. Material: Austenitic stainless steel.

4. Length: 125 mm.

215 Cavity wall ties used with partial fill insulation

1. Manufacturer: Leviat

1.1. Contact details

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

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

1.1.3. Web: www.leviat.com

1.1.4. Email: info.uk@leviat.com

1.2. Product reference: Ancon ST1 Wall Tie.

2. Material: Austenitic stainless steel.

3. Length: 350 mm.

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

241 Wall starters/ connectors

1. Standard: To BS EN 845-1

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: Submit proposals

3. Material/ finish: Austenitic stainless steel.
4. Sizes: Varies to manufacturer's recommendations, to suit coursing.

251 Wall head restraint slip ties

1. Standard: To BS EN 845-1
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 IHR Head Restraint.

3. Material/ finish: Austenitic stainless steel - material/ coating reference 3.
4. Sizes: Varies to manufacturer's recommendations, to suit coursing.
5. Shear load capacity: 1.5 kN.
6. End types: Symmetrical deformed plate for mortar bedding.
7. Stem length: To suit blockwork coursing.
8. Embedment length (minimum): 50 mm.
9. Allowable joint thickness (minimum): 10mm to deflection head.
10. Additional requirements: M8 bolt fixings to underside of concrete or suitable to manufacturer's recommendations.

265 Support system

1. Manufacturer: Leviat

1.1. Contact details

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

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

1.1.3. Web: www.leviat.com

1.1.4. Email: info.uk@leviat.com

1.2. Product reference: Ancon MDC/CP Masonry Support System with Closer Plate Welded to Underside of Door and Window Heads.

2. Material: Austenitic stainless steel.
3. Components, arrangement and dimensions: As shown on drawings, to include channels cast into the edge of the concrete and suitable thermal breaks.

Flexible damp-proof courses/ cavity trays

330 Damp-proof courses

1. Description: High performance polymeric sheet.
2. Manufacturer: Delta Membrane Systems Ltd
   2.1. Contact details
      2.1.1. Address: Delta House
      Merlin Way
      North Weald
      Epping
      Essex
      United Kingdom
      CM16 6HR
      2.1.2. Telephone: +44 (0)1992 523523
      2.1.3. Web: www.deltamembranes.com
      2.1.4. Email: info@deltamembranes.com
   2.2. Product reference: High Performance DPC.

345 Site-formed flexible sheet cavity tray

1. Material: High performance polymeric sheet.
2. Manufacturer: Delta Membrane Systems Ltd
   2.1. Contact details
      2.1.1. Address: Delta House
      Merlin Way
      North Weald
      Epping
      Essex
      United Kingdom
      CM16 6HR
      2.1.2. Telephone: +44 (0)1992 523523
      2.1.3. Web: www.deltamembranes.com
      2.1.4. Email: info@deltamembranes.com
   2.2. Product reference: High Performance DPC.

390 Junction cloaks/ stop ends for site-formed dpcs/ cavity tray

1. Three dimensional changes in shape: Form to provide a free draining and watertight installation. Seal laps.
2. Alternative use of preformed junction cloaks/ stop ends: Submit proposals.

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.

465 Sealing of dpcs

1. Overlaps and junctions: Seal with adhesive recommended by dpc manufacturer.

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.

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. Thickness: To match design width of joint.
   2.2. Manufacturer: Sika Limited

2.2.1. Contact details

2.2.1.1. Address: Watchmead
Welwyn Garden City
Hertfordshire
AL7 1BQ

2.2.1.2. Telephone: +44 (0)1707 394444

2.2.1.3. Web: www.sika.co.uk

2.2.1.4. Email: enquiries@uk.sika.com

2.2.2. Product reference: Sika® Backer Rod Fire

2.3. Fire performance

2.3.1. Fire resistance: To EN 13501-2, up to class EI 240; To EN 1366-4, up to 4 hours.

2.3.2. Reaction to fire: To EN 13501-1, Class A1.

2.4. Material: Mineral fibre wool wrapped with glass fibre yarn.

2.5. Density: ~250 kg/m³.

3. Sealant

3.1. Designation: ISO 11600-F-25LM

3.2. Manufacturer: Sika Limited

3.2.1. Product reference: SikaHyflex®-250 Facade

3.3. Colour: To be confirmed.

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.

Proprietary sills/ lintels/ copings/ dressings

745 Prestressed concrete lintels

1. Standard: To BS EN 845-2.
2. Manufacturer: Naylor Concrete Products Ltd

2.1. Contact details

2.1.1. Address: Whaley Road
Barugh Green
Barnsley
South Yorkshire
S75 1HT

2.1.2. Telephone: +44 (0)1226 320810

2.1.3. Web: www.naylor.co.uk

2.1.4. Email: lintels@naylor.co.uk

2.2. Product reference: Xtrafire XFR8

3. Standard: To BS EN 845-2.
4. Types: Single.
5. Dimensions

5.1. Length: Various, to suit openings are per door

5.2. Cross section: 140 x 215 mm.

6. Characteristics

6.1. Deflection under load: 1.62 mm.

6.2. Freeze/ thaw: Resistant.

6.3. Mass: 72 k.g./m.

6.4. Resistance to fire: 120 minutes.

7. Additional requirements: Refer to S/E and Fire Strategy drawings for specifications.
8. Samples: Provide area for review in situ as part of F10/355.
9. Placement: Bed on mortar used for adjacent work. Prop at not more than 1.2 m centres to prevent displacement during construction. Retain props in position for not less than 14 days or until mortar has matured, whichever is longer.

9.1. Bearing length (minimum): Refer to manufacturer's recommendations.

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

1. Standard: To BS 1217.
2. Manufacturer: Submit proposals, based on site inspection to match existing.

2.1. Product reference: Cast coping stone to match existing.

3. Finish/ colour: To match existing.
4. Mortar for bedding/ jointing: Hydraulic lime:sand as section Z21.

4.1. Hydraulic lime: To match existing.

4.2. Sand: To match existing.

4.2.1. Colour: To match existing.

4.2.2. Source/ type: To match existing.

4.3. Mix: To match existing.

5. Joints: Full and finished flush.
6. Placement: Lay on a full bed of mortar to line and level.

780 Coping system

1. Manufacturer: Dales Fabrications Ltd - Aluminium Eaves Products

1.1. Contact details

1.1.1. Address: Crompton Road Industrial Estate
Ilkeston
Derbyshire
DE7 4BG

1.1.2. Telephone: +44 (0)115 9301521

1.1.3. Web: www.dales-eaves.co.uk

1.1.4. Email: techinfo@dales-eaves.co.uk

1.2. Product reference: Ridgeway (Double Sloped) Copings (Alloy 1050 (Powder Coating or Mill Finish))

2. Material: BS EN 515, BS EN 573-3, BS EN 485-1 and BS EN 485-2.
3. Finish: Syntha Pulvin polyester powder coating. Polyester Powder coating must be A2 s1, d0 limited combustibility (EN 13501-1: 2018 Classification of reaction to fire).
4. Material thickness (minimum): 3.0 mm.
5. Fixings: Secret fix.
6. Colour: RAL to be confirmed (PPC).
7. Accessories: Corners/Transitions/Junction/Stopends/Special items to be designed and factory manufactured specifically for the application.
8. Profile: Twice weathered.
9. Type: Clip on, sloped in two directions to replicate traditional stone and concrete capping systems.

10. Method of jointing/ fixing: Joints assembled centrally over brackets and “snapped” into place and in accordance with project specific drawings and installation instructions provided by Dales Fabrications Ltd.
11. Samples: Provide sample of PPC RAL colour.

Miscellaneous items - Not Used

Ω End of Section

F31
Precast concrete sills/ lintels/ copings/ features

Types of component

105 Precast concrete sill

1. Description: Precast splayed concrete sill thresholds.
2. Concrete: Components manufacturer's 'proprietary' concrete.
   2.1. Identity: Manufacturer's mix reference.
3. Conformity: To BS 8500-2 and the recommendations of
   3.1. BS 8500-1, Annex A.4 for the specified exposure class.
   3.2. Evidence: Submit third-party certification from a UKAS-accredited laboratory.
4. Exposure Class: As manufacturer's standard.
5. Reinforced components: As manufacturer's standard, precast component to be reinforced with high tensile steel of minimum 500N/mm².
6. Matching sample for finish to visible faces: As reference sample.
7. Other requirements: Product reference is concrete splayed thresholds, 300 x 150 mm with 200 x 100 mm splay by Willowcrete. Site size openings and provide schedule of types as show drawing for approval.

General requirements

210 Moulds

1. Permissible fabrication and operating tolerances: Length 0 to +6 mm, other dimensions ±3 mm.

220 Concrete generally

1. Specification: To BS 8500-2 and BS EN 206.
2. Producer: Accredited to BS 8500-2 requirements where product conformity certification is required.

250 Reinforcement

1. Carbon steel reinforcement: As appropriate to BS 4449, BS 4482 and BS 4483.
   1.1. Cutting and bending: To BS 8666.
2. Galvanized reinforcement: Galvanized to BS EN ISO 1461 after cutting. Chromate treated.
3. Stainless steel reinforcement: To BS 6744.
   3.1. Designation 1.4301.
   3.2. Cutting and bending: To BS 8666.
4. Non-structural reinforcement: Include to resist shrinkage and handling stresses.
5. Bimetallic corrosion and staining: Prevent by appropriate selection and use of materials.
6. Condition at time of placement: Clean, free of corrosive pitting, loose materials and substances that adversely affect reinforcement, concrete, or bond between the two.
7. Fixing: Accurate and secure.
   7.1. Method: Wire tying, approved steel clips or tack welding if permitted.
   7.2. Concrete cover: Maintain free of all tying wire or clips.

255 Quality assurance of reinforcement

1. Reinforcement to BS 4449, BS 4483 and BS 6744: Obtain valid

2. certificates of approval for product conformity issued by the
3. UK Certification Authority for Reinforcing Steels.

260 Casting and curing

1. Placing of concrete: Thoroughly compact.
2. Protection against drying out: Methods and duration to BS EN 13369.
3. Immature components: Avoid movement, vibration, overloading, physical shock, rapid cooling and thermal shock.
4. Delivery to site: Minimum 14 days after casting.

261 Cutting

1. Cutting of precast concrete components: Not permitted.

262 Records

1. Records for each type of component: Maintain details including:
   1.1. Unique identification number.
   1.2. Identification of the producer.
   1.3. Identification of the place of production.
   1.4. Correlation with records of mixes, including batch numbers.
   1.5. Date of each stage of manufacture.
   1.6. Dates and results of all tests, checks and inspections, including certification where relevant.
   1.7. Dimensions related to specified levels of accuracy.
   1.8. Specific location in the finished work.
   1.9. Weight of the unit.
   1.10. Damage and making good.
   1.11. Any other pertinent data, e.g. if unit is a production control unit.
2. Availability of records for inspection: On request.

Fair-faced components

330 Mixes for visible faced components

1. Constituent materials and mix design for each finish type: To remain constant.
2. Colour and appearance of each finish type: To remain constant.
3. Aggregates: To BS EN 12620.
   3.1. Origin: Single source for each finish type, having sufficient quantity for whole contract.

350 Quality of finishes

1. Appearance standard: As established by samples.

370 Cover on visible faces

1. Spacers: Not permitted.
2. Proposed method statement: Submit.

380 Consistency of production methods

1. Production methods: To remain consistent for each matching type of finish.
2. Finish appearance: To remain within the range of variation indicated by the samples
   2.1. submitted.

3. Changes to production methods: If variations are proposed for components of the same finish, submit evidence that there will be no difference in appearance.

390 Inspection

1. Completed components: Give notice when ready to be inspected at factory.

Installation

420 Laying

1. Mortar for bedding and jointing: As section Z21.
   1.1. Type: Site-batched and mixed.
   1.2. Mix: 1:1:6 cement: lime:sand.
   1.3. Packing: If required use slate.
2. Bedding components: On full bed of mortar.
3. Removal of marks, stains and extraneous mortar on visible faces: Rubbing not permitted.

430 Support of existing work over new lintels

1. Joint above lintels: Fully fill and compact with semidry mortar.

440 One-piece sills/ thresholds

1. Bed joints: Leave clear of mortar except at end bearings and beneath masonry mullions.
   1.1. On completion: Point with mortar to match adjacent work.

Ω End of Section

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

Types of cladding/ covering system

110 Aluminium PPC soffit

1. Manufacturer: Dales Fabrications Ltd - Aluminium Eaves Products
2. Contact details
   2.1. Address: Crompton Road Industrial Estate
   Ilkeston
   Derbyshire
   DE7 4BG
   2.2. Telephone: +44 (0)115 9301521
   2.3. Web: www.dales-eaves.co.uk
   2.4. Email: techinfo@dales-eaves.co.uk
3. Product reference: Aluminium Secret Fix Panel System.
4. Material: Aluminium.
5. Finish
   5.1. Coating: Polyester powder coating to BS 12206-1:2004.
   5.2. Colour: To be confirmed.
6. Fixing: Fixings recommended, i.e. Dales Monocoque Support System, for the purpose and supplied by the manufacturer. All exposed visible fixings to be supplied pre-coated in colour-matching paint.
7. Hidden gutter: Not required.
8. Width: Submit proposals to suit depth of undercover area to achieve equal width.
9. Gauge: 18 gauge (1.2 mm).
10. Joint: Internal fascia soffit butt straps secured by secret-fix internal serrated clips, where possible, assemble dry with 3mm expansion gap between each fascia.
11. Accessories: Corners/transitions/junction/stop-ends/special items to be designed and factory manufactured specifically for the application by the manufacturer.

General requirements

167 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. Design standard: In accordance with BS 5427.
2. Structural requirements: To manufacturer's recommendations and to be approved by and in conjunction with S/E design and specifications.
3. Additional requirements: None
4. Design and production information: As Preliminaries section A31
5. Timing of submissions: As Preliminaries section A31

175 Product samples

1. General: Before commencing detailed design, submit labelled samples of the following: Dales Aluminium PPC soffit panels in agreed finish for approval.

Design/ performance requirements

208 Fire performance of insulation

1. Reaction to fire: To BS EN 13501-1, Class A1

Fixing cladding/ roof covering

270 Mineral wool thermal insulation

1. Standard: To BS EN 13162.
2. Material: Refer K11/890B.
   2.1. Thermal conductivity (maximum): Refer K11/890B.
3. Recycled content: Refer K11/890B.
4. Installation: Refer K11/890B.

410 Fixing sheets generally

1. Cut edges: Clean true lines
2. Sheet orientation: Submit proposals.
3. Fasteners: To manufacturer's recommendations.
4. Debris: Remove dust and other foreign matter before finally fixing sheets
5. Completion: Check fixings and sealants to ensure that they are watertight, and that fixing and sheets are secure with no buckling or distortion

480 Flashings/ trims generally

1. Method of fixing: To structure in conjunction with adjacent sheeting. Otherwise to sheeting.
   1.1. Fasteners: To manufacturer's recommendations.

550 Sealing laps on external sheets

1. Sealant tape: Types recommended by sheet manufacturer.
   1.1. Position: Below fixing positions in straight unbroken lines, parallel to and slightly back from edge of sheet.
2. Seal quality: Effective, continuous and not over compressed.
3. End laps: Sealant tape positions: To manufacturer's recommendations.
4. Side laps: Sealant tape positions: To manufacturer's recommendations.

Ω End of Section

H72
Aluminium strip/ sheet fully supported roof and wall coverings/ flashings

Types of aluminium work

110 Aluminium sheet fully supported roof covering

1. Manufacturer: BMI Group UK Ltd
2. Contact details
   2.1. Address: BMI House
   2 Pitfield Kiln Farm
   Milton Keynes
   MK11 3LW
   2.2. Telephone: +44 (0)1908 015760
   2.3. Web: www.bmigroup.com/uk
   2.4. Email: sales.admin@bmigroup.com
3. Product reference: Wakaflex Rapid Flashing (280 mm x 5 m - 10002886)
4. Material: Polyisobutylene with high quality aluminium rib mesh insert and butyl adhesive edges.
5. Colour: Lead Grey.
6. Size:: Various to suit flashing requirements.

250 Aluminium PPC flashing

1. Manufacturer: Alumasc Water Management Solutions
2. Contact details
   2.1. Address: Station Road
   Burton Latimer
   Kettering
   Northamptonshire
   NN15 5JP
   2.2. Telephone: +44 (0)1536 383810
   2.3. Web: www.alumascwms.co.uk
   2.4. Email: info@alumascwms.co.uk
3. Product reference: Alumasc Skyline Aluminium Cill Profile (SC3)
4. Form: Three times bent cill.
5. Flashing: Weathered Cill Detail.
6. Finish: Polyester Powder Coated. Colour to be confirmed.
7. Samples: Provide sample of PPC RAL colour.

General requirements/ preparatory work

510 Workmanship generally

1. Standard: Generally to BS EN 14783, BS EN 507, CP 143-15 and latest edition of the FTMRC publication 'UK guide to good practice in fully supported metal roofing and cladding'.
2. Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.
3. Operatives: Trained in the application of aluminium coverings/ flashings. Submit records of experience on request.
4. Measuring, marking, cutting and forming: Prior to assembly wherever possible.

5. Marking out: With pencil, chalk or crayon. Do not use scribers or other sharp instruments without approval.
6. Folding: With mechanical or manual presses to give straight, regular and tight bends, leaving panels free from ripples, kinks, buckling and cracks. Use hand tools only for folding details that cannot be pressed.
7. Surface protection: Fully coat surfaces to be embedded in concrete or mortar with high build bitumen-based paint, after folding.
8. Sharp metal edges: Fold under or remove as work proceeds.
9. Joints: Do not use sealants to attain waterproofing.
10. Finished aluminium work: Fully supported, adequately fixed to resist wind uplift and able to accommodate thermal movement without distortion or stress.
    10.1. Protection: Prevent staining, discolouration and damage by subsequent works.

515 Welding

1. In situ welding: Not permitted.

516 Welding

1. In situ welding: Permitted subject to completion of a 'hot work permit' form and compliance with its requirements.

520 Aluminium strip/ sheet

1. Standard: To BS EN 14783.
    1.1. Stamped or labelled with alloy designation, temper, finish and thickness.
2. Manufacturer: Contractor's choice.
    2.1. Product reference: Submit proposals.

530 Integrity of aluminium

1. Requirement: Design coverings/ flashings and methods of attachment to prevent loss of weathertightness and permanent deformation due to wind pressure or suction.
2. Structural requirements
    2.1. Wind loads: As per structural engineer's requirements.

550 Lightning protection

1. Aluminium coverings: Attach the following to a lightning protection system as shown on Architects details and in reference to the MEP Engineer's specifications.
2. Electrical continuity: Provide between aluminium strips/ sheets via welting of joints.

555 Layout

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

560 Control samples

1. General: Complete areas of finished work and obtain approval of appearance before proceeding:
2. Size: First completed section.
3. Location: First completed section.

565 Mock-up

1. General: At an agreed stage construct a mock-up as follows: As previously agreed a sample area of 1200x1200 mm. Refer to drawing 4230..

2. Purpose to demonstrate workmanship, joints and interface with doors and windows package. This is a repeating detail.
3. Inspection: Arrange to be carried out. Obtain approval of appearance before proceeding. Retain mock-up in undisturbed condition until completion of aluminium installation.

610 Suitability of substrates

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

640 Timber for use with aluminium work

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

646 Sheet underlay

1. Description: Needle punched non-woven polyester geotextile underlay.
2. Manufacturer: Contractor's choice.
   2.1. Product reference: Submit proposals.
3. Weight: 200 g/m2.
4. Recycled content: 90% minimum to BS EN ISO 14021.

650 Laying sheet underlay

1. Handling: Prevent tears and punctures.
2. Laying: Butt jointed onto a dry substrate.
   2.1. Fixing edges: With aluminium or galvanized steel staples or 20 x 3 mm extra large head clout nails.
   2.2. Do not lay over eaves and drip/ step aluminium underlaps.
3. Ventilation paths: Do not obstruct.
4. Protection: Keep dry and cover with aluminium at the earliest opportunity.

Fixing

710 Fixings for clips

1. Nails to timber substrates: Aluminium to BS 1202-3 for aluminium clips. Stainless steel (austenitic) for stainless steel clips.
   1.1. Shank type: Annular ringed or helical threaded.
   1.2. Shank diameter: Not less than 2.65 mm.
   1.3. Head: Flat.
   1.4. Length: Not less than 25 mm or equal to substrate thickness.
2. Screws to concrete/ masonry substrates: Sherardized or zinc plated steel or aluminium, for aluminium clips, to BS EN 14592. Stainless steel (austenitic) to BS EN 14592 for stainless steel clips.
   2.1. Diameter: Not less than 3.35 mm.
   2.2. Length: Not less than 25 mm.
   2.3. Washers and plastic plugs: Compatible with screws.

3. Screws to composite metal decks: Self tapping, as recommended by the deck and aluminium manufacturer/ supplier for aluminium or stainless steel clips.

Jointing

810 Forming details

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

Ω End of Section

J30
Liquid-applied tanking/ damp-proofing

Types of tanking/ damp proofing

110 Cold-applied slurry mortars

1. Substrate: Common concrete blockwork walls and concrete floors and ceilings
2. Coating: Mineral coating containing crystallizing and capillary-plugging agents.
   2.1. Manufacturer: Delta Membrane Systems Ltd
      2.1.1. Contact details
         2.1.1.1. Address: Delta House
         Merlin Way
         North Weald
         Epping
         Essex
         United Kingdom
         CM16 6HR
         2.1.1.2. Telephone: +44 (0)1992 523523
         2.1.1.3. Web: www.deltamembranes.com
         2.1.1.4. Email: info@deltamembranes.com
      2.1.2. Product reference: Koster NB1 - Crystallization Active Slurry Mortar
   2.2. Additive: Köster NB 1 Flex.
   2.3. Coating system: Minimum two coats.
   2.4. Consumption (per layer applied): 1.5 kg/m2.
   2.5. Density: 1.85 kg/L.
   2.6. Colour: Grey.
   2.7. Primer: Köster Polysil® TG 500, as M60/195.

120 Cold-applied tanking system

1. Substrate: Paving mastic asphalt (only).
2. Primer: Triflex Cryl Primer 222.
3. Coating: Refer to manufacturer's recommendations based on tests.
   3.1. Manufacturer: Triflex (UK) Ltd.
      3.1.1. Product reference: Triflex ProFloor with Quartz Design - Small grain.
4. Reinforcement: As coating manufacturer's recommendations.
5. Blinding: As coating manufacturer's recommendations.

Execution

205 Suitability of substrate

1. Substrates generally
   1.1. Smooth, even textured, clean, dry and frost-free.
   1.2. Within tolerances for level and surface regularity.
   1.3. Vertical and horizontal surfaces: Correctly prepared and free from irregularities.
2. Curing period for concrete substrates (minimum): Seven days.
3. Moisture content and stability of substrate: Must not impair integrity of finished tanking/ damp-proofing.

4. Preliminary work: Complete including:
   4.1. Chases.
   4.2. External angles.
   4.3. Formation of upstands and kerbs.
   4.4. Movement joints.
   4.5. Penetrations/ Outlets.

206 Adhesion testing

1. Tensile bond strength: Test in accordance with BS EN ISO 4624.
2. Test results: Submit.

207 Primers

1. Application: Uniform, continuous coverage.

210 Coating application

1. Adjacent surfaces exposed to view in finished work: Protect.
2. Coatings
   2.1. Apply in dry atmospheric conditions when substrate is dry.
   2.2. Uniform, continuous coverage. Do not allow to pool in hollows.
   2.3. Firmly adhered to substrate and free from imperfections.
   2.4. Prevent damage to finished coatings.
3. Penetrations: Impervious.
4. Final covering: Apply as soon as possible after coating has hardened.

Completion

310 Inspection

1. Interim and final inspections: Submit reports.

Ω End of Section

J31
Liquid-applied waterproof roof coatings

Types of coating

NBS Section J31 - Description of Works

1. Section J31 deals with the installation of the Bauder Bakor Hot Melt roof system comprising monolithic membrane (incorporating reinforcement), access/protection/root resistant layers as required and including insulation and vapour permeable/filter layers where specified. Surface finishes of paving slabs or gravel are included where required. We presume the deck substrate as stated within the specification below. Accessories are included where relevant.

   It is intended for use on projects where the detailed design is completed by the specifier (architect) with technical assistance from the manufacturer as required and should be read in conjunction with any project specific drawings provided.

   To be read with Preliminaries/ General conditions, Bauder Hotmelt Installation Guide, Bauder fixing instructions and specifications.

Safe2Torch Advice

1. *The application of a torch-on underlayer to or in the vicinity of combustible materials does not conform to the recommendations and the advice given in the 'Safe2Torch' document produced by the National Federation of Roofing Contractors. Care should be taken if torch drying damp substrates.*

   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 to provide assistance in the assessment of the risks where the use of a gas torch is being considered.

   Please note, there could be 'TORCH-FREE' areas within the roof area(s), however there are either no roof plans available or the design is not sufficiently complete at this stage in the project to enable Bauder to complete a 'TORCH-FREE' roof plan. Once this plan becomes available and the design is sufficiently complete, please contact the Bauder Area Technical Manager (details at the end of the specification) and this can then be created for this area.

130 Bauder Bakor 790-11 Inverted System PLANT E 42 + BauderGLAS Inverted Insulation

1. Bauder Project Reference: B234121
2. Manufacturer: Bauder Ltd
3. 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.
4. Roof Area(s): Main & Level 02
5. Product reference: Bauder Bakor Hot Melt Inverted Roof System - Hot Applied
6. 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 Concrete wearing surfaces Code of practice shall be SR2 (5mm).

- No hollows, deflections or back-falls, wood float finished and fully cured.
- **Preparation:** As clause 615A, 710, 740, 741.

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

6.1.1. Skirtings and vertical work: As horizontal work.

7. Waterproof coating: **Bakor790-11** hot melt rubberised bitumen.

7.1. Application: As clause 722, 760

8. Reinforcement: **Bauder Polyester reinforcing**

9. Thickness: 6mm in two 3mm coats, plus protection sheet / surfacing as described below.

10. Upstands and details: Upstand detailing to be formed in **Bakor790-11,** as clause 770A.

11. Protection layer to upstands / details: **BauderPLANT E 42**, torch-on capping sheet, 4.2 mm thick, 250g/m² polyester reinforced elastomeric bitumen root resistant, green slate 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 770B.

11.1. Protection layer to field area: **BauderPLANT E 42**, 4.2 mm thick, 250g/m² polyester reinforced, elastomeric bitumen root resistant, access/protection sheet – green slate 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 780B.

12. Insulation: **BauderGLAS Inverted Insulation** for flat roofs subject to permanent loads of up to 400 kPa.
- Soft Landscaping - 260mm design thickness to achieve the required 'U' Value (refer Clause 230), or 285mm design thickness including BS6229:2018 advisory minimum 10%.
Should the required total thickness of insulation exceed 240mm, the insulation will be supplied in two layers to meet the required U Value.
IMPORTANT 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 810A.

12.1. Insulating vertical upstands: Install **BauderGLAS Inverted Upstand Insulation**, after the completion of the chosen Bauder Waterproofing System.
The vertical upstand(s) 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 300mm in height from the deck surface to the top of the upstand, where the upstand does not exceed 150mm 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.**
Rooflight upstands (e.g. Builder's Kerbs) that are not supplied by the rooflight supplier as part of the rooflight assembly must be insulated to achieve a maximum U value of 0.35W/m²K. Therefore, the **BauderGLAS Inverted Upstand Insulation** will need to use a 50mm **BauderGLAS Inverted Upstand Insulation** backing board behind the 50mm **BauderGLAS Inverted Upstand Insulation** to achieve 0.35W/m²K. Alternatively they can be created as warm roof upstands.
Please refer to clause 811A.

13. Water control/ filter layer: **Bauder JFRI WFRL Membrane** (Water Flow Reducing Layer). Installation as clause 816A.

14. Surfacing:

- **(MAIN & LEVEL 02)** Extensive green roof landscaping including Bauder BioSOLAR- refer Section Q37-130
- **(LEVEL 02 ONLY)** Intensive Hard landscaping - refer Section Q37-110

15. Accessories:

- **Bauder Hot Melt Compact – Vertical Outlet, 100 mm DN**, (where required) complete with integral clamping ring, Neoprene gaskets and tough polyamide Dome Grate leaf guard. To be supplied and installed – quantity as required. Installation as clause 784.
- **Bauder Parapet Emergency Overflow Outlet Stainless Steel DN 70** (where required). Installation as clause 784G

16. Additional Requirements: Refer clauses 210, 230, 310, 410, 411, 412,413, 415A, 910, 920A, 940
17. Guarantee information: Refer clause 950H

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): 0.12W/m²K
   U-Values quoted are based on the Bauder waterproofing system construction including insulation and underlying deck material only. This does not include the supporting structure and/or any other materials within the construction below the deck, unless Bauder has been advised otherwise prior to producing the calculations. Refer to the project specific U-Value Calculation for additional information.
   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. Types: Recommended by coating manufacturer

370 Precast concrete paving slabs

1. Description: As Q25/127.

390 Plastics sheets

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: Bauder JFRI 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 pre-requisite 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. We cannot guarantee any waterproofing that has been insulated and/or landscaped without this inspection having been carried out and passed as acceptable.

413 Health and Safety Information - Roofing Work

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

415B 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: -**
2. 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.
3. 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.
4. 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.
5. The waterproofing should be taken up all abutment upstands, protrusions etc. a minimum of 150mm above finished surface level i.e. top of the ballast.

615A 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 (5mm)

NBS Reference

- E10-In situ Concrete.

- E20-Formwork for In Situ Concrete.
- E30-Reinforcement for In Situ Concrete.E60-Pre-Cast 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/m^3 for hotmelt 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.
   - Pre-Cast 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, 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 (1m²) 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 (500mm²) which must be allowed to dry as per Bauder recommendations. Once the primer has dried, apply approx. 3-4mm of the specified **Bakor 790-11 Hot Melt Compound** (400mm²) and **Bauder Protection Layer** (300mm²) 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).
We recommend 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 75-100m²) 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.

720B Applying Primer Bauder Polymer Primer

1. 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.
2. 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.

3. Application method: **Bauder Polymer Primer** to be spray, 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.
4. Application rate: between 4-6m^2 per litre, dependent upon substrate porosity.
5. Drying time: Approx. 30 minutes, dependent upon ambient temperature and substrate porosity.
6. Coats: Fully bond. Allow volatiles to dry off thoroughly between coats.
7. Re-application: Necessary after 24 hours exposure if waterproofing has not yet been applied, to maintain adhesion performance.
8. 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 buildings ventilation system.

722 Membrane application to Details (Prior to Flat Area)

1. The waterproofing is applied to structural details first i.e. upstands, outlets, cracks etc. before the main deck area is waterproofed.

   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. Up to 12mm
2. Reinforcement strip: **Bauder Neoprene** bedded in a preliminary application of **Bakor 790-11** coating applied 3mm thick to a width of 150mm 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 **Bakor790-11** system is then applied directly over the reinforcement strip as per specification.
3. From 12mm - 25mm
4. Reinforcement strip: **Bauder Neoprene** bedded in a preliminary application of **Bakor 790-11** coating applied 3mm thick to a width of 150mm on each side of the joint. **Bauder Neoprene** is to be looped down into the movement joint to a depth of 1 ½ 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 **Bakor790-11** system is applied directly over the reinforcement strip as per specification.

741 Movement joints in substrate

1. Cracks - 1.5mm to 3.0mm
2. Reinforcement strip: **Bauder Polyester fabric reinforcement** bedded in a preliminary application of **Bakor 790-11** coating applied 3mm thick to a width of 150mm on each side of the crack. Apply 150mm polyester reinforcement strip 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 reinforcing strip 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 **Bakor790-11** system is then applied directly over the reinforcement strip as per specification.
3. Cracks - 3.0mm to 12.0mm

4. Reinforcement strip: **150mm Bauder Neoprene** bedded in a preliminary application of **Bakor 790-11** coating applied 3mm thick to a width of 150mm on each side of the crack. 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 **Bakor790-11** system is applied directly over the reinforcement strip as per specification.

750 Preliminary local reinforcement

1. Appropriate 150 mm wide reinforcement strip (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 Polyester reinforcing strip: Suitable with concrete decks where the upstand is either monolithically cast insitu, subsequently cast insitu or constructed from brick or block work.
3. Bauder Neoprene Reinforcement: To be used in all other situations i.e. plywood or OSB substrates with abutment upstands or kerbs constructed from the same material, timber or metal sheeting. This reinforcement must also be used at all outlets, penetrations, fixings etc.

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 reinforcing layer** 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 10mm wide, ensuring that a layer of hot melt membrane is present between the layers.
3. Apply the second layer of **Bakor 790-11** hot melt rubberised bitumen coating at a working temperature of between 180°C - 200 °C, evenly onto the polyester reinforcing layer 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.

770A Skirtings and upstands

1. Preliminary reinforcement strip: The correct reinforcement strip must first be applied at all right angled abutments, penetrations, outlets and fixings etc before the application of the **Bakor 790-11** detailing (except for when the alternative two-layer SBS membrane system is used). Please see clause 750. If unsure about the correct reinforcing material for any given situation, please refer to the Bauder Installation and Quality Assurance Manual or contact Bauder's Technical Department for confirmation or further information.
2. Waterproofing application
    2.1. First layer: **Bakor 790-11** hot melt rubberised bitumen membrane, applied 3mm thick up the upstands and out onto the deck a minimum of 200mm.
    2.2. Second layer: **Bakor 790-11** hot melt rubberised bitumen membrane, onto the deck and upstand over the reinforcement layer, 3mm thick up the upstands and out onto the deck a minimum of 200mm ensuring to "feather" down towards the edge.
    2.3. Reinforcement: **Bauder Polyester reinforcing sheet** to be embedded into the first layer of **Bakor 790-11**, up the upstands, and dressed down and out onto the flat by 75mm. Laps to be a minimum of 10mm. The reinforcing sheet must be applied when the hot melt

rubberised bitumen is still hot in order to ensure a full adhesion and a partial bitumen bleed through.

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 300mm 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 cills, 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.
Requirements:

- Minimum 75mm 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 cill.
- Waterproofing is dressed up and under the door cill. Prior to installation of the door frame, the membranes must be dressed up the reveal to a minimum 150mm in height.
- Door cill has a minimum 45mm overhang.
- Provision is made for emergency overflow to prevent water getting to the waterproofing and cill interface.

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

770B Coating Protection (Upstands/Detailing) PLANT E 42 only

1. Location: Upstands and details
2. Material: **BauderPLANT E 42**, 4.2 mm thick, polyester based, root resistant elastomeric bitumen slate mineral surfaced access/protection sheet 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.
3. Laps: All laps to be 100mm and torch sealed, ensuring there is a continuous extrusion of bitumen from all laps
4. 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 cills, pipes etc. Bauder cannot take responsibility for water ingress over waterproofing details constructed below the recommended minimum height.
5. Level Thresholds: Acceptable, providing conforms to BS6229:2018 and current NHBC Standards, chapter, 7.1.
Requirements:

- Minimum 75mm 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 cill.
- Waterproofing is dressed up and under the door cill. Prior to installation of the door frame, the membranes must be dressed up the reveal to a minimum 150mm in height.
- Door cill has a minimum 45mm overhang.
- Provision is made for emergency overflow to prevent water getting to the waterproofing and cill interface.

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

780B Coating protection layer PLANT E 42 only

1. Location: All areas (but excluding upstands and details)
2. Material: **BauderPLANT E 42**, 4.2 mm thick, polyester based, root resistant elastomeric bitumen slate mineral surfaced access/protection sheet to be rolled into the second layer of **Bakor790-11** hot melt rubberised bitumen coating while it is hot, to ensure a full bond. A wide headed brush used mineral surfaced when rolling in will assist in avoiding wrinkles and prevent entrapping air bubbles.
3. Laps: All laps to be a minimum of 100mm and properly sealed by ensuring that there is hot melt bitumen within the overlaps.

784 Roof drainage outlets

1. Product name: **Bauder Hot Melt Compact - Vertical Outlet**
2. Material: Cast polyurethane body with integral clamping ring and Neoprene gaskets
3. Product size / reference: **100 DN** mm, with vertical spigot designed to connect to standard 110mm pipework.
4. Flow rate: 6.1 litres/sec. (Based upon vertical pipework, fitted leaf guard and a 35 mm head of water pressure – according to BS EN 12056:3:2000)
5. Pipe connection: **Bauder Hot Melt Compact - Vertical Outlets** are suitable for connection to:
    - uPVC “O” ring socketed soil grade pipe to BS 4514: 1983
    - Socketed and socket-less cast iron pipework to BS 416:1973 and EN 887. Socketed pipework will require cold caulking or PVC to cast iron adaptors. Socket-less pipework can be connection using an appropriate SML mechanical coupling.
    - HDPE pipework with appropriate SML mechanical coupling
6. Type of grate / fittings: Supplied with a tough polyamide Dome Grate leaf guard
7. Bauder Hot Melt Compact - Vertical Outlet - Installation Requirements: These components form part of the Bauder waterproofing system and for guarantee reasons should only be installed by Bauder Approved installers. Connectivity to below deck drainage pipework to be the responsibility of the plumbing contractor.
8. Fixing:
    1. Core hole through deck 250mm.
    2. Place smaller neoprene gasket on to deck surface over pre-cored hole.
    3. Install outlet into hole sitting on top of neoprene gasket.
    4. Mechanically fasten the outlet into substrate using the three pre-drilled holes in the polyurethane outlet flange.
    5. Install the first layer of Hot Melt waterproofing on to the first 35mm of the polyurethane outlet flange. Note - If the first coat of Hot melt is taken further than this into the depression on the flange, it is very difficult to sit the screw flange correctly.
    6. Install the 495 x 495mm neoprene gasket on to the first layer of Hot Melt whilst still hot.
    7. Install the second coat of Hot Melt fully covering the 495 x 495mm neoprene gasket up to the edge of the outlet hole.

8. Install the protection sheet over the Hot Melt waterproofing and trim to ensure the outlet hole is clear and free from waterproofing material.
9. Place the clamping ring into position ensuring it provides a physical clamp between the protection sheet and outlet body.
10. Tighten the countersunk head screws supplied with a screwdriver in a uniform opposing pattern with a maximum torque of 9 Nm. the screws should be checked and tightened at least three times, 24 hours between each check.

784G Parapet Emergency Overflow

1. Product name: **Bauder Parapet Emergency Overflow Stainless Steel DN 70**
2. Material and specification: Stainless Steel. Length of tube 800mm. 3° neck slope
3. Flow rate: In accordance with BS EN 12056-3-2000, Overflows or emergency outlets should be provided on flat roofs with parapets and in non-eaves gutters in order to reduce the risk of over spilling of rainwater into a building or structural overloading.
4. Suitability: These emergency overflow outlets are designed to be used as a through chute to warn of a build-up of water on the roof due to a blockage of the drainage system(s). They are not suitable or intended for connection to internal pipework that is within a wall construction or boxed in and is inaccessible after construction.
5. Installation requirements: Emergency overflow (suitable for bitumen membranes) to be installed through the system and kerb after creation of a suitable size diameter opening. The overflow should be secured using suitable fixings. The fixing plates supplied will form part of the Bauder waterproofing system and for guarantee reasons should only be installed by Bauder Approved installers.
6. Fixing: The deck or wall structure may require preparatory works before the emergency overflow can be installed: The bitumen waterproofing membrane should be suitably bonded on to the overflow plate. The overflow opening should be positioned approx. 35mm above the lowest point of the waterproofing or landscape finish.

Surfacing

810A Laying inverted roof insulation (Field Areas) BauderGLAS

1. Preparation: Clear roof of other trades
2. Condition of substrate: Clean.
3. Thermal requirements: In compliance with Part L of the current Building Regulations.
4. Separating layer: N/A
5. Setting out: Loose lay insulation directly over the Access/Protection/Root Barrier Layer to brick pattern with staggered joints. Minimize 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.
   5.1. Joints: Butt together.
6. Projections, upstands, rainwater outlets, etc: Cut insulation cleanly and fit closely around.
7. Completion
   7.1. Boards in good condition, well-fitting and stable.
   7.2. Cover to prevent wind uplift and flotation as soon as practicable.
8. Loading over inverted insulation (minimum): Ballast (landscaping) should be installed onto the **Bauder WFRL Membrane (Water Flow Reducing Layer)** to a minimum depth required to achieve a permanent minimum 80Kg/m² and load which prevents wind uplift and flotation of the insulation in high winds and/or heavy rainfall.
9. 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 50mm thick. The slabs should be laid on paving slab supports of minimum 175mm diameter (or equivalent base area), and preferably circular in shape.

10. All final details must to be confirmed with Bauder before proceeding.
11. Please refer to **Bauder Inverted Insulation** Product Data Sheet for further installation guidance.
12. *Since the introduction of BS6229:2018 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 BS6229:2018 Clause 4.6.2.2 Note. Bauder Ltd is aware that a number of manufacturers may not be advising their clients of this.*

811A Laying inverted roof insulation (Vertical Upstands) BauderGLAS Inverted Upstand Insulation

1. Attachment / Installation sequence:
    - Upstand board height to be no greater than 150mm above finished landscape level.
    - 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.
    - However, if there are two or more layers (multi layers) 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 100mm thick.
    - Top edge of **BauderGLAS Inverted Upstand Insulation** should be protected by a suitable cover flashing.
    - Non-solvent PU Adhesive should be used to restrain the **BauderGLAS Inverted Upstand Insulation** if required.
    - Insulation boards must be installed tightly butted together.
2. Multiple board layers: Where an additional layer is required to achieve 0.35W/m²K, 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.
3. Upstands formed at insulated wall abutments: **BauderGLAS Inverted Upstand Insulation** to be used at thermal break abutment upstands where the upstand does not exceed 150mm above the roof finishes. Installation in accordance with the above instructions and those found on our **BauderGLAS Inverted Upstand Insulation.**

816A WFRL (Water Flow Reducing Layer)

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 300mm 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.

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:
   - **Final Inspection:** This is a requirement for guarantee and must be carried out in strict accordance with Bauder Limited requirements.
   - The final inspection of the waterproofing and the Electronic roof integrity test (refer clause 920A) 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.
   - **Please note**, there are/maybe further roof 'sign-off' inspections required to complete the roof(s) for this specification. If so, please note the below.
   - **Other requirements:** Please also refer to preliminaries / general conditions.
4. 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.

920A 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: On completion of a successful test confirming waterproofing integrity, submit copy to Bauder for processing of guarantee

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.

950H 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 waterpfoofing 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 Limited for approval prior to the guarantee being issued.

Ω End of Section

J40
Flexible sheet waterproofing/ damp-proofing

To be read with preliminaries/ general conditions. - Not Used

Types of tanking/ damp proofing

120 Loose laid damp-proofing

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: www.deltamembranes.com
      1.1.4. Email: info@deltamembranes.com
   1.2. Product reference: Delta High Performance DPC (damp proof course/Radon barrier)
2. Material: Polymer.
3. Compatibility: Suitable for use with adjoining gas resistant dpms.

290A High-density polyethylene (PE-HD) studded sheets

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: www.deltamembranes.com
      1.1.4. Email: info@deltamembranes.com
   1.2. Product reference: Delta MS 500 - Waterproofing Membrane
2. Third-party certification: BBA Agrément Certificate number 00/3742.
3. Stud height: 8 mm.
4. Sheet thickness: 0.5 mm.
5. Weight (minimum): Manufacturer's standard.
6. Colour: Clear.
7. Performance characteristics
   7.1. Flow rate: 2.25 L/s/m.
   7.2. Fire performance: Reaction to fire, to EN 13501-1: Class E.
8. Joint sealant: As recommended by the manufacturer.
9. Typical compressive strength: >250 kN/m².

10. Service temperature range: -30°C to +80°C.
11. Joints: As recommended by the manufacturer.

290B High-density polyethylene (PE-HD) studded sheets

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: www.deltamembranes.com
      1.1.4. Email: info@deltamembranes.com
   1.2. Product reference: Delta MS20 - Cavity Drainage Membrane
2. Standard: To BS EN 13252; Type C cavity drainage to BS 8102:2022.
3. Third-party certification: CE marked and to BBA Agrément Certificate.
4. Stud height: 20 mm.
5. Sheet thickness: 1 mm.
6. Weight (minimum): Manufacturer's standard.
7. Colour: Brown.
8. Performance characteristics
   8.1. Flow rate: 101 L/s/m.
   8.2. Fire performance: Reaction to fire, to EN 13501-1: Class E.
9. Accessories: As recommended by the manufacturer.
10. Drainage: 10 L/s.
11. Service temperature range: -30 to +80°C.
12. Typical compressive strength: 150 kN/m².
13. Roll size: 20 x 2 m.
14. Stud height: 8 mm.
15. Performance characteristics
   15.1. Flow rate: 2.25 L/s/m.
   15.2. Fire performance: Reaction to fire, to EN 13501-1: Class E.
16. Joint sealant: As recommended by the manufacturer.
17. Typical compressive strength: >250 kN/m².
18. Service temperature range: -30°C to +80°C.
19. Joints: As recommended by the manufacturer.

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: www.deltamembranes.com

1.1.4. Email: info@deltamembranes.com

1.2. Product reference: Delta Geo-Drain - Waterproofing And Drainage Membrane

2. Description: Four-ply drainage layer, 9 mm high studs.
3. Standards: To BS EN 13252.
4. Certification: CE marked.
5. Accessories: As recommended by the manufacturer.
6. CompressiveStrength: 400 kN/m².
7. Installation depth: 10 m.
8. Service temperature range: -30°C to–+80°C.

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.

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 recommended by the manufacturer.

370 Preformed collars for pipes, ducts, cables, etc.

1. Manufacturer: Grace.
   1.1. Product reference: Where these pass through sheeting, make junctions completely impervious using Grace Liquid Membrane™ and where required, Preprufe Tape.
2. Sealing: Fully bonded to penetrations and sheeting.
3. Completed junctions: Impervious.

Ω End of Section

K10
Gypsum board dry linings/ partitions/ ceilings

Types of dry lining

185 Extruded polystyrene (XPS) boards Type A

1. Manufacturer: Schlüter-Systems Ltd
   1.1. Contact details
      1.1.1. Address: Units 3-5
      Bardon 22
      Beveridge Lane
      Coalville
      Leicestershire
      LE67 1TE
      1.1.2. Telephone: +44 (0)1530 813396
      1.1.3. Web: https://eu.schluter.com/en-GB/
      1.1.4. Email: technical@schluter.co.uk
   1.2. Product reference: Schlüter®-KERDI-BOARD
2. Third party product certification: British Board of Agrément (BBA) Certification and CE Marked.
3. Fire performance: Euroclass E.
4. Facing: Reinforcement layer with anchoring fleece webbing.
5. Edges: Square.
6. Thickness: 12.5 mm.
7. Panel dimensions: 625 x 2600 mm.
8. Wall: Concrete blockwork
9. Adhesive method: Dabs as clause 625
10. Fire performance
11. Linings: Wet area tiling
12. Finishing: Seamless jointing
    12.1. Primer/ Sealer: As recommended by board manufacturer for vapour control

220A Proprietary suspended ceiling system

1. Standard: To BS EN 13964.
2. Evidence of compliance: Submit Declaration of Performance (DoP).
3. Manufacturer: British Gypsum
   3.1. Product reference: GypCeiling MF C100017 MR1 (EN)
4. Fire performance
   4.1. Reaction to fire: To BS EN 13501-1, class D-s3, d2 or better
5. Lining board: First layer 12.5mm Gyproc WallBoard; face layer 12.5mm Gyproc Moisture Resistant
   5.1. Finishing: Seamless jointing as clause 670
6. Suspension system
   6.1. Grid centres: 1200 mm
   6.2. Secondary framework centres:: 450mm
   6.3. Suspension hanger centres:: 1200mm
   6.4. Perimeter framing:: Perimeter channel suitably fixed to background at 600mm centres.

7. Insulation: Not required
8. Access units: As L20/630C.

220B Proprietary suspended ceiling system (fire rated)

1. Manufacturer: Promat UK
2. Contact details
   2.1. Address: Passive Fire Protection
   Gordano House, Marsh Lane
   Easton-in-Gordano
   Bristol
   BS20 0NE
   2.2. Telephone: +44 (0)800 145 6033
   2.3. Web: www.promat.com
   2.4. Email: technical.promat@etexbp.co.uk
3. Product reference: Durasteel Fire Barrier (Durasteel Fire Barrier - 120 minutes' insulation.)
4. Framing:
5. Insulation: EI 120 minutes (fire attack from below)
6. Fasteners:
7. Overall thickness: 108.5mm
8. Weight (nominal): 42kg/m2
9. Channel dimensions (minimum): 80 x 60 x 3 mm.

General/ preparation

305 Compliance with performance requirements

1. Materials, components and details: As used in testing/ assessment reports. If discrepancies arise, give notice.

325 Preparation of masonry to receive wall linings

1. General: Suitable to receive lining system. Redundant fixtures and services removed. Cutting, chasing and making good completed.
2. Holes, gaps, service penetrations, perimeter junctions and around openings: Seal.
3. Adhesive fixings: Prepare substrate to achieve effective bonding.
   3.1. Contaminants: Remove loose material, dirt, grease, oil, paper, etc.
   3.2. Absorption: Control by dampening, priming or applying bonding agents as necessary.

335 Additional supports

1. Framing: Accurately position and securely fix to give full support to:
   1.1. Fixtures, fittings and service outlets. Mark framing positions clearly and accurately on linings.
   1.2. Board edges and lining perimeters, as recommended by board manufacturer to suit type and performance of lining.

395 Control samples

1. General: Complete areas of finished work and obtain approval of appearance before proceeding.
2. Type of dry lining: K10/220 Proprietary suspended ceiling system

Components

400 Gypsum boards generally

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

401 Gypsum plasterboard

1. Type: British Gypsum Gyproc WallBoard 12.5mm
2. Core density (minimum): 600 kg/m³.
3. Reaction to fire: Class A2-s1, d0 or better
4. Water vapour resistance factor: Manufacturer's standard
5. Exposed surface and edge profiles: Clean and undamaged

403 Gypsum plasterboard (moisture-resistant)

1. Type: British Gypsum Gyproc Moisture Resistant 12.5mm
2. Core: Moisture-resistant.
   2.1. Density (minimum): 650 kg/m³.
3. Paper facings: Moisture-resistant.
4. Reaction to fire: Class A2-s1, d0 or better
5. Water vapour resistance factor: Manufacturer's standard
6. Exposed surface and edge profiles: Clean and undamaged

Installation

435 Dry linings generally

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

445 Ceilings

1. Orientation of boards: Fix with bound edges at right angles to supports and with ends staggered in adjacent rows.
2. Two layer boarding: Stagger joints between layers.

485 Suspended ceiling grids

1. Setting out: Accurately aligned and level.
   1.1. Grid members and hangers: Centres to suit specified linings and imposed loads.
   1.2. Additional grid members: Provide bracing and stiffening at upstands, partition heads, access hatches, etc.
2. Fixing: Securely at perimeters, grid joints, top and bottom hanger fixings.

510 Sealing gaps and air paths

1. Location of sealant: To perimeter abutments and around openings.
   1.1. Pressurized shafts and ducts: At board-to-board and board-to-metal frame junctions.
2. Application: To clean, dry and dust free surfaces as a continuous bead with no gaps.
   2.1. Gaps greater than 6 mm between floor and underside of gypsum board: After sealing, fill with jointing compound.

560 Joints between boards

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

590 Fixing gypsum board to metal framing/ Furrings

1. Ceilings: 230 mm. Reduce to 150 mm at board ends and at lining perimeters. Fix working from the centre of each board.
2. Position of screws from edges of boards (minimum): 10 mm.
   2.1. Screw heads: Set in a depression. Do not break paper or gypsum core.

625 Fixing insulation backed plasterboard with adhesive dabs

1. Fixing to substrates: In addition to adhesive dab fixings, secure boards with nailable plugs in locations recommended by board manufacturer.

Finishing

650 Level of dry lining across joints

1. Sudden irregularities: Not permitted.
2. Joint deviations: Measure from faces of adjacent boards using methods and straightedges (450 mm long with feet/ pads) to BS 8212, clause 3.3.5.
   2.1. Tapered edge joints
      2.1.1. Permissible deviation (maximum) across joints when measured with feet resting on boards: 3 mm.
   2.2. External angles
      2.2.1. Permissible deviation (maximum) for both faces: 4 mm.
   2.3. Internal angles
      2.3.1. Permissible deviation (maximum) for both faces: 5 mm.

670 Seamless jointing to gypsum boards

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

692 Rigid beads/stops

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

695 Installing beads/ Stops

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

Ω End of Section

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

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

890A Mineral wool insulation board, foil faced

1. Description: Mineral wool insulation board to soffit under the main entry in the basement.
2. Substrate: Structure.
3. Board: Mineral wool.
   - 3.1. Manufacturer/ Supplier: ROCKWOOL Ltd
     - 3.1.1. Contact details
       - 3.1.1.1. Address: ROCKWOOL Ltd
         Wern Tarw
         Pencoed
         Bridgend
         United Kingdom
         CF35 6NY
       - 3.1.1.2. Telephone: +44 (0)1656 862621
       - 3.1.1.3. Web: https://www.rockwool.com/uk/
       - 3.1.1.4. Email: info@rockwool.com
     - 3.1.2. Product reference: ROCKWOOL® SOFFIT SLAB (160 mm-thick plain, foil or tissue-faced soffit slab)
   - 3.2. General requirements: Insulation products generally.
   - 3.3. Thickness: 160 mm.
   - 3.4. Facing: Foil faced.
   - 3.5. Edges: Square.
   - 3.6. Density: Manufacturer's standard.
   - 3.7. Thermal conductivity (maximum): 0.034 W/m·K.
   - 3.8. Compressive strength (minimum): Manufacturer's standard.
   - 3.9. Fire performance: Euroclass fire rating A1.
   - 3.10. Size:: Refer to drawings for extent of coverage.

890B Mineral wool slab insulation, plain faced

1. Description: Mineral wool insulation board to soffit under the main entry in the basement.
2. Substrate: Structure.
3. Board: Mineral wool.
   - 3.1. Manufacturer/ Supplier: ROCKWOOL Ltd
     - 3.1.1. Contact details
       - 3.1.1.1. Address: ROCKWOOL Ltd
         Wern Tarw
         Pencoed
         Bridgend
         United Kingdom
         CF35 6NY
       - 3.1.1.2. Telephone: +44 (0)1656 862621

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

3.1.1.4. Email: info@rockwool.com

3.1.2. Product reference: ROCKWOOL® SOFFIT SLAB (50 mm-thick plain-faced soffit slab)

3.2. General requirements: Insulation products generally.

3.3. Thickness: 50 mm.

3.4. Facing: Plain.

3.5. Edges: Square.

3.6. Density: Manufacturer's standard.

3.7. Thermal conductivity (maximum): 0.034 W/m·K.

3.8. Compressive strength (minimum): Manufacturer's standard.

3.9. Fire performance: Euroclass fire rating A1.

3.10. Size:: Refer to drawings for extent of coverage on soffit above main entry.

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.

915 Dryness of concrete/ screed substrates for floating floors

1. Relative humidity above substrate when tested with a hygrometer to BS 8201, Appendix A (maximum): 75%.
   1.1. Test points: All corners, around perimeter, and random points over area being tested.
   1.2. Drying aids: Turned off for not less than 4 days before testing.

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.

940 Board moisture content and conditioning

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

950 Moisture content testing

1. Test regime and equipment: Submit proposals.
2. Test results: Submit record of tests and results.

960 Fixing generally

1. Boards/ sheets: Fixed securely to each support without distortion and true to line and level.

2. Fasteners: Evenly spaced in straight lines and, unless otherwise recommended by board manufacturer, in pairs across joints.
   2.1. Distance from edge of board/ sheet: Sufficient to prevent damage.
3. Surplus adhesive: Removed as the work proceeds.

975 Metal wall framing

1. Setting out: Framing accurately aligned, vertical and securely fixed to surrounding structure at maximum 600 mm centres. All board edges supported.

976 Mineral wool insulation to metal framing

1. Installation: Neat and secure with butted joints and no gaps. Where insulation is not self-supporting, fixed at head of frame using clips or other suitable proprietary fixings.

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.

990 Access panels

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

Ω End of Section

K13
Rigid sheet fine linings and panelling

Types of lining and panelling

170 Cement-bonded wood wool infill units

1. Battens: Softwood free from decay and active insect attack and with no knots wider than half the width of the section.
   1.1. Finished size: Minimum 22 x 95mm
   1.2. Moisture content at time of fixing (maximum): 18%.
   1.3. Spacing (centres): 600mm
   1.4. Method of fixing: Concealed fixing with Troldtekt KN brackets. Installation should be in accordance with manufacturer's instructions.
2. Acoustic insulation:
   2.1. Manufacturer: Troldtekt A/S
      2.1.1. Contact details
         2.1.1.1. Address: Sletvej 2A
         Tranbjerg J
         Denmark
         2.1.1.2. Telephone: 07555 176055
         2.1.1.3. Web: www.troldtekt.com
         2.1.1.4. Email: sma@troldtekt.com
      2.1.2. Product reference: Troldtekt Plus-mineral wool panel
   2.2. Standard: To EN 13168 and EN 13964.
   2.3. Fire performance
      2.3.1. Reaction to fire: B-s1, d0.
   2.4. Structure: Fine, 1.5 mm.
   2.5. VOC emissions: Manufacturer's standard.
   2.6. Unit size: 600 x 2400 x 65 mm.
   2.7. Sub-layer: 40mm mineral wool, factory glued to face panel
   2.8. Finish layer: 25mm Troldtekt acoustic panel
   2.9. Edge profile: K0-U (square edges with U-trace).
   2.10. Colour: Natural wood, colour.
   2.11. Thermal conductivity (maximum): 0.076 W/m·K.

General requirements

210 Advance registration

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

220 Material samples

1. Representative samples of designated materials: Submit 300 x 300mm sample before placing orders.
2. Designated materials: K13/170 Cement-bonded wood wool infill units.

260 Environmental conditions

1. General requirements prior to starting work specified in this section: Building weathertight; wet trades completed and affected areas dried out.
2. Temperature and humidity before, during and after fixing lining/ panelling: Maintained at levels approximating to those which will prevail after building is occupied.

Fabrication/ fixing/ finishing

310 Accuracy of fabrication

1. Site dimensions: Take as necessary before starting fabrication.
   1.1. Discrepancies with drawings: Report without delay and obtain instructions before proceeding.
2. Permissible deviations for panels
   2.1. Length: ± 1.5 mm.
   2.2. Width: ± 1.5 mm.
   2.3. Squareness (taking the longer of 2 sides at a corner as a baseline and measuring the deviation of the shorter side from the baseline perpendicular): ± 1.5 mm in 1 m.
   2.4. Flatness (of panels with a core thickness of 12 mm and over, as delivered to site): ± 1 mm under a 600 mm straightedge.

350 Fixing linings and panelling

1. Setting out: Accurate, true to line and level, free from undulations and lipping, with lines and joints aligned, straight and parallel unless specified otherwise.
2. Movement allowance: Adequate for future moisture and temperature movement of boards.
3. Fixing of panels: Secure, to prevent pulling away, bowing, or other movement during use.
4. Methods of fixing and fasteners: As section Z20 unless specified otherwise.

360 Open joints (joints without cover strips or similar)

1. Variations in width: Evenly distributed with no sudden changes. Joints with bevelled edges to be measured to the face arrises.

Ω End of Section

K41
Raised access floors

Types of raised access floor

110 Raised access floor systems

1. Manufacturer: Access Floors Distribution
2. Contact details
   2.1. Address: Unit 5a, Westfields Trading Estate
   Premier Business Park
   Faraday Road
   Hereford
   Herefordshire
   United Kingdom
   HR4 9NZ
   2.2. Telephone: 01480 367096
   2.3. Web: www.accessfloorsdistribution.co.uk
   2.4. Email: sales@accessfloorsdistribution.co.uk
3. Product reference: JVP 4x4 System C4TTM (corner lock)
4. System performance: Structural load class 5 to BS EN 12825.
5. Subfloor preparation: Prime the unfinished floor surface.
6. Support structure type: Floorplan FPS-GH range access floor pedestals.
7. Pedestal fixings: Pedestal adhesive and mechanical fixings.
8. Raised access floor surface: 29mm JVP bare steel encapsulated panel with FSC Certified wood core.
9. Samples required: 300 x 300mm sample of floor tile.
10. Panel size: 600 x 600 mm.
11. Panel Thickness: 29 mm.
12. Weight: 10.15 kg
13. Fire resistance: To UNI EN 13502-1, REI 30r.
14. Reaction to fire: To UNI EN 13501:1, B-s1-d0.
15. Fixing: Corner lock (screw fixing to pedestal)
16. Encasement: Two steel galvanised tray, thickness 0.40mm, assembled with bi-component water-based glue, reinforced with quadruple folded patented perimeter joint.
17. Core: FSC Certified recycled chipboard core, density 700 kg/m^3.
18. Safety: To BS EN 12825:2001, Class 5A.
19. Load: 10 kN
20. Load class: Class 5.
21. Stringers: Heavy duty pedestal stringers.
22. Pedestals: Floorplan FPS-GH Pedestal.
23. Standard: To MOB PF2 PS/SPU Medium Grade.
    23.1. Authority: References to authority in MOB PF2 PS/SPU are deemed to be to employer.
24. Height
    24.1. Finished raised access floor height above subfloor: 390mm
    24.2. Floor void height: 345mm
25. Floor covering: Marmoleum sheet flooring as section M50.

General/ performance

210 General performance

1. Structural requirement: Generally as section B50.

219 Installation

1. Completed installation: Clean and stable. Free from bounce and vibration. No lipping between floor panels.

234 Fire performance

1. Reaction to fire: To UNI EN 13501:1, B-s1-d0.
2. Resistance to fire: To UNI EN 13502-1, REI 30r.

Components

315 Floor panels

1. Description: JVP 4x4 C4TTM bare steel encapsulated panel with FSC Certified wood core.
2. Panel size: 600 x 600 mm
   2.1. Dimensional deviations: To BS EN 12825, Class 1
3. Life expectancy, excluding coverings (minimum): 25 years
4. Casing material: Steel
   4.1. Casing finish: Galvanized
5. Core material: FSC Certified recycled chipboard core, density 700 kg/m^3.
6. Weight of removable panels: 10.15 kg
7. Floor panel fixing: Screws.
8. Floor panel location method: Positive.
9. Labelling
   9.1. Nonstandard panels: Identify for relocation purposes.
   9.2. Service identification labels: Provide self-adhesive labels to identify underfloor services and their direction. Fix to the visible surface of the floor panel, and under linoleum finish.

320 Pedestals

1. Description: Floorplan FPS-GH range access floor pedestals.
2. Material: Steel
3. Life expectancy (minimum): Submit manufacturer's estimate
4. Adjustability: Adjustable
   4.1. Locking: Required.
5. Additional pedestals: Adjacent to perimeter

325 Stringers

1. Description: Submit proposals
2. Type: Submit proposals
3. Life expectancy (minimum): Submit manufacturer's estimate
4. Removable stringers: Submit proposals

350 Under floor trunking

1. Description: Refer to MEP Engineer's specification and drawings.

360 Service outlet boxes

1. Description: Refer to MEP Engineer's Specification.

Installation

421 Preparation

1. Areas where flooring is to be installed: Clean before installation and keep clean during installation.
2. Setting out of flooring: Indelibly mark pedestal positions before installing services.
3. Fixtures: Before installing floor, complete fixtures that floor panels are to be cut around, or that are to be bridged by floor supports.
4. Bridging structures - supplementary supports: Submit proposals.

425 Environmental conditions

1. General: Dry, well ventilated, not subject to rapid variations or extremes of temperature or humidity.
2. RH of air (maximum): 75%.
3. Subfloors
   - 3.1. Moisture content: Test to BS 8201 using an accurately calibrated hygrometer
   - 3.2. RH (maximum): 75%.
   - 3.3. Temperature (minimum): 5°C.

431 Dust-proofing

1. Preparation: Surfaces to be sealed must be clean, dry and free from dust, grease and other contaminants.
2. Sealer: Compatible with materials used to pack and/ or fix pedestals. As Section M60/180.
   - 2.1. First coat: Apply before pedestals are erected.

433 Pedestal adhesive testing

1. Test method: To MOB PF2 PS/SPU
2. Rate of testing
   - 2.1. Pre-installation: 5 % of total in each area, selected at random
   - 2.2. During installation: 2%, selected at random
3. Witnessing: Arrange for pre-installation testing to be witnessed by: Employer's Agent & Architect.
4. Results of testing during installation: Submit.

435 Cut floor panels

1. Size (minimum): Half standard width x half standard length.
2. Edges
   - 2.1. Burrs and rough edges: Make smooth.
   - 2.2. Sealing: Seal exposed cut edges of floor panels that have moisture sensitive or combustible cores.
     - 2.2.1. Sealer: Self-adhesive aluminium foil tape, to match fire rating of panel, or better.

441 Raised access floor levels

1. Permissible deviations in level
   - 1.1. Over set length: ±1.5 mm over 3m
   - 1.2. Overall: ±3 mm

445 Perimeters

1. Expansion gaps
   1.1. Size: 10 mm.
   1.2. Location: At abutments.
2. Expansion gap filling
   2.1. Filler type: Resilient closed cell.
   2.2. Filling: Before fixing skirtings and cover strips.

Completion

510 Tools

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

515 User instructions

1. User manual contents: Include the following:
   1.1. Correct method for lifting and replacing floor panels and stringers.
   1.2. Limitations on sequence, number and positions of floor panels and stringers that can be removed safely at one time.
   1.3. Permissible loading, with guidance on use of spreader plates when shifting heavy equipment and subsequent maintenance.
   1.4. Methods for installing cabling and ducts to prevent damage to supporting structure.
   1.5. Methods for cleaning floor panels and integral finishes.
   1.6. Method for adjusting and locking pedestals.
   1.7. Recommended maintenance methods and frequency.
      1.7.1. Minimum maintenance-free life of raised access floor system.
      1.7.2. Minimum maintenance-free life of replaceable parts where this differs from that of the whole system.
      1.7.3. Minimum period during which replaceable components will be available.
   1.8. Installation instructions, including COSHH Assessment.

520 Spares

1. General: At completion, supply the following: 5% of proposed floor area.

525 Cleaning

1. Subfloors: At completion, thoroughly clean accessible areas of subfloors and leave free of dust and debris.
2. Raised access floor: Before delivery of items carried by floor, clean thoroughly.

Ω End of Section

L10
Windows/ rooflights/ screens/ louvres

General

110 Evidence of performance

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

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 external windows, rooflights, screens 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 sample/ mock-up

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 4230 for sample panel details.

150 Daylight performance

1. Daylight calculations: Refer to BREEAM Consultant's pre-assessment/ requirements.
2. BREEAM requirements
   2.1. Submit: Refer to BREEAM Consultant's pre-assessment/ requirements.

155 View out

1. Windows/ opening sizes and position: Design to meet BREEAM 'View out' criteria for relevant building type.
2. Submit design plan and elevation drawings showing the following
   2.1. All BREEAM defined 'relevant areas' dependent on building type and room depths.
   2.2. Actual or notional workstation/ desk layouts.
   2.3. Window/ open areas.
3. Submit site plan showing: Building location and proximity to external obstructions.

160 Potential for natural ventilation

1. Submit design plan and elevation drawings, and calculations confirming the following: As required by MEP Engineer/ BREEAM Consultant.

Products

310 Steel windows

1. Standard: Non-fire and/ or smoke-rated windows to BS EN 14351-1 and BS 6510.

2. Manufacturer: Schueco UK Ltd
   2.1. Contact details
      2.1.1. Address: Whitehall Avenue
      Kingston
      Milton Keynes
      Buckinghamshire
      MK10 0AL
      2.1.2. Telephone: +44 (0)1908 282111
      2.1.3. Web: www.schueco.co.uk
      2.1.4. Email: mkinfobox@schueco.com
   2.2. Product reference: Janisol Window System.
3. Finish as delivered: Polyester powder-coated.
4. Colour: TBC by Architect.
5. Thermal performance (U-value maximum): 1.5 W/m²K
6. Acoustic performance rating: Refer to Acoustician's report.
7. Fire performance
   7.1. Fire resistance: Not required.
   7.2. Reaction to fire: Not required.
   7.3. Fire egress: Not required.
8. Glazing details: As L40/496.
9. Beading: Manufacturer's standard.
10. Ironmongery/ accessories: TBC with Museum Security.
11. Fixing: Refer to Architect's drawings.

460A Framed rooflights

1. Manufacturer: VELUX Commercial
   1.1. Contact details
      1.1.1. Address: VELUX Commercial
      Woodside Way
      Glenrothes
      Fife
      KY7 4ND
      1.1.2. Telephone: +44 (0) 1592 778916
      1.1.3. Web: www.veluxcommercial.co.uk
      1.1.4. Email: sales@veluxcommercial.co.uk
   1.2. Product reference: VMS Longlight 5-25°
2. Form: Longlight modular skylight.
3. Module size: 900 x 1400mm.
4. Product performance
   4.1. Fire performance
      4.1.1. Fire resistance: To EN 1365-2 / EN 13501-2 + A1.
      4.1.2. Reaction to fire: To EN ISO 11925-2 / EN 13823, Class B.
   4.2. Whole window U-value: 1.5 W/m²K.
5. Frame
   5.1. Material: Aluminium.
   5.2. Finish

5.2.1. Coating: Scratch-resistant powder lacquer.

5.2.2. Colour: RAL colour, RAL 7021.

5.2.3. Film thickness (minimum): 40 µm.

6. Glazing or infill

6.1. Type: Double glazed butyl, hot melt, sealed units in accordance with BS 5713. Nominally mono-pitched toughened outer pane and laminated inner pane. TBC by Museum Security.

6.2. Manufacturer: Guardian Industries UK Ltd

6.2.1. Contact details:

6.2.1.1. Address: Tom Pudding Way
Goole
East Yorkshire
DN14 8GA

6.2.1.2. Contact: Olcay Parikka

6.2.1.3. Telephone: +44 (0)7977 555 753

6.2.1.4. Web: www.guardianglass.com

6.2.1.5. Email: oparikka@guardian.com

6.2.2. Product reference: SunGuard®

6.3. Construction: Double glazed.

6.4. Outer pane: 6mm Toughened and heat soaked tested Guardian ExtraClear reduced iron float glass with SunGuard SN 75 HT on surface #2.

6.5. Cavity: 20mm 90% Argon filled with black warm edge spacer, complying with gas fill and edge seal standard EN 1279-3.

6.6. Inner pane: 11.5mm Annealed PVB laminate Guardian ExtraClear reduced iron float glass.

6.7. Colour: Clear.

6.8. Coating: Low E coating.

6.9. Pane size: Refer to drawing for maximum module sizes. Subject to stress and deflection calculations, based on a pane size and wind & barrier loads where applicable. To be verified by the structural engineer and curtain wall glazing supplier/installer.

6.10. Edge support: To be supported on all four edges. Refer to frame system manufacturer for glazing rebate depth details.

6.11. Performance data:

6.11.1. Light transmission: 74.2%.

6.11.2. Solar factor (G value): 0.38 (0° vertical glazing value, 10° N/A).

6.11.3. Thermal performance: 1.5 W/m²K for 10° inclined IGU.

6.11.4. Acoustic attenuation: 40 dB Rw.

6.12. Samples: 300 x 300mm sample of glazing.

7. Cladding:

7.1. Type: Bespoke 1.5mm aluminium cladding to suit openings, as indicated on Architect's drawings.

7.2. Finish:

7.2.1. Coating: Scratch-resistant powder lacquer.

7.2.2. Colour: Dark grey Noir 2100 Sable (Granite 60).

7.2.3. Film thickness (minimum): 40 µm.

8. Flashing:

8.1. Type: Bespoke 1mm aluminium flashing to suit openings, as indicated on Architect's drawings.

8.2. Finish:

8.2.1. Coating: PVdf lacquer

8.2.2. Colour: NCS standard colour: S 7500-N (RAL 7043), gloss 30

9. Internal trim:
   9.1. Type: Bespoke metal trim to cover vapour barrier connection strip, as indicated on Architect's drawings.
   9.2. Finish
      9.2.1. Coating: Scratch-resistant powder lacquer.
      9.2.2. Colour: RAL colour, RAL 7021.
10. Structural kerb:
   10.1. Construction: Reinforced concrete kerb by main contractor.
   10.2. Mounting profile: Flat steel profile compatible with Velux Longlight clamp fixing system to be screw fixed to reinforced concrete kerb by main contractor.
11. Operation
   11.1. Type: HVC, natural ventilation.
   11.2. Control: Chain actuator.
12. Accessories: Rain sensor (KLA 200). Control Unit (KLC 410). Control Pad (KLR 200).
13. Execution: Installation of framed rooflights.
14. Other requirements: Roller blinds with remote operation.

650A/B/C/D Steel grille panels

1. Manufacturer: Lang+Fulton
   1.1. Contact details
      1.1.1. Address: Head Office & Technical Centre
      Unit 2b
      Newbridge Industrial Estate
      Edinburgh
      Scotland
      EH28 8PJ
      1.1.2. Telephone: +44 (0)131 441 1255
      1.1.3. Web: www.langandfulton.co.uk
      1.1.4. Email: sales@langandfulton.co.uk
   1.2. Product reference: Stereo-4
2. Material: Electrofused hot dip galvanised steel
   2.1. Finish as delivered: Powder-coated
   2.2. Colour:: RAL colour TBC by Architect.
3. Grid module: 62 x 132mm
4. Bearing bar: 30 x 4mm
5. Accessories/ other requirements: Access doors as indicated on Architect's drawings
6. Fixing: Bespoke welded fixings bolted to structure
7. Note:: Refer to Architect's External Grilles Schedule for panel dimensions

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: 5mm.
   2.2. Maximum: 12mm.
3. Distortion: Install windows without twist or diagonal racking.

766 Location of openable windows in naturally ventilated buildings

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

770 Damp-proof courses in prepared openings

1. Location: Ensure correct positioning in relation to window frames. Do not displace during fixing operations.
2. Product:: As F30/330.

781 Fixing of steel frames

1. Standard: As section Z20.
2. Fasteners: As manufacturer's requirements.
   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.

782 Fixing of aluminium frames

1. Standard: As section Z20.
2. Fasteners: Velux Longlight clamp fixings to be clamped to flat steel profile mounted on structural kerb.
   2.1. Spacing: When not pre-drilled or specified otherwise, position fasteners not more than 250 mm from ends of each jamb, adjacent to each hanging point of opening lights, and at maximum 600 mm centres.

810 Sealant joints

1. Sealant
   1.1. Manufacturer: Submit proposals
   1.2. Colour: To match window frames.
   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 REVISED

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. Provide certified evidence, in the form of a product conformity certificate or engineering assessment, that each pedestrian door/ doorset/ assembly supplied will comply with the specified requirements to BS EN 14351-1. Such certification must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.
2. Components and assemblies will be marked to the relevant 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 internal and external doors and roof hatches.

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 4230.

Products

410 Wood doorsets REVISED

1. Manufacturer: Shadbolt International
   1.1. Contact details
      1.1.1. Address: Springwood Drive
      Braintree
      Essex
      CM7 2YN
      1.1.2. Telephone: +44 (0)1376 333376
      1.1.3. Web: www.shadbolt.co.uk
      1.1.4. Email: nbs@shadbolt.co.uk
   1.2. Product reference: Shadbolt doorset EI 120S.
2. Third-party certification: QA Certificate.
3. Performance
   3.1. Fire resistance
      3.1.1. Integrity: To BS 476-22, 120 minutes with smoke control.
      3.1.2. Insulation: To BS 476-22, 120 minutes with smoke control.
      3.1.3. Installation: To BS 8214:2016, 120 minutes with smoke control.
   3.2. Strength and durability: To BS EN 1191, 1192 and 12400, Class 4.
   3.3. Accessibility: To comply with requirements in AD M, including opening force.
4. Frame
   4.1. Material: FSC European oak.
   4.2. Finish: Semi-matt lacquer.
5. Door leaf
   5.1. Thickness: 62 mm.
   5.2. Core: Timber-based core with non-combustible mineral fibre insulation sub-facings, MDF facings, enclosed in high quality hardwood stiles and rails.
   5.3. Facings: Wood veneer.
   5.4. Species: FSC straight grain European oak.
   5.5. Veneer cutting: Quarter cut.
   5.6. Matching of individual door leaves: Controlled random matching.
   5.7. Lippings: Two vertical concealed edge lippings of maximum 9mm thickness in near matching hardwood. Lippings to be square.
   5.8. Finish: Semi-matt lacquer.
6. Hardware: As schedule.

7. Architraves
   7.1. Material: FSC European oak.
8. Finish as delivered: Two coats of high-solid semi-matt (20% gloss) lacquer.
9. Glazing/ infill details: Clear fire-resisting glazing, where indicated on drawings.
   9.1. Manifestation: Not required.
10. Beading: To manufacturer's recommendations.
11. Ironmongery: Refer to Ironmongery Schedule.
12. Perimeter seals: Fire and smoke seal.
13. Fixing: Plugged and screwed.
14. Samples: Sample incl. finishes, ironmongery and door furniture, glazing, frames, sills, architraves.

480A Steel double doorsets Solid door leaf

1. Manufacturer: Schueco UK Ltd
   1.1. Contact details
      1.1.1. Address: Whitehall Avenue
      Kingston
      Milton Keynes
      Buckinghamshire
      MK10 0AL
      1.1.2. Telephone: +44 (0)1908 282111
      1.1.3. Web: www.schueco.co.uk
      1.1.4. Email: mkinfobox@schueco.com
   1.2. Product reference: Janisol.
2. Standard: Non-fire- and/ or smoke-rated windows to BS EN 14351-1.
3. Dimensions and configurations: Side hung opening outwards.
4. Product performance
   4.1. Accessibility: To comply with requirements in AD M, including opening force.
   4.2. Weather performance
      4.2.1. Air permeability: To EN 12207, Class 4. To achieve a minimum of 5.0m3 (h.m2) @50 Pa.
      4.2.2. Watertightness: To EN 12208, 9A.
      4.2.3. Resistance to wind load: To EN 12210, C5.
   4.3. Environmental
      4.3.1. Acoustic performance rating: To EN ISO 10140, minimum 24 dB Rw CTR.
   4.4. Thermal
      4.4.1. Whole door U-value: To EN ISO 10077-2, 1.5 W/m²·K.
5. Frame
   5.1. Material: Hot dip galvanised steel.
   5.2. Finish as delivered
      5.2.1. Coating: Polyester powder coated, 50µm.
      5.2.2. Colour: RAL colour TBC by Architect.
6. Operation: Refer to 4.1 above.
7. Security: Refer to Architect's and MEP Engineer's information. TBC with Museum Security.
8. Execution: Fixing of steel frames.
9. Infill thickness: 20–47 mm.
10. Weight: TBD.

11. Mechanical strength: To EN 14024, Class 4.
12. Operating forces: To EN 13115, Class 1.
13. Durability: To EN 12400, Class 4.
14. Impact resistance: To EN 13049, Class 4.
15. Door leaf: Insulated solid steel panel.
    15.1. Finish as delivered: Polyester powder coated to match frame.
16. Ironmongery: Refer to Ironmongery Schedule.
17. Perimeter seals: EPDM weatherseal.
18. Fixing: The Schueco Jansen steel system shall be installed in complete accordance with the information published by Schueco Jansen, exclusively by Schueco UK authorised fabricators.

480B Steel double doorsets Glazed door leaf

1. Manufacturer: Schueco UK Ltd
    1.1. Contact details
        1.1.1. Address: Whitehall Avenue
        Kingston
        Milton Keynes
        Buckinghamshire
        MK10 0AL
        1.1.2. Telephone: +44 (0)1908 282111
        1.1.3. Web: www.schueco.co.uk
        1.1.4. Email: mkinfobox@schueco.com
    1.2. Product reference: Janisol.
2. Standard: Non-fire- and/ or smoke-rated windows to BS EN 14351-1.
3. Dimensions and configurations: Side hung opening inwards with one leaf also opening outwards for egress.
4. Product performance
    4.1. Accessibility: To comply with requirements in AD M, including opening force.
    4.2. Weather performance
        4.2.1. Air permeability: To EN 12207, Class 4.
        4.2.2. Watertightness: To EN 12208, 9A.
        4.2.3. Resistance to wind load: To EN 12210, C5.
    4.3. Environmental
        4.3.1. Acoustic performance rating: To EN ISO 10140, up to 45 dB.
    4.4. Thermal
        4.4.1. Whole door U-value: To EN ISO 10077-2, 1.5 W/m²·K.
5. Frame
    5.1. Material: Hot dip galvanised steel.
    5.2. Finish as delivered
        5.2.1. Coating: Polyester powder coated, 50µm.
        5.2.2. Colour: RAL colour TBC by Architect.
6. Operation: Automatic, refer to MEP Engineer's information.
7. Security: Refer to Architect's and MEP Engineer's information.
8. Execution: Fixing of steel frames.
9. Glazing/ infill thickness: 20–47 mm.
10. Weight: 150 kg.

11. Mechanical strength: To EN 14024, Class 4.
12. Operating forces: To EN 13115, Class 1.
13. Durability: To EN 12400, Class 4.
14. Impact resistance: To EN 13049, Class 4.
15. Door leaf: Clear fixed double glazing as indicated on Architect's drawings.
    15.1. Finish as delivered: Polyester powder coated to match frame.
16. Glazing/ infill details: Clear fixed double glazing as indicated on Architect's drawings.
    16.1. Manifestation: Refer to Architect's drawings.
    16.2. Beading: Glazing to be fitted with internal square glazing bead glazed with EPDM gaskets.
17. Ironmongery: Refer to Ironmongery Schedule.
18. Perimeter seals: EPDM weatherseal.
19. Fixing: The Schueco Jansen steel system shall be installed in complete accordance with the information published by Schueco Jansen, exclusively by Schueco UK authorised fabricators.

480C Steel solid and louvred double external doorset

1. Manufacturer: Schueco UK Ltd
    1.1. Contact details
        1.1.1. Address: Whitehall Avenue
        Kingston
        Milton Keynes
        Buckinghamshire
        MK10 0AL
        1.1.2. Telephone: +44 (0)1908 282111
        1.1.3. Web: www.schueco.co.uk
        1.1.4. Email: mkinfobox@schueco.com
    1.2. Product reference: Janisol.
2. Standard: Non-fire- and/ or smoke-rated windows to BS EN 14351-1.
3. Dimensions and configurations: Side hung opening inwards with one leaf also opening outwards for egress.
4. Product performance
    4.1. Accessibility: To comply with requirements in AD M, including opening force.
    4.2. Weather performance
        4.2.1. Air permeability: To EN 12207, Class 4.
        4.2.2. Watertightness: To EN 12208, 9A.
        4.2.3. Resistance to wind load: To EN 12210, C5.
    4.3. Environmental
        4.3.1. Acoustic performance rating: To EN ISO 10140, up to 45 dB.
    4.4. Thermal
        4.4.1. Whole door U-value: To EN ISO 10077-2, 1.5 W/m²·K.
5. Frame
    5.1. Material: Hot dip galvanised steel.
    5.2. Finish as delivered
        5.2.1. Coating: Polyester powder coated, 50µm.
        5.2.2. Colour: RAL colour TBC by Architect.
6. Operation: Automatic, refer to MEP Engineer's information.
7. Security: Refer to Architect's and MEP Engineer's information.

8. Execution: Fixing of steel frames.
9. Glazing/ infill thickness: 20–47 mm.
10. Weight: 150 kg.
11. Mechanical strength: To EN 14024, Class 4.
12. Operating forces: To EN 13115, Class 1.
13. Durability: To EN 12400, Class 4.
14. Impact resistance: To EN 13049, Class 4.
15. Door leaf: Clear fixed double glazing as indicated on Architect's drawings.
    15.1. Finish as delivered: Polyester powder coated to match frame.
16. Glazing/ infill details: Clear fixed double glazing as indicated on Architect's drawings.
    16.1. Manifestation: Refer to Architect's drawings.
    16.2. Beading: Glazing to be fitted with internal square glazing bead glazed with EPDM gaskets.
17. Ironmongery: Refer to Ironmongery Schedule.
18. Perimeter seals: EPDM weatherseal.
19. Fixing: The Schueco Jansen steel system shall be installed in complete accordance with the information published by Schueco Jansen, exclusively by Schueco UK authorised fabricators.

480D UKPN Steel louvred double external doorset with solid FR panel

1. Description: Transformer room louvred and solid panel doors.
2. Manufacturer: Sunray Engineering Limited.
    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: https://sunraydoors.co.uk/
        2.1.4. Email: sales@sunraydoors.co.uk
    2.2. Product reference: Triple leaf louvre door with overpanels/ FireLock door.
3. Standard: For fire-rated doors, BS 476 Part 22, 1987.
4. Dimensions and configurations: Side hung opening outwards, as indicated on Architect's drawings.
5. Product performance
    5.1. Weather performance
        5.1.1. Air permeability: To EN 12207, Class 4.
        5.1.2. Watertightness: To EN 12208, 9A.
        5.1.3. Resistance to wind load: To EN 12210, C5.
    5.2. Environmental
        5.2.1. Acoustic performance rating: To EN ISO 10140, up to 45 dB.
    5.3. Thermal
        5.3.1. Whole door U-value: To EN ISO 10077-2, 1.5 W/m²·K.
6. Frame
    6.1. Material: Steel.
    6.2. Finish as delivered
        6.2.1. Coating: Polyester powder coating.
        6.2.2. Colour: TBC by Architect.

7. Operation: Manual.
8. Security: Refer to Ironmongery Schedule and MEP Engineer's information. To be confirmed with Museum Security.
9. Execution: Fixing of steel frames.
10. Operating forces: To EN 13115, Class 1.
11. Durability: To EN 12400, Class 4.
12. Impact resistance: To EN 13049, Class 4.
13. Door leaf:
    13.1. Finish as delivered: Polyester powder coated.
    13.2. Colour: TBC by Architect.
14. Ironmongery: Refer to Ironmongery Schedule.
15. Perimeter seals: Not required.
16. Fixing: As per manufacturer's requirements.
17. Samples: Sample of finishes, frames and solid panel.

482A Steel single doorsets

1. Manufacturer: Schueco UK Ltd
    1.1. Contact details
        1.1.1. Address: Whitehall Avenue
        Kingston
        Milton Keynes
        Buckinghamshire
        MK10 0AL
        1.1.2. Telephone: +44 (0)1908 282111
        1.1.3. Web: www.schueco.co.uk
        1.1.4. Email: mkinfobox@schueco.com
    1.2. Product reference: Janisol door.
2. Standard: Non-fire- and/ or smoke-rated windows to BS EN 14351-1.
3. Dimensions and configurations: Side hung opening outwards.
4. Product performance
    4.1. Weather performance
        4.1.1. Accessibility: To comply with requirements in AD M, including opening force.
        4.1.2. Air permeability: To EN 12207, Class 4.
        4.1.3. Watertightness: To EN 12208, 9A.
        4.1.4. Resistance to wind load: To EN 12210, C5.
    4.2. Environmental
        4.2.1. Acoustic performance rating: To EN ISO 10140, up to 45 dB.
    4.3. Thermal
        4.3.1. Whole door U-value: To EN ISO 10077-2, 1.5 W/m²·K.
5. Frame
    5.1. Material: Hot dip galvanised steel.
    5.2. Finish as delivered
        5.2.1. Coating: Polyester powder coated, 50µm.
        5.2.2. Colour: RAL colour TBC by Architect.
6. Operation: Manual.
7. Security: Refer to Architect's and MEP Engineer's information.

8. Execution: Fixing of steel frames.
9. Infill thickness: 20–47 mm.
10. Weight: 150 kg.
11. Mechanical strength: To EN 14024, Class 4.
12. Operating forces: To EN 13115, Class 1.
13. Durability: To EN 12400, Class 4.
14. Impact resistance: To EN 13049, Class 4.
15. Door leaf: Insulated solid steel panel.
    15.1. Finish as delivered: Polyester powder coated to match frame.
16. Ironmongery: Refer to Ironmongery Schedule.
17. Perimeter seals: EPDM weatherseal.
18. Fixing: The Schueco Jansen steel system shall be installed in complete accordance with the information published by Schueco Jansen, exclusively by Schueco UK authorised fabricators.

482B Steel single doorsets, fire rated

1. Manufacturer: Schueco UK Ltd
    1.1. Contact details
        1.1.1. Address: Whitehall Avenue
        Kingston
        Milton Keynes
        Buckinghamshire
        MK10 0AL
        1.1.2. Telephone: +44 (0)1908 282111
        1.1.3. Web: www.schueco.co.uk
        1.1.4. Email: mkinfobox@schueco.com
    1.2. Product reference: Janisol 2 EI30 fire doors and fire-resistant partitions.
2. Dimensions and configurations: Side hung opening outwards.
3. Product performance
    3.1. Weather performance
        3.1.1. Air permeability: To EN 12207, Class 4.
        3.1.2. Watertightness: To EN 12208, 9A.
        3.1.3. Resistance to wind load: To EN 12210, C5.
    3.2. Environmental
        3.2.1. Acoustic performance rating: To EN ISO 10140, up to 45 dB.
    3.3. Thermal
        3.3.1. Whole door U-value: To EN ISO 10077-2, 1.5 W/m²·K.
4. Frame
    4.1. Material: Hot dip galvanised steel.
    4.2. Finish as delivered
        4.2.1. Coating: Polyester powder coated, 50µm.
        4.2.2. Colour: RAL colour TBC by Architect.
5. Operation: Manual.
6. Security: Refer to Architect's and MEP Engineer's information.
7. Execution: Fixing of steel frames.
8. Infill thickness: 20–47 mm.
9. Weight: 150 kg.

10. Mechanical strength: To EN 14024, Class 4.
11. Operating forces: To EN 13115, Class 1.
12. Durability: To EN 12400, Class 4.
13. Impact resistance: To EN 13049, Class 4.
14. Door leaf: Insulated solid steel panel.
    14.1. Finish as delivered: Polyester powder coated to match frame.
15. Ironmongery: Refer to Ironmongery Schedule.
16. Perimeter seals: EPDM weatherseal.
17. Fire performance
    17.1. Fire resistance: To EN 1634-1, EI 30S.
    17.2. Smoke leakage: To EN 1634-3, as per manufacturer's standard.
18. Fixing: The Schueco Jansen steel system shall be installed in complete accordance with the information published by Schueco Jansen, exclusively by Schueco UK authorised fabricators.

610 Fire curtain barriers

1. Manufacturer: Thermax Contracting Services Ltd.
    1.1. Contact details
        1.1.1. Address: 18-24 Gleadless Road
        Heeley, Sheffield
        S2 3AB
        1.1.2. Telephone: 0114 281 2281
        1.1.3. Web: https://thermax.co.uk/
        1.1.4. Email: sales@thermax.co.uk
    1.2. Product reference: Hoefnagels Temperature-P EI 120.
2. Standards: To EN 16034.
    2.1. Barrier assemblies: To BS 8524-1.
    2.2. Test standards: Vertical, horizontal and angled to BS EN 1634-1. BS EN 1634-3.
3. Third-party certification: Refer to manufacturer's information.
4. Size: As indicated on Architect's drawings.
5. Performance
    5.1. Smoke containment: With smoke seals.
    5.2. Fire resistance: 120 minutes EI (integrity and insulation).
6. Accessories: Emergency Retract. Audio / Visual / Spoken Warning Unit. Battery back up unit.
7. Fabric: As per manufacturer's recommendations.
8. Barrel: Fire curtain barrels are manufactured from carbon steel tube, tube size dependent on the overall size of the unit and deflection calculated to conform to British Standards.
9. Finishes: Polyester powder coated, RAL TBC by Architect.
10. Frame/ guides: Sendzimir galvanised plated steel.
    10.1. Finish as delivered: Polyester powder coated, RAL TBC by Architect.
11. Other requirements: Bespoke PPC metal canopy to fire curtains installed in external rooftop plant enclosure, to protect casings and mechanisms from water. Polyester powder coated, RAL TBC by Architect.

630A Roof hatches

1. Manufacturer: Bilco UK
    1.1. Contact details

1.1.1. Address: Pavilion 7, Fornham Business Court
Hall Farm
Fornham St. Martin
Bury St Edmunds
Suffolk
IP31 1SL

1.1.2. Telephone: +44 (0)1284 701696

1.1.3. Web: www.bilcouk.co.uk

1.1.4. Email: bilcouk@bilco.com

1.2. Product reference: Bilco Roof Hatches - Ladder Access GS-50TB - Roof Access Hatch

2. Format: External.
3. Door
   3.1. Orientation: Horizontal.
   3.2. Material: Aluminum frame, double skin polycarbonate dome skylight.
4. Operation
   4.1. Mode: Manual. Compression springs located within inner and outer tube.
5. Accessories: Bespoke PPC metal flashing, as indicated on Architect's drawings. Colour TBC by Architect.
6. Dimensions: 915 x 760 mm.
7. Insulation: 75 mm polyisocyanurate to cover and curb.

630B Access panels Wall

1. Manufacturer: Profab Access Ltd
   1.1. Contact details
      1.1.1. Address: Innovation Drive
      Wolverhampton
      West Midlands
      United Kingdom
      WV9 5GA

      1.1.2. Telephone: +44 (0)1827 718222

      1.1.3. Web: www.profabaccess.com

      1.1.4. Email: enquiries@profabaccess.com

   1.2. Product reference: 1000 Series Fire Rated Metal Access Panel
2. Fire performance
   2.1. Fire resistance: To BS EN 1634-1: 2000, 120 minutes (sizes up to 600 x 1200 mm).
   2.2. Reaction to fire classification: To BS EN 1634-1:2014, BS 476-31.1 or EN 1634-3 and BS 9999:2017.
3. Position: Wall mounted.
4. Size: Refer to Architect's drawings and schedule.
5. Frame: Picture (PF).
6. Panel
   6.1. Material: Electro-galvanised mild steel.
   6.2. Integral finish: Powder coated matt.
   6.3. Colour: Refer to Architect's schedule.
7. Latch or lock type: Security lock (SL).
8. Operation: Pivot hinge.
9. Integral accessories: 8 mm square drive key.

10. Configuration: Single Door (SD).
11. FireRating: 120 minutes.
12. FrameDepth: 44 mm.
13. Sound insulation: To BS EN ISO 140-3: 32 dB.
14. AcousticRating: 32 dB.
15. Air tightness: To BS EN 12207: 2000 and BS EN 1026: 2000, airtight (Part L).
16. Samples: Sample of finish with RAL colour.

630C Access panels Ceiling

1. Manufacturer: Profab Access Ltd
    1.1. Contact details
        1.1.1. Address: Innovation Drive
        Wolverhampton
        West Midlands
        United Kingdom
        WV9 5GA
        1.1.2. Telephone: +44 (0)1827 718222
        1.1.3. Web: www.profabaccess.com
        1.1.4. Email: enquiries@profabaccess.com
    1.2. Product reference: PRIMA 1000 Series Non Fire Rated Metal Access Panel
2. Position: Ceiling mounted.
3. Size: 600 x 600 mm.
4. Frame: Beaded (BF).
5. Panel
    5.1. Material: Electro-galvanised mild steel.
    5.2. Integral finish: Matt powder-coated.
    5.3. Colour: Refer to Architect's schedule.
6. Latch or lock type: Security lock (SL).
7. Operation: Pivot hinge.
8. Configuration: Single Door (SD).
9. AcousticRating: 23 dB.
10. FrameDepth: 34 mm.

630D Floor hatches

1. Manufacturer: Bilco UK
    1.1. Contact details
        1.1.1. Address: Pavilion 7, Fornham Business Court
        Hall Farm
        Fornham St. Martin
        Bury St Edmunds
        Suffolk
        IP31 1SL
        1.1.2. Telephone: +44 (0)1284 701696
        1.1.3. Web: www.bilcouk.co.uk
        1.1.4. Email: bilcouk@bilco.com
    1.2. Product reference: Bilco Type TER Non-Drainage Floor Access Door.
2. Door

2.1. Orientation: Horizontal.

2.2. Material: Aluminium, mill finish.

3. Other requirements: Cylinder lock with threaded cover plug.
4. Finish: Screed as M10/115.
5. Maximum live load: 732 kg/m².
6. Dimensions: 610 x 610mm.

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/ 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.

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 REVISED

1. Sealant
   1.1. Manufacturer: Submit proposals
      1.1.1. Product reference: Submit proposals
   1.2. Colour: To match frames.
   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.
   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 exit devices

1. Standard: Unless specified otherwise, install panic bolts/ latches in accordance with BS EN 1125.

Ω End of Section

L30
Stairs/ ladders/ walkways/ handrails/ balustrades

Preliminary information/ requirements

107 Completion of design

1. Description: Contractor's design.
2. Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
   2.1. Standard: To Building Regulations (Eng) Approved Documents K and M.
3. Structural requirements: Refer to Structural Engineer's information.
4. Fire performance: Refer to Architect's Fire Strategy drawings.
5. Design and production information: Shop drawings and specification including proposed shuttering panel layout to stairwell and finishes specification.
6. Timing of submissions: Allow 10 working days for design team review and comment of submitted proposals.

109 Structural design provided

1. Description: Refer to Structural Engineer's specification and drawings.

130 Site dimensions

1. Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
   1.1. Designated items: L30/570

Components

270 In Situ Concrete Stairs

1. Description: In situ cast reinforced concrete stairs to Structural Engineer's specification.
2. Component material, grade, finish as delivered
   2.1. Finish: Trowelled finish as E41.
   2.2. Treads: In situ cast reinforced concrete to Structural Engineer's specification.
      2.2.1. Slip resistance value of integral tread - water wet (minimum): PTV 36.
   2.3. Risers: In situ cast reinforced concrete to Structural Engineer's specification.
   2.4. Guarding: In situ cast reinforced concrete to Structural Engineer's specification.
   2.5. Handrails: As L30/570.
3. Workmanship
   3.1. In situ concrete: As E20 and E41.
   3.2. Metalwork: As Z11.
4. Other requirements: Applied slip-resistant nosings with visual contrast as L30/590.
5. Control samples: Provide area for review in-situ - walls and soffits.

570 Purpose-made handrails

1. Manufacturer: Bespoke handrail. Submit proposals.
2. Description: Bespoke fabricated 50mm diameter circular mild steel handrail with filleted, welded joints, mechanically fixed to masonry wall on brackets. Fixings concealed with cover plates in matching finish.

3. Component material, grade and finish as delivered
   3.1. Handrails: Low-carbon steel - polyester powder coated.
      3.1.1. Lower handrail: Not required.
   3.2. Brackets: Low-carbon steel - polyester powder coated.
   3.3. Colour: RAL colour TBC by Architect.
4. Workmanship
   4.1. Metalwork: To section Z11.
5. Reaction to fire: Not required.
6. Other requirements: LRV contrast of 30 points minimum.
7. Samples: 300mm length sample of metalwork handrail including typical fixing.
8. Fixing: Mechanically fixed to masonry wall.
   8.1. Centres: As indicated on Architect's drawings.

590 Applied stair nosings

1. Description: Cast metal anti-slip stair nosing with silicon carbide granules cast into the metal matrix of the wearing surface. Surface fixed to in-situ concrete stair.
2. Standard: In accordance with BS 8300-2
3. Manufacturer: AATi (Antislip Antiwear Treads International)
   3.1. Contact details
      3.1.1. Address: 11 Swinborne Drive
      Springwood Industrial Estate
      Braintree
      Essex
      United Kingdom
      CM7 2YP
      3.1.2. Telephone: +44 (0)1376 346278
      3.1.3. Web: www.aati.co.uk
      3.1.4. Email: info@aati.co.uk
   3.2. Product reference: SN9-65B Stair nosing anti-slip.
4. Profile: Square.
5. Base section
   5.1. Material: Cast iron.
   5.2. Finish: Zinc plated black.
6. Size
   6.1. Rise x going: 65 x 55 mm.
   6.2. Gauge: 8.5 mm.
7. Inserts
   7.1. Material: Cast metal with silicon carbide granules.
8. Length: 1000mm.
9. Samples: 300mm length sample.

Installation

620 Priming/ Sealing/ Painting

1. Surfaces inaccessible after assembly/installation: Before fixing components, apply full protective/decorative treatment/coating system.

630 Corrosion protection of dissimilar materials

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

640 Installation generally

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

670 Installation of tread inserts/ nosings

1. Treads: Fully cured, sound and level.
2. Fixing
    2.1. Location/ position: In accordance with BS 8300-2
    2.2. Fixings: As manufacturer's recommendations
        2.2.1. Centres: As manufacturer's recommendations

Completion

910 Inspection

1. Timing: Two weeks after request by Employer's Agent.
2. Period of notice (minimum): Five working days.

920 Documentation

1. Contents
    1.1. Copies of structural design calculations/ test reports.
    1.2. General product information.
    1.3. Installation information.
    1.4. Inspection and maintenance reports.
2. Number of copies: 2
3. Submission: Two weeks after request by Employer's Agent.

Ω End of Section

L35
Fixed utilitarian access systems

General

130 Permanently-fixed vertical ladder systems

1. Manufacturer: Bilco UK
2. Contact details
   2.1. Address: Pavilion 7, Fornham Business Court
   Hall Farm
   Fornham St. Martin
   Bury St Edmunds
   Suffolk
   IP31 1SL
   2.2. Telephone: +44 (0)1284 701696
   2.3. Web: www.bilcouk.co.uk
   2.4. Email: bilcouk@bilco.com
3. Product reference: Bilco Ladders BL-S-WH - Fixed Vertical Ladder with Safety Cage
4. Stiles: 50 x 10 mm flat bar.
5. Rungs: 20 mm round bar.
6. Safety cage: Galvanized steel cages above 3000mm, 50 x 10 mm flat bar, five straps as BS 4211:2005.
7. Type: BL-S-WH4.
8. OverallWidth: 488 mm.
9. Description: Retractable lower ladder to be stored at high level when not in use.
10. Accessories: Lad-Saf Flexible Cable Fall Arrest Safety System with Telescopic Extension Post.

System performance

212 Contractor's design

1. Description: CDP package, refer to Technical Reference Sheet.
2. Design responsibility: Contractor's design.
3. Functional requirements: Ladders: To BS 4211
4. Design and production information: TBD
5. Timing of submissions: TBD
6. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

214 Completion of design

1. Description: CDP package, refer to Technical Reference Sheet.
2. Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
   2.1. Standards: Ladders: To BS 4211
3. Design and production information: TBD
4. Timing of submissions: TBD

Products

490 Anchors

1. Manufacturer: Submit proposals

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): 5 days

930 Documentation

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

Ω End of Section

L40
General glazing

General requirements

110 Pre-glazing

1. Pre-glazing of components: Not permitted.

140 Material samples

1. Representative samples of designated materials: Submit before cutting panes.
   1.1. Sample size (minimum): 300 x 300 mm.
   1.2. Designated materials: All glazing types.

150 Workmanship and positioning generally

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

151 Preparation

1. Surrounds, rebates, grooves and beads: Cleaned and prepared by others.

152 Preparation

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

155 Glass generally

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

170 Plastics glazing sheet

1. Condition: Free from scratches, edge splits and other defects.
2. Preparation for use: Protective coverings carefully peeled back from edges and trimmed off to facilitate glazing. Remainder retained in place until completion unless instructed otherwise.

180 Bead-fixing with pins

1. Pin spacing: Regular at maximum 150 mm centres, and within 50 mm of each corner.
2. Exposed pin heads: Punched just below wood surface.

181 Bead-fixing with screws

1. Screw spacing: Regular at maximum 225 mm centres, and within 75 mm of each corner.

Types of glazing

496 Double-glazing

1. Description: Double-glazing to steel glazed doorsets and windows.
2. Supporting structure: Blockwork, pre-stressed concrete lintel and in situ concrete.
3. Framing system
   - 3.1. Type and reference: Thermally broken, hot dip galvanised steel.
   - 3.2. Finish: Polyester powder-coated, as L20/480B.
4. Glazing:
   - 4.1. Type: Double glazed butyl, hot melt, sealed units in accordance with BS 5713, as indicated on Architect's drawings.
   - 4.2. Manufacturer: Guardian Industries UK Ltd
     - 4.2.1. Contact details:
       - 4.2.1.1. Address: Tom Pudding Way
Goole
East Yorkshire
DN14 8GA
       - 4.2.1.2. Contact: Olcay Parikka
       - 4.2.1.3. Telephone: +44 (0)7977 55 753
       - 4.2.1.4. Web: www.guardianglass.com
       - 4.2.1.5. Email: oparikka@guardian.com
     - 4.2.2. Product reference: SunGuard®
   - 4.3. Construction: Double glazed.
   - 4.4. Outer pane: 11.5mm Heat Strengthened Guardian ExtraClear reduced iron float glass with SunGuard SN 75 HT on surface #4.
   - 4.5. Cavity: 16mm 90% Argon filled with black warm edge spacer complying with gas fill and edge seal standard EN 1279-3.
   - 4.6. Inner pane: 6mm Toughened and heat soak tested Guardian ExtraClear reduced iron float glass.
   - 4.7. Colour: Clear.
   - 4.8. Pane size: Refer to drawing for maximum module sizes. Subject to stress and deflection calculations, based on a pane size and wind & barrier loads where applicable. To be verified by the structural engineer and curtain wall glazing supplier/installer.
   - 4.9. Edge support: To be supported on all four edges. Refer to frame system manufacturer for glazing rebate depth details.
   - 4.10. Performance data:

4.10.1. Light transmission: 74%.

4.10.2. Solar factor (G value): 0.38.

4.10.3. Thermal performance: 1.0 W/m²K.

4.10.4. Acoustic attenuation: 39 dB Rw.

5. Accessories: Sill flashing, as H72/470.
6. Thermal performance (U-value maximum): As L20/480B, 1.5 W/m²K (whole window/ door unit).
7. Acoustic sound reduction performance: 24 dB Rw CTR
8. Security requirements: Laminated.
9. Other requirements: Glazing installation to be from interior and fitted with internal square glazing bead with EPDM gaskets.

520 Fire rating

1. Assessment of capability: Submit proposed construction details of designated items to a UKAS/ EA accredited laboratory or other approved authority for assessment of capability of achieving specified fire ratings.

   1.1. Test standard: To BS EN 1364-1

2. Assessment/ test results and reports: Submit immediately they are available, and before installing glazing.
3. Designated items: Internal doors' vision panels as part of the internal doorset. Certifications to comply with Fire Strategy be provided by the manufacturer.

550 Glass mirrors

1. Description: Glass mirror above splashback to WC
2. Standard: To BS EN 1036.

   2.1. BS EN 1036-2 characteristics: None relevant.

3. Mirror material: Float glass, silvered to give maximum reflection, free from tarnishing, discoloration, scratches and other defects visible in the designed viewing conditions.

   3.1. Thickness: 6 mm

   3.2. Backing: Silvered

   3.3. Edge treatment: Polished arris

4. Background: Tiles on plastered masonry.
5. Fixing method: Double-sided self-adhesive pads at 400 mm centres
6. Installation: Fixed accurately and securely without overtightening fasteners, to provide a flat surface giving a distortion free reflection.

630 Manifestation

1. Description: Manifestation to external glazed doors.
2. Design: To be confirmed.

   2.1. Art work: Supplied by W&W.

   2.2. Media: Scale drawings.

3. Technique: Applied film.

Ω End of Section

M10
Cement based levelling/ wearing screeds

Types of screed

115 Cement:sand levelling screeds

1. Description: To new reinforced concrete slab on the basement and ground floor levels.
2. Substrate: In situ concrete slab.
3. Screed construction: Floating, as clause 290.
4. Thickness
   4.1. Nominal: 50 mm and 75 mm, refer to Architect's drawings. Flowcrete Heavy Duty Isocrete K-Screed or similar approved with bonding agent to manufacturer's recommendations.
5. Mix
   5.1. Proportions (cement:sand): 1:3-4.5.
6. In situ crushing resistance (ISCR) category: A (3 mm maximum indentation)
7. Flatness/ Surface regularity class: SR1.
8. Finish: Smooth floated, as clause 530.
   8.1. To receive: Resin-based coating as clause M12/110.
9. Other requirements: Screed to falls in Accessible WC/Shower. Contractor to allow for inset entry matting in the Lobby. 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 in back of house plant room 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): 25 mm

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: Polyethylene dpm, as section J40/290A and P10/310.

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.

290 Floating floor system insulation

1. Insulation
   1.1. Type: 60 mm, 75 mm and 100 mm Rigid, high compressive strength phenolic insulation with low emissivity aluminium facings both sides with thermal conductivity of 0.020 W/mK (SR/UF) and Unilin Perimeter strip (SR/STR). Refer to Architect's drawings for details.
   1.2. Installation: Lay with tight butt joints. Continue up at perimeter abutments for full depth of screed.
2. Separating layer
   2.1. Type: High-density polyethylene (PE-HD) studded sheets as J40/290A and polyethylene sheet 125 micrometres thick (500 gauge) as P10/310.
   2.2. Installation: Lay over insulation and turn up at perimeter abutments. 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

345 Level of screed surfaces

1. Permissible deviation: (allowing for thickness of coverings) …….

350 Screeding to falls

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

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.

392 General reinforcement

1. Steel fabric: To BS 4483.
   1.1. Type:
2. Installation: In accordance with BS 8204-1.

405 Joints in levelling screeds generally

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

406 Bay joints in levelling screeds

1. Screed type: As clause M10/115.
2. Bay sizes
   2.1. Area (maximum): Submit proposals.
   2.2. Length (maximum): Submit proposals.
3. Location of bay joints: Coordinate with those required for substrate slab and floor covering.

460 Strip movement joints

1. Description: Where required and to be confirmed with Architect prior to works commencing.
2. Manufacturer: Submit proposals.
   2.1. Product reference: Submit proposals.
   2.2. Size: Submit proposals.
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.

468 Sealant movement joints with metal edgings

1. Edging material: Stainless steel angle.
   1.1. Size: Submit proposals.
   1.2. Bedding: 1:3 cement:sand.
2. Installation: Centre over joints in substrate. Set to exact finished level of floor.
   2.1. Secure fixing to substrate: Manufacturer's standard.
3. Joint width: Manufacturer's standard.

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.

540 Trowelled finish to levelling screeds

1. Floating: To an even texture with no ridges or steps.

2. Trowelling: To a uniform, smooth but not polished surface, free from trowel marks and other blemishes, and suitable to receive specified flooring material.

650 Curing

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

680 Surface sealer to wearing screeds

1. Manufacturer: RIW.
   1.1. Product reference: RIW Toughseal as clause M12/110.
2. Preparation: Clean cured screed surface to remove dirt, grease, oil and other surface contaminants.
3. Moisture content of screed: As recommended by sealer manufacturer. Test relative humidity in accordance with BS 8203, Annex A if required to verify suitability to receive sealer.
4. Application: Evenly to dry surfaces using sufficient coats to form an effective seal but without a glossy finish.

Ω End of Section

M12
Resin flooring

Types of flooring

110 Resin flooring

1. Contact details
   1.1. Address: 487/488 Ipswich Rd
   Slough
   SL1 4EP
   1.2. Telephone: +44 (0)1753 944200
   1.3. Web: www.riw.co.uk
   1.4. Email: technical@riw.co.uk
2. Resin flooring system to BS EN 13813
   2.1. Manufacturer: RIW
   2.2. Product reference: RIW Toughseal
   2.3. Resin
   2.3.1. Colour: Grey.
   2.4. Application: Two coats, brush, roller or spray applied.
   2.5. Coverage per coat (minimum): 4 m²/L.
   2.6. Primer reference: As resin flooring manufacturer's recommendations
3. Flatness/ Surface regularity
   3.1. Sudden irregularities: Not permitted.

Preparation of substrates

210 Testing moisture content of substrates

1. Drying aids: Remove minimum four days prior to test.
2. Test: In accordance with BS 8203, Annex B using an accurately calibrated hygrometer.
   2.1. Location of readings: Corners, along edges, and at various points over the test area.
3. Relative humidity before laying resin flooring (maximum): In accordance with manufacturer's requirements.

220 Surface hardness of substrates

1. General: Substrates must restrain stresses that occur during setting and hardening of resin.
2. Test for surface hardness: To BS EN 12504-2 using a rebound hammer.
3. Test results: Submit.
4. Areas of non-compliance: Submit remedial proposals.

230 Preparation of substrates generally

1. Chases/ Saw cuts: Cut/ break out at skirtings, free edges, movement joints, etc. for termination of resin flooring.
2. Blow holes, cavities, cracks, etc.: Fill with repair product recommended by resin flooring manufacturer.
3. Cleanliness: Remove surface contaminants, debris, dirt and dust.
4. Surface texture: Suitable to accept resin flooring and achieve a full bond over the complete area.

Laying flooring

310 Workmanship

1. Operatives
   1.1. Trained/ Experienced in the application of resin floorings.
   1.2. Evidence of training/ experience: Submit on request.
2. Fillers and incorporated aggregates: Thoroughly mix in to ensure wetting. Avoid over-vigorous mixing resulting in excessive air entrainment.
3. Scattered aggregates: Broadcast onto wet surface of resin.
   3.1. Appearance: Consistent.
4. Curing: Allow appropriate periods between coats and before surface treatments and trafficking/ use.

320 Control samples

1. Complete areas of finished work in the following locations: Back of house plant room.
2. Approval of appearance: Obtain before proceeding.

330 Primers

1. Application: Even to completely wet, penetrate and seal substrates.
2. Coverage per coat (minimum): In accordance with manufacturer's requirements.
3. Curing period (maximum): In accordance with manufacturer's requirements.

350 Coated resin flooring

1. Application: Even, of uniform thickness, surface finish and colour.

400 Bond strength of resin flooring

1. Contact surfaces: Substrate and fully cured resin flooring.
2. Bond: In accordance with manufacturer's performance data.
3. Test: To BS 8204-6, clause 11.4 and BS EN 1542.

420 Free edges of resin flooring

1. Transition to abutting floor finishes: Straight and smooth.
2. Retention of resin edges: Not required.

Ω End of Section

M20
Plastered/ rendered/ roughcast coatings

Types of coating

290 Parge coat

1. Description: Gypsum-based parge coat.
2. Substrate: Concrete blockwork as clause F10/355A.
   2.1. Preparation: Submit proposals, in adherence to manufacturer's recommendations.
3. Render
   3.1. Manufacturer: British Gypsum.
      3.1.1. Product reference: Gyproc® SoundCoat Plus.
   3.2. Thickness: 15 mm.
   3.3. Finish: Scratched horizontally to provide key.

General

418 Control samples

1. Complete sample areas, being part of the finished work, in locations as follows: External rendering, 10 m² (minimum).

421 Scaffolding

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

Materials and marking of mortar - Not Used

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.

536 Splatterdash key

1. Materials
   1.1. Cement: To BS EN 197-1.
   1.2. Sand: Clean, coarse.
   1.3. Admixtures: Submit proposals.

2. Mix proportions (cement:sand): 1:1.5-2.
3. Consistency: Thick slurry, well stirred.
4. Application: Throw onto dampened background and leave rough.
   4.1. Thickness: 3-5 mm.
5. Curing: Controlled to achieve a firm bond to substrate.

538 Stipple key

1. Materials
   1.1. Cement: To BS EN 197-1.
   1.2. Sand: Clean, coarse.
   1.3. Admixture: Submit proposals.
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.

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.

605 Gypsum plasterboard backings

1. Type: To BS EN 520 …….
   1.1. Core density (minimum): 650 kg/m³.
2. Exposed surface and edge profiles: Suitable to receive specified plaster finish.

607 Proprietary gypsum plasterboard backings

1. Manufacturer: Submit proposals.
   1.1. Product reference: Submit proposals.
2. Exposed surface and edge profiles: Suitable to receive specified plaster finish.

610 Fixing plasterboard backings to timber

1. Fixings, accessories and installation methods: As recommended by board manufacturer.
2. Fixing: At the following centres (maximum):
   2.1. Nails: 150 mm.
   2.2. Screws to partitions/ walls: 300 mm. Reduce to 200 mm at external angles.
   2.3. Screws to ceilings: 230 mm.
3. Position of nails/ screws from edges of boards (minimum)
   3.1. Bound edges: 10 mm.
   3.2. Cut/ unbound edges: 13 mm.

4. Position of nails/ screws from edges of supports (minimum): 6 mm.
5. Nail/ screw heads: Set below surface. Do not break paper or gypsum core.

611 Fixing plasterboard backings

1. Manufacturer: Submit proposals.
    1.1. Product reference: Submit proposals.
2. Accessories, materials and installation methods: As recommended by the plasterboard manufacturer.

612 Joints in plasterboard backings

1. Ceilings
    1.1. Bound edges: At right angles to supports and with ends staggered in adjacent rows.
    1.2. Two layer boarding: Stagger joints between layers.
2. Partitions/ walls
    2.1. Vertical joints: Centre on studs. Stagger joints on opposite sides of studs.
        2.1.1. Two layer boarding: Stagger joints between layers.
    2.2. Horizontal joints
        2.2.1. Two layer boarding: Stagger joints between layers by at least 600 mm. Support edges of outer layer.
3. Joint widths (maximum): 3 mm.

624 Damp proof lathing

1. Manufacturer: Submit proposals.
    1.1. Product reference: Submit proposals.
2. Fixing and sealing accessories: As recommended by damp proof lathing manufacturer.
3. Fixing: Secure and firm to provide a continuous, keyed backing for coatings.
4. Joints between lathing sheets and junctions with services, windows and other openings: Prevent penetration and bridging of cavity by coatings.
5. Ventilation gaps
    5.1. Bottom of lath: Submit proposals.
    5.2. Top of lath: Submit proposals.
    5.3. Accessories: Submit proposals.

626 Timber lathing

1. Type/ Section size: Submit proposals.
    1.1. Quality of timber: Free from decay, insect attack (except pinhole borers), splits, shakes. No knots wider than half the width of the section.
2. Preservative treatment: Not required.
3. Moisture content at time of installation (maximum): 16%.
4. Installation: Space laths 8-10 mm apart in straight lines.
    4.1. Joints: 3 mm wide centred over supports. Stagger at not more than every eighth lath.
    4.2. Nails: At every support.
        4.2.1. Type: 25 mm (minimum) galvanized clout nails.
    4.3. Counter laths: To faces or sides of timber supports wider or deeper than 75 mm.

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.

659 Plasterboard joints

1. Joints and angles (except where coincident with metal beads). Reinforce with continuous lengths of jointing tape.

673 Plasterboard over conduits/ service chases

1. General: Prevent cracking over conduits and other services.
2. Services chased into substrate: Isolate from coating by covering with galvanized metal lathing, fixed at staggered centres along both edges.

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.

782 Textured/ patterned finishes

1. Appearance: Consistent and even. Carry out work on each surface as one continuous operation.

786 Plastering on timber lathing

1. Application of undercoat: Force between laths to form continuous keys.

788 Nonhydraulic lime plaster undercoats

1. Suction control: Dampen substrate.
2. Application: Apply firmly. Trowel to an even surface. Consolidate/ scour as necessary to control shrinkage. Cross scratch to provide an undercut key for the next coat. Do not penetrate through the coat.
    2.1. Key for final coats: Lightly scratch using a wood 'devil' float.
3. Curing coatings: Keep damp by light spraying with water until coating is sufficiently firm.

789 Three layer nonhydraulic lime plaster final coat

1. Suction control: Dampen undercoat.
2. Application
   2.1. First layer: Use steel trowel.
   2.2. Second layer: Use wood float in the opposite direction to the first layer.
   2.3. Third layer: Use a steel trowel in the same direction as second layer.
3. Consolidation/ scouring: As necessary to control shrinkage. Use a wood cross grain float.
4. Finishing: Dampen with a stock brush. Polish with a steel trowel. Finish with a damp stock brush.
5. Drying: Keep damp by light spraying with water until coating is sufficiently firm.

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

M40
Stone/ concrete/ quarry/ ceramic tiling/ mosaic

Types of tiling/ mosaic

110A Wet area tiling

1. Tiles: Glazed ceramic wall tiles with a satin finish.
    1.1. Manufacturer/ Supplier: Mosa.
        1.1.1. Contact details
            1.1.1.1. Web: https://www.mosa.com/en
        1.1.2. Product reference: Global Collection.
    1.2. Colour: TBC by Architect.
    1.3. Finish: Satin.
    1.4. Size: 150 x 150 mm.
    1.5. Thickness: 5.6 mm.
2. Bedding: In accordance with manufacturer's recommendations.
3. Joint width: 3mm.
4. Grout: Cement:sand, in accordance with manufacturer's recommendations.
5. Grout colour: TBC by Architect.

110B Tiled splashback

1. Tiles: Glazed ceramic wall tiles with a satin finish.
    1.1. Manufacturer/ Supplier: Mosa
        1.1.1. Contact details
            1.1.1.1. Web: https://www.mosa.com/en
            1.1.1.2. Email: sales@johnson-tiles.com
        1.1.2. Product reference: Global Collection.
    1.2. Colour: TBC by Architect.
    1.3. Finish: Satin.
    1.4. Size: 150 x 150 mm.
    1.5. Thickness: 5.6 mm.
2. Bedding: In accordance with manufacturer's recommendations.
3. Joint width: 3mm.
4. Grout: Cement:sand, in accordance with manufacturer's recommendations.
5. Grout colour: TBC by Architect.

General

210 Suitability of backgrounds/ bases

1. Background/ base tolerances: To permit specified flatness/ regularity of finished surfaces given the permissible minimum and maximum thickness of bedding.
2. New background drying times (minimum)
    2.1. Concrete walls: six weeks.
    2.2. Brick/ block walls: six weeks.
    2.3. Rendering: two weeks.

2.4. Gypsum plaster: four weeks.

3. New base drying times (minimum)
   3.1. Concrete slabs: six weeks.
   3.2. Cement:sand screeds: three weeks.

250 Samples

1. General: Submit representative samples of the following: Each type of tile.

Preparation

470 Intermediate substrate

1. Type: Tilebacker board, as K10/185.
2. Joints: Close butt.
3. Penetrations: Seal.

Fixing

510 Fixing generally

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

530 Setting out

1. Joints: True to line, continuous and without steps.
   1.1. Joints on walls: Horizontal, vertical and aligned round corners.
2. Cut tiles: Minimize number, maximize size and locate unobtrusively.
3. Joints in adjoining floors and walls: Align.
4. Setting out of M40/110A & M40/110B : Drawing references: Architect's Room Layout drawings.

550 Flatness/ Regularity of tiling/ mosaics

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

560 Level of tiling across joints

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

650 Adhesive bed – notched trowel method (walls)

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

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

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

Movement joints/ grouting/ completion

815 Sealant to edges and corners

1. Description: Silicone sealant to edges and corners of tiled walls.
2. Sealant: Submit proposals.
   2.1. Colour: To match tile grout.
   2.2. Preparation and application: As section Z22.

875 Grouting

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

885 Coloured grout

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

Performance - Not Used

Ω End of Section

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

Types of covering

155A Anti-slip vinyl sheet flooring

1. Flooring roll: PVC to BS EN 14041 and BS EN 13553.
    1.1. Manufacturer: Forbo Flooring Systems
        1.1.1. Contact details
            1.1.1.1. Address: PO Box 1
            High Holborn Road
            Ripley
            Derbyshire
            DE5 3NT
            1.1.1.2. Telephone: +44 (0)800 093 5258
            1.1.1.3. Web: www.forbo-flooring.co.uk
            1.1.1.4. Email: info.flooring.uk@forbo.com
        1.1.2. Product reference: Surestep Laguna.
    1.2. Standard: Heterogeneous PVC to BS EN ISO 10582 and BS EN 13845 & 14041.
    1.3. Use class: Class 34 Commercial very heavy, Class 43 light industrial.
    1.4. Slip potential
        1.4.1. Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum): DIN 51130, R10; BS EN 13893, DS ≥0.30.; PTV Wet slider 96: ≥36.
        1.4.2. Surface roughness (Rz) (minimum): ≥20.
    1.5. Recycled content: 20%.
    1.6. Width: 2000 mm.
    1.7. Thickness: Total: 2.0 mm; Wear layer: 0.7 mm.
    1.8. Colour and pattern: TBC by Architect.
    1.9. Weight (to EN-ISO 23997): 2.75 kg/m².
    1.10. Dimension stability (to EN-ISO 23999): <0.1%.
    1.11. Castor chair continuous use (to EN 425): No effect.
    1.12. Use in wet areas (to EN 13553): Yes.
    1.13. Resistance to chemicals (to EN ISO 26987): Very good.
    1.14. Electrical resistance (to EN 1081 R1): >1 x 10^9 Ω.
    1.15. Reaction to fire (to BS EN 13501): Bfl-s1.
    1.16. Body voltage (to BS EN 1815): <2 kV.
    1.17. Thermal conductivity (to BS EN 12524): 0.25 W/m·K.
    1.18. Residual indentation (to EN-ISO 24343-1): ≤0.05 mm.
    1.19. (to DIN 51097): Class B.
    1.20. Adhesive: Manufacturer's recommendation.
    1.21. Fabricated underlay: Manufacturer's recommendation.
    1.22. (to EN 13845 Annex C): ESb/ESf (to EN 13845 Annex D 50,000 revolutions <10% loss. Pass.
    1.23. Lightfastness (to ISO 105-B02): ≥6.
    1.24. Finishes: PUR pearl surface finish.
    1.25. Flexibility (to BS EN ISO 24344): ø 10 mm.

1.26. Edging: Edging trim for thresholds as clause 750.

1.27. Skirtings: As 770A.

2. Seam welding: Hot welding with complimentary coloured rod.

155B Linoleum sheet flooring

1. Flooring roll: PVC to BS EN 14041 and BS EN 13553.
   1.1. Manufacturer: Forbo Flooring Systems
      1.1.1. Contact details
         1.1.1.1. Address: PO Box 1
         High Holborn Road
         Ripley
         Derbyshire
         DE5 3NT
         1.1.1.2. Telephone: +44 (0)800 093 5258
         1.1.1.3. Web: www.forbo-flooring.co.uk
         1.1.1.4. Email: info.flooring.uk@forbo.com
      1.1.2. Product reference: Marmoleum Solid Concrete.
   1.2. Standard: To EN ISO 10874.
   1.3. Use class: Class 43 light industrial.
   1.4. Slip potential
      1.4.1. Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum): DIN 51130 = R9., PVT Dry: ≥50, EN 13898: μ ≥0.30.
   1.5. Recycled content: 43%.
   1.6. Width: 2000 mm.
   1.7. Thickness: Total: 2.5 mm.
   1.8. Colour and pattern: TBC by Architect.
   1.9. Weight (to EN-ISO 23997): 2.9 kg/m².
   1.10. Castor chair continuous use (to ISO 4918): Pass.
   1.11. Resistance to chemicals (to EN ISO 26987): Resistant to diluted acids, oils, fats and to the conventional solvents. Not resistant to prolonged exposure to alkalis.
   1.12. Reaction to fire (to BS EN 13501): C_{fl} -s1, G, CS
   1.13. Body voltage (to BS EN 1815): <2 kV.
   1.14. Thermal conductivity (to BS EN 12524): 0.17 W/m·K.
   1.15. Residual indentation (to EN-ISO 24343-1): ≤0.15 mm.
   1.16. Adhesive: Manufacturer's recommendation.
   1.17. Fabricated underlay: Manufacturer's recommendation.
   1.18. Lightfastness (to ISO 105-B02): ≥6.
   1.19. Finishes: Topshield Pro.
   1.20. Flexibility (to BS EN ISO 24344): ø 40 mm.
   1.21. Edging: Edging trim for thresholds as 750.
   1.22. Skirtings: As 770B.
2. Seam welding: Hot welding with complimentary coloured rod.

General requirements

210 Workmanship generally

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

220 Samples

1. Covering samples: Before placing orders, submit 300 x 300mm sample of each type.

250 Layout – roll materials

1. Setting out of seams: Agree setting out for sheeting types M50/ 155A & 155B .

251 Layout – seams in roll materials

1. Setting out: Minimise occurrences of seams and cross seams.

330 Commencement

1. Required condition of works prior to laying materials
   1.1. Building is weathertight and well dried out.
   1.2. Wet trades have finished work.
   1.3. Paintwork is finished and dry.
   1.4. Conflicting overhead work is complete.
   1.5. Floor service outlets, duct covers and other fixtures around which materials are to be cut are fixed.
2. Notification: Submit not less than 48 hours before commencing laying.

340 Conditioning

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

350 Environment

1. Temperature and humidity: Before, during and after laying, maintain approximately at levels which will prevail after building is occupied.
2. Ventilation: Before during and after laying, maintain adequate provision.

Preparing bases

410 New bases

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

430 New wet laid bases

1. Base drying aids: Not used for at least four days prior to moisture content testing.

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

440 Substrates to receive thin coverings

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

Laying coverings

620 Colour consistency

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

640 Adhesive fixing generally

1. Adhesive type: As specified, as recommended by covering/ underlay, manufacturer or as approved.
2. Primer: Type and usage as recommended by adhesive manufacturer.
3. Application: As necessary to achieve good bond.
4. Finished surface: Free from trowel ridges, high spots caused by particles on the substrate, and other irregularities.

650 Seams

1. Joints: Tight without gaps.

680 Seam welding coverings

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

720 Doorways

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

740 Edgings and cover strips

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

770A Anti-slip vinyl sheet skirting

1. Types: M50/155A
2. Manufacturer: Forbo Flooring Systems
    2.1. Contact details
        2.1.1. Address: PO Box 1
        High Holborn Road
        Ripley
        Derbyshire
        DE5 3NT
        2.1.2. Telephone: +44 (0)800 093 5258

2.1.3. Web: www.forbo-flooring.co.uk

2.1.4. Email: info.flooring.uk@forbo.com

2.2. Product reference: Formed continuously as M50/155A.

3. Fixing: Secure with top edge straight and parallel with floor.

3.1. Corners: Mitre joints.

770B Linoleum sheet skirting

1. Types: M50/155A
2. Manufacturer: Forbo Flooring Systems

2.1. Contact details

2.1.1. Address: PO Box 1
High Holborn Road
Ripley
Derbyshire
DE5 3NT

2.1.2. Telephone: +44 (0)800 093 5258

2.1.3. Web: www.forbo-flooring.co.uk

2.1.4. Email: info.flooring.uk@forbo.com

2.2. Product reference: Formed continuously as M50/155B.

3. Fixing: Secure with top edge straight and parallel with floor.

3.1. Corners: Mitre joints.

780 Trafficking after laying

1. Traffic free period: Until adhesive is set

Completion

820 Finishing

1. Cleaning operations

1.1. Wash floor with water containing neutral (pH 6-9) detergent. If necessary, lightly scrub heavily soiled areas.

1.2. Rinse with clean water, removing surplus to prevent damage to adhesive. Allow to dry.

830 Finishing rubber flooring

1. Cleaning operations

1.1. Wash floor with a cleaner recommended by covering manufacturer.

1.2. Wet vacuum or mop up residue.

1.3. Rinse with clean water. Wet vacuum or mop up and allow to dry.

2. Final treatment: Follow recommendations of covering manufacture and spray buff with wetting agent or dry burnish.

880 Waste

1. Spare covering material: Retain suitable material for patching. On completion submit pieces for selection. Hand over selected pieces to Employer.

Ω End of Section

M60
Painting/clear finishing

Coating systems

110 Fungicidal emulsion paint

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: www.duluxtradepaintexpert.co.uk
      1.1.4. Email: project.support@akzonobel.com
   1.2. Product reference: Dulux Trade Mouldshield Fungicidal Matt
2. Composition: Acrylic copolymer.
3. Colour: Pure Brilliant White.
4. Sheen: Matt.
5. Execution: Applying coating.
6. Form: Liquid.
7. Capacity: 5 L.
8. Samples: Paint swatch to be provided prior to application on site.

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. Samples: Provide area for review in-situ within a back of house plant room.
3. Surfaces: Internally to exposed in situ concrete walls and internally to concrete common blockwork walls as F10/335A and F10/335B.
   3.1. Preparation: Brush down to remove surface contaminants. Ensure surfaces are clean and dry.
4. Initial coats: As recommended by manufacturer.
   4.1. Number of coats: As recommended by manufacturer.
5. Undercoats: As recommended by manufacturer.
   5.1. Number of coats: As recommended by manufacturer.

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: Internally to exposed cement sand 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.

195 Special coating - anti-lime primer

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: www.deltamembranes.com
      1.1.4. Email: info@deltamembranes.com
   1.2. Product reference: Koster Polysil TG 500
2. Surfaces: Basement in situ concrete liner walls, slabs and soffits.
   2.1. Preparation: Remove all loose and defective coatings. Ensure surfaces are clean and dry.
3. Initial coats: As recommended by manufacturer.
   3.1. Number of coats: As recommended by manufacturer.
4. Undercoats: As recommended by manufacturer.
   4.1. Number of coats: As recommended by manufacturer.
5. Finishing coats: As recommended by manufacturer.
   5.1. 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. M60/180.
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, grilles and other surface mounted fixtures.
2. Replacement: 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.

560 Uncoated concrete

1. Release agents: Remove.

570 Uncoated masonry/ Rendering

1. Loose and flaking material: remove.

580 Uncoated plaster

1. Nibs, trowel marks and plaster splashes: Scrape off.
2. Overtrowelled 'polished' areas: Key lightly.

590 Uncoated plasterboard

1. Depressions around fixings: Fill with stoppers/ fillers

622 Organic growths

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

645 Sealing of internal movement joints

1. General: To junctions of walls and ceilings with architraves, skirtings and other trims.
2. Sealant: Waterborne acrylic.
    2.1. Manufacturer: Submit proposals
        2.1.1. Product reference: Submit proposals
    2.2. Preparation and application: As section Z22.

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.

Ω End of Section

N10
General fixtures/ furnishings/ equipment

Products

125 Desks and tables

1. Item: Dining table
2. Manufacturer: Fritz Hansen
   2.1. Product reference: Circular A623
3. Plan shape: Circular
4. Dimensions
   4.1. Plan size: 900mm diameter
   4.2. Height: 720mm
5. Worktops
   5.1. Material: Plastics laminate-faced particleboard
   5.2. Finish/ Colour: TBC by Architect from standard range
   5.3. Exposed edges: Matt polished aluminium
6. Pedestal units
   6.1. Material: Aluminium
   6.2. Finish/ Colour: Satin polished

135 Storage and display units

1. Description: To locksmiths' workshop and carpenters' workshop.
2. Item: Modular storage system including under-bench units, workbenches, tool hook panels and wall-mounted units with integrated LED lighting.
3. Manufacturer: Elltek Systems.
   3.1. Product reference: Refer to Architect's drawings.
4. Dimensions: Refer to Architect's drawings.
5. Doors/ Drawers
   5.1. Material: Sheet steel.
   5.2. Finish/ Colour: Powder-coated, grey.
   5.3. Accessories: Locks to doors and drawer units.
6. Outer panels/ Plinths/ Shelves
   6.1. Material: Sheet steel.
   6.2. Finish/ Colour: Powder-coated, grey.
7. Frames/ Legs
   7.1. Material: Steel plinth.
   7.2. Finish/ Colour: Powder-coated, grey.
8. Workbenches
   8.1. Material: 30mm MDF.
   8.2. Finish: 1.2mm stainless steel sheet.
9. Integral accessories: Sink and tap (as N11/350B), drawers, tool hook panels, shelves, as indicated on Architect's drawings.
10. Samples: Samples of finishes.

160A Shelving system Floor-mounted

1. Description: Freestanding shelving to carpenters' workshop.
2. Manufacturer: Dexion UK.
   2.1. Product reference: Hi280 Open Industrial Shelving.
3. Dimensions: 1000mm width x 400mm depth x 2100mm height.
   3.1. Shelf Spacing: 5 shelves spaced equally.
4. Shelves
   4.1. Material: Galvanised steel.
5. Carcass or frame
   5.1. Material: Galvanised steel.
6. Other components: Adjustable shelving. Restrained to wall.

160B Shelving system Wall-mounted

1. Description: To carpenters' workshop
2. Manufacturer: Spur Shelving Systems.
   2.1. Product reference: Steel-Lok Shelving.
3. Dimensions: 800mm width x 320mm depth x 520mm height.
   3.1. Shelf Spacing: 2 shelves spaced equally.
4. Shelves
   4.1. Description: Spur Special Length Steel-Lok Steel Shelf.
   4.2. Dimensions: 800mm width x 320mm depth.
   4.3. Material: Steel.
   4.4. Finish/ Colour: Gloss aluminium/ silver.
5. Shelf Brackets
   5.1. Description: Spur Steel-Lok Shelf Bracket.
   5.2. Depth: 320mm.
   5.3. Material: Steel.
   5.4. Finish/ Colour: Gloss aluminium/ silver.
6. Carcass or frame
   6.1. Description: Spur Steel-Lok Wall Extra Strong Mounted Support Uprights.
   6.2. Length: 520mm.
   6.3. Material: Steel.
   6.4. Finish/ Colour: Gloss aluminium/ silver.
7. Other components: Adjustable shelving. Uprights fixed mechanically to wall.

177 Chairs

1. Description: For teapoint,
2. Standard: To BS EN 16139
3. Manufacturer: Fritz Hansen
   3.1. Product reference: N02 Recycle N02-10 Chair with tube legs
4. Size: 540mm x 540mm x 810mm
5. Seat/ Back/ Arms
   5.1. Material: 100% recycled plastic
   5.2. Finish/ Colour: TBC by Architect from standard range

6. Frame
    6.1. Material: Chromed steel with black plastic gliders

220 Lockers

1. Description: To teapoint.
2. Manufacturer: Helmsman
    2.1. Contact details
        2.1.1. Address: 1 Northern Way
        Bury St Edmunds
        Suffolk
        IP32 6NH
        2.1.2. Telephone: +44 (0)1284 530427
        2.1.3. Web: www.helmsman.co.uk
        2.1.4. Email: specifications@helmsman.co.uk
    2.2. Product reference: Essential Metal Lockers (Two compartments, 1302)
3. Dimensions: 1800 x 300 x 450 mm.
4. Material: Mild steel.
5. Finish: Powder coated, smooth.
6. Colour: TBC by Architect.
7. Nesting: Three units, row.
8. Locking: Ten-disc tumbler cam lock.
9. Numbering: Discs.
10. Perforations: Required.
11. Stands/ seats: Not required.
12. Sloping top: Not required.
13. End panels: Not required.
14. Charging point: Not required.
15. Arrangement: Z-shaped lockers.

240 Roller blinds

1. Description: To locksmiths' workshop external door glazed transom and teapoint window.
2. Manufacturer: Silent Gliss Ltd
    2.1. Contact details
        2.1.1. Address: Pyramid Business Park
        Poorhole Lane
        Broadstairs
        Kent
        CT10 2PT
        2.1.2. Telephone: +44 (0)1843 863571
        2.1.3. Web: www.silentgliss.co.uk
        2.1.4. Email: info@silentgliss.co.uk
    2.2. Product reference: Roller Blind - Chain Operated - Heavy Duty - Silent Gliss SG 4930
3. Headrail
    3.1. Material: Anodized aluminium.
4. Blinds
    4.1. Material: TBC from Silent Gliss fabric collection.

5. Operation: Metal bead chain.
6. Dimensions: To suit window/ door openings.
7. Blind material/ Colour: TBC from Silent Gliss fabric collection.
8. Bottom bar material/ Colour: Rectangular bar - Grey powder coated aluminium.
9. Fixing: Ceiling mount bracket, grey.
10. Tube diameter: 60 mm.
11. MinimumWidth: 650 mm.
12. Width (maximum): 3.4 m (single system).
13. Samples: Samples of fabric and headrail/ bottom bar finish.

270 Mirrors

1. Description: To WC and accessible shower and WC. Refer to Sanitaryware Schedule.
2. Dimensions
   - 2.1. Length: Refer to Architect's drawings.
   - 2.2. Width: Refer to Architect's drawings.
   - 2.3. Thickness: 6mm.
3. Material: Silvered float glass to BS EN 1036-1.
4. Quality: Free from tarnishing, discoloration, scratches and other defects visible in the designed viewing conditions. Reflection undistorted.
5. Backing: Polypropylene safety film
6. Edges
   - 6.1. Treatment: Polished.
   - 6.2. Profile: Square.
7. Fixing: Holes, 4 mm diameter, inset 50 x 50 mm from corners, for fixing screws.
8. Installation: Accurately with sides vertical.

300 Entrance matting

1. Description: To main entrance.
2. Manufacturer: Forbo Flooring Systems
   - 2.1. Contact details
     - 2.1.1. Address: PO Box 1
       High Holborn Road
       Ripley
       Derbyshire
       DE5 3NT
     - 2.1.2. Telephone: +44 (0)800 093 5258
     - 2.1.3. Web: www.forbo-flooring.co.uk
     - 2.1.4. Email: info.flooring.uk@forbo.com
   - 2.2. Product reference: Nuway Tuftiguard Double Open (Tuftiguard Classic)
3. Arrangement: Loose lay external or internal.
4. Pattern: Ribbed.
5. Integral accessories: Aluminium matwell frame.
6. Wiper: Rubber.
7. Pile: 100% Polyamide BCF.
8. Construction: Closed.
9. Number of wiper strips: Double.

10. Maximum width per module: 2500 mm.
11. Aluminium scraper bars: Black.
12. Scraper: Non-reflective aluminium.
13. Colour: CL Charcoal.
14. Maximum static load (Kg/ cm2): 17mm Aluminium = 200 kg.
15. Dynamic loading: 17mm Aluminium = 200 kg.
16. Thickness: 17 mm.
17. Samples: 300 x 300mm sample.

Execution

710 Moisture content of wood and wood-based boards

1. Standard: To BS EN 942.
2. Moisture content on delivery: 9-13%
3. Temperature and humidity: During delivery, storage, fixing and to handover maintain conditions to suit specified moisture contents of timber components.

720 Installation generally

1. General: As Preliminaries section A33.
2. Fixing and fasteners: As section Z20.

770 Trims

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

Completion

910 General

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

Ω End of Section

N11
Domestic kitchen fittings, furnishings and equipment

Products

310 Fitted base units

1. Description: To teapoint.
2. Standard: To BS EN 14749.
3. Manufacturer: Howdens Joinery
   3.1. Product reference: Clerkenwell range
4. Dimensions: To BS EN 1116.
5. Surface finishes: To BS 6222-3.
6. Doors and drawer fronts
   6.1. Material: Plastics laminate
   6.2. Finish and colour: TBC by Architect
   6.3. Edges: Plastics strip
   6.4. Other requirements: Concealed door hinges, soft-close fittings
7. Side panels, plinths and shelves
   7.1. Material: Plastics laminate
   7.2. Finish and colour: TBC by Architect
   7.3. Edges: Plastics strip
8. Accessories: Bins, legs and plinths, decor panels as required.
9. Samples: Sample of finish.

320 Fitted wall units

1. Description: To teapoint.
2. Standard: To BS EN 14749.
3. Manufacturer: Howdens Joinery
   3.1. Product reference: Clerkenwell range
4. Dimensions: To BS EN 1116.
5. Surface finishes: To BS 6222-3.
6. Doors and drawer fronts
   6.1. Material: Plastics laminate
   6.2. Finish and colour: TBC by Architect
   6.3. Edges: Plastics strip
   6.4. Other requirements: Top-hung door, concealed door hinges, soft-close fittings
7. Side panels and shelves
   7.1. Material: Plastics laminate
   7.2. Finish and colour: TBC by Architect
   7.3. Edges: Plastics strip
8. Accessories: To house integrated microwave oven as N11/360B.
9. Samples: Sample of finish.

340 Worktops

1. Description: To teapoint kitchenette and desk.

2. Standard: To BS 6222-3.
3. Manufacturer: Howdens Joinery.
   3.1. Product reference: Builder-fit square edge laminate worktop.
4. Material: Laminate-covered particleboard.
5. Finish: TBC by Architect.
6. Dimensions: Refer to Architect's drawings.
7. Exposed edges: Laminate to match surface finish.
8. Support: As required.
9. Samples: Sample of finish.

350 Sinks, taps, traps and wastes Teapoint

1. Description: To teapoint kitchenette
2. Sinks
   2.1. Standard: To BS EN 13310.
   2.2. Manufacturer: Franke
      2.2.1. Product reference: Maris MRX 210-34
   2.3. Configuration: Single sink
   2.4. Overall size: 380 x 440 x 180mm
   2.5. Material: Stainless steel
      2.5.1. Colour and finish: Brushed steel
3. Tap/ chainstay/ overflow holes: Hygienic overflow
4. Taps: Mixer
   4.1. Manufacturer: Franke
      4.1.1. Product reference: Active J Spout Tap
   4.2. Operation: Side lever
   4.3. Material: Chrome plated
5. Instant boiling and cold water tap
   5.1. Manufacturer: Zip Water
      5.1.1. Product reference: Hydrotap G5 Classic Plus Boiling
   5.2. Finish: Bright chrome
6. Wastes: Semi-integrated waste
   6.1. Standard: To BS EN 274-1, -2 and -3.
   6.2. Manufacturer: Franke
      6.2.1. Product reference: Maris MRX 210-34
   6.3. Material: Stainless steel
   6.4. Tail: Unslotted
7. Traps: Refer to MEP Engineer's information

350B Sinks, taps, traps and wastes Workshops

1. Description: To locksmiths' workshop and carpenters' workshop.
2. Sinks
   2.1. Standard: To BS EN 13310.
   2.2. Manufacturer: Franke
      2.2.1. Product reference: Maris MRX 210-45
   2.3. Configuration: Single sink

2.4. Overall size: 490 x 440 x 180mm
2.5. Material: Stainless steel
2.5.1. Colour and finish: Brushed steel
3. Tap/ chainstay/ overflow holes: Hygienic overflow
4. Taps: Mixer
4.1. Manufacturer: Franke
4.1.1. Product reference: Active J Spout Tap
4.2. Operation: Side lever
4.3. Material: Chrome plated
5. Wastes: Semi-integrated waste
5.1. Standard: To BS EN 274-1, -2 and -3.
5.2. Manufacturer: Franke
5.2.1. Product reference: Maris MRX 210-45
5.3. Material: Stainless steel
5.4. Tail: Unslotted
6. Traps: Refer to MEP Engineer's information

360A Appliances (Integrated fridge freezer)

1. Item: Integrated fridge freezer
2. Manufacturer: Bosch
2.1. Product reference: Series 4, Built-in fridge-freezer with freezer at bottom, sliding hinge KIV87VSE0G
3. Dimensions: 1772 x 541 x 548mm
4. Colour and finish: White
5. Service connections: Mains electricity

360B Appliances (Integrated microwave oven)

1. Item: Integrated microwave oven
2. Manufacturer: Bosch
2.1. Product reference: Series 4, Built-in microwave oven, BFL523MB0B
3. Dimensions: 382 x 594 x 317mm
4. Colour and finish: Black
5. Service connections: Mains electricity

390 Sealant

1. Standard: To BS EN ISO 11600, Class F20 HM
2. Type: One-part silicone
2.1. Manufacturer: Submit proposals
2.1.1. Product reference: Submit proposals
3. Colour: TBC by Architect

Execution

610 Moisture content of wood and wood-based boards

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

620 Installation generally

1. Fixings and adhesives: As section Z20.

630 Installing units and worktops

1. General: Well-fitting, stable and secure.

640 Installing appliances

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

650 Installing sinks, taps and wastes

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

660 Sealant bedding and pointing

1. Application: As section Z22.
2. Bedding: Sink to top of worktop.
3. Pointing: Between units and splash backs.

670 Installing trims and mouldings

1. Lengths: Un-jointed between angles or ends of runs.
2. Angle joints: Mitred.

Completion

910 General

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

920 Appliance commissioning

1. Appliance operation, functions and controls: Verify.
2. Documentation: Submit guarantees, instruction manuals, etc.

Ω End of Section

N13
Sanitary appliances and fittings

Products

300 WCs and cisterns

1. Description: Refer to Sanitaryware Schedule.

312 Accessible shower equipment packages

1. Description: Refer to Sanitaryware Schedule.

335 Washbasins

1. Description: Refer to Sanitaryware Schedule.

377 Wet room showers

1. Description: Refer to Sanitaryware Schedule.

429 Clothes hooks

1. Description: Refer to Sanitaryware Schedule.

438 Mirrors

1. Description: Refer to Sanitaryware Schedule.

442 Paper towel dispensers

1. Manufacturer:
    1.1. Product reference:
2. Material:
3. Finish/ colour:

449 Shelves

1. Description: Refer to Sanitaryware Schedule.

458 Soap dispensers

1. Description: Refer to Sanitaryware Schedule.

460 Toilet brush holders

1. Description: Refer to Sanitaryware Schedule.

462 Toilet paper holders

1. Description: Refer to Sanitaryware Schedule.

474 Waste bins

1. Description: Refer to Sanitaryware Schedule.

580 Sealant for pointing

1. Standard: To BS EN ISO 11600.
2. Type: Silicone

3. Manufacturer: Submit proposals
   3.1. Product reference: Submit proposals
4. Colour: TBC by Architect

Execution

610 Installation generally

1. Standards: In accordance with BS 6465-1, -2 and -3.
2. Assembly and fixing: Surfaces designed to falls to drain as intended.
3. Fasteners: Non-ferrous or stainless steel.
4. Fixing: Fix appliances securely to structure. Do not support on pipework.
5. Jointing and bedding compounds: Recommended by manufacturers of appliances, accessories and pipes being jointed or bedded.
6. Appliances: Do not use. Do not stand on appliances.
7. Supply and discharge pipework: Fix before appliances.
8. On completion: Components and accessories working correctly with no leaks.
9. Labels and stickers: Remove.

613 Compatibility of components

1. General: Each sanitary assembly must consist of functionally compatible components, preferably obtained from a single manufacturer.

620 Noggings and bearers

1. Noggings, bearers, etc. to support sanitary appliances and fittings: Position accurately. Fix securely.

630 Tiled backgrounds other than splashbacks

1. Timing: Complete before fixing appliances.
2. Fixing appliances: Do not overstress tiles.

650 Installing WC pans

1. Floor-mounted pans: Screw fix and fit cover caps over screw heads. Do not use mortar or other beddings.
2. Seat and cover: Stable when raised.

670 Installing cisterns

1. Cistern operating components: Obtain from cistern manufacturer.
2. Inlet and flushing valves: Match to pressure of water supply.
3. Internal overflows: Into pan, to give visible warning of discharge.
4. External overflows: Fix pipes to falls and locate to give visible warning of discharge. Agree location where not shown on drawings.

710 Installing taps

1. Fixing: Secure against twisting.
2. Seal with appliance: Watertight.
3. Positioning: Hot tap to left of cold tap as viewed by user of appliance.

720 Installing wastes and overflows

1. Bedding: Waterproof jointing compound.
2. Fixing: With resilient washer between appliance and backnut.

755 Sealant bedding and pointing

1. Pointing: Joints between appliances and walls and floors.

Ω End of Section

N15
Internal fire and safety signage systems

General

110 Fire and safety signage systems

1. Description: Fire door signage.
2. System manufacturer: 3v Architectural Hardware Ltd.
3. Locations and layout: Refer to Ironmongery Schedule and Architect's drawings.
   3.1. Language: English.
4. Material: Stainless steel plate as N15/340.

System performance

205 Design of internal signage systems

1. Description: Fire door signage.
2. Design: Complete detailed design and submit before commencing work.
3. Content: Signs including facing information, components, inserts, accessories and fixings necessary to complete the system.
4. Proposals: Submit drawings, schedules, technical information, calculations and manufacturer's literature before commencing work.

210 General requirements

1. Signage and way guidance system design:
   1.1. For fire escape and evacuation signage: In accordance with: BS 5499-4 or BS ISO 16069.
   1.2. For way guidance systems: In accordance with BS ISO 16069.
   1.3. For safety signs other than escape route signage: In accordance with: BS 5499-10.
2. Comply with the requirements of: Fire strategy report.

220 Sign design and format

1. Description: Fire door signage.
2. Format: In accordance with BS EN ISO 7010.
3. Geometric shapes, colours and layout: In accordance with BS ISO 3864-1.
4. Design principles for graphical symbols: In accordance with BS ISO 3864-3.
5. Colorimetric and photometric properties of safety sign materials: In accordance with BS ISO 3864-4.

290 Signage samples

1. Sign type: Each signage type.
   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 products: To conform with labelled samples.

Products

340 Stainless steel plate

1. Description: Fire door signage. Refer to Ironmongery Schedule.
2. Manufacturer: 3v Architectural Hardware Ltd.
3. Base material: Satin stainless steel.
4. Perimeters: Manufacturer's standard.
5. Supports/ fixings: Screw-fixed.

Execution

610 Fixing signs generally

1. Installation: Secure, plumb and level.
2. Fasteners and adhesives: As section Z20.
3. Strength of fasteners: Sufficient to support live and dead loads.
4. Fixings showing on surface of sign: Must not detract from the message being displayed.

Completion

910 Documentation

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

Ω End of Section

N17
Portable and mobile firefighting systems

General

110 Portable fire extinguisher system

1. Description: Jewel Double Rotationally Moulded Extinguisher Stand
2. Supplier: Safe Fire Direct
   2.1. Product reference: Jewel Double Rotationally Moulded Extinguisher Stand
3. Material: Plastic
4. Colour: Red
5. Type: Client's choice
6. Capacity: Client's choice
7. Supports: Mounted on floor stand

System performance

210 Design

1. Design: Complete the design of the portable firefighting system.
2. Basis: To fire officer's requirements.
3. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

220 Colour coding

1. Portable fire extinguishers: Colour code in accordance with BS 7863.

Products

310 Carbon dioxide portable extinguishers

1. Standard: To BS EN 3-7, 3-9, 3-10.
2. Manufacturer: Client's choice.
   2.1. Product reference: Client's choice.

320 Dry powder portable extinguishers

1. Standard: To BS EN 3-7, 3-10.
2. Manufacturer: Client's choice.
   2.1. Product reference: Client's choice.

330 Foam portable extinguishers

1. Standard: To BS EN 3-7, 3-8, 3-10.
2. Manufacturer: Client's choice.
   2.1. Product reference: Client's choice.

340 Water portable extinguishers

1. Standard: To BS EN 3-7, 3-8, 3-10.
2. Manufacturer: Client's choice.
   2.1. Product reference: Client's choice.

350 Wet chemical portable extinguishers

1. Standard: To BS EN 3-7, 3-8, 3-10.
2. Manufacturer: Client's choice.
   2.1. Product reference: Client's choice.

Execution

610 Installing portable fire extinguishers

1. Mounting height above finished floor level: Floor-mounted stand.

Completion

910 Cleaning

1. Protective wrappings: Remove.
2. Cleaning: Clean off and wipe down container finishes.

920 Testing

1. Test standard: To BS 5603-0.
2. Test times: At completion.
3. Notice for testing (minimum): 5 days.

930 Training

1. Training: Submit instruction manuals or supply other appropriate resources to train the users of the building in the safe and appropriate use of the fire extinguishers and fire blankets.
2. Fire brigade: Submit contact details.

940 Maintenance

1. Servicing: Arrange the first annual service of the portable firefighting systems.
2. Maintenance standard: To BS 5603-0.

Ω End of Section

N25
Permanent access and safety equipment

Types of system/ equipment

210 Guided type fall restraint systems

1. Description: For roof maintenance access.
2. Manufacturer: MSA Safety (Latchways) – Fall Protection
   2.1. Contact details
      2.1.1. Address: Hopton Park
      Devizes
      Wiltshire
      SN10 2JP
      2.1.2. Telephone: +44 (0)1380 732700
      2.1.3. Web: https://gb.msasafety.com/latchways/roof-fall-protection
      2.1.4. Email: spec.gb@msasafety.com
3. System performance: Design of anchor device fixing points
4. Pre-installation survey: Survey to be carried out by a Registered MSA Latchways Installer.
5. Structural anchors: Constant Force® post.
6. Anchor line: Ø 8 mm 7x7 316L (1.4404) grade stainless steel wire rope with a 38 kN minimum breaking load.
7. Ancillary equipment: MSA Latchways Transfastener (Standard/Removable).
8. System arrangement: To specialist subcontractor's design.
9. End set: To specialist subcontractor's design.
10. Corner set (90°): To specialist subcontractor's design.
11. Variable set: To specialist subcontractor's design.
12. Cable length: To specialist subcontractor's design.
13. Transfastener (one per user): To specialist subcontractor's design.
14. System attachment: To suit hot melt membrane roofing system.
15. CF post finish: Polyester powder coating.
16. Colour: Grey.
17. Other requirements: ClimbLatch attachment.
18. Installation: System installation to be carried out by a Registered MSA Latchways Installer.
19. Usage: Operatives/users to be attached to the system with a energy absorbing lanyard and a MSA Latchways Transfastener.
20. Product reference: MSA Latchways ManSafe Constant Force® Fall Arrest / Restraint System

Design/ performance requirements

430 Safety

1. General: The equipment as installed must have no irregularities/ projections capable of inflicting personal injury.
2. Finished surfaces and edges of all accessible parts: Regular and smooth.

440 Design life/ Maintenance programme

1. Design life of access/ safety system: To manufacturer's recommendations.
2. Schedule for maintenance and for replacement of components: Submit proposals.

460 Assessment/ Testing of anchor devices

1. Design and testing of anchors: To BS EN 795.

Fabrication, assembly and installation

510 Fabrication and assembly generally

1. Machine cutting, drilling and assembly: Carry out as much as possible in the workshop. Obtain approval for any reassembly on site.
2. Dissimilar metal surfaces of assembly components/ supports/ fixings: Isolate to prevent electrolytic corrosion.

520 Protection

1. General: Do not deliver to site any components or assemblies that cannot be installed immediately or unloaded into a suitable well protected storage area.

530 Suitability of structure/ fabric

1. Visual and geometric survey of supporting structure and fabric: Carry out before commencing installation of access/ safety system. Report immediately if structure/ fabric will not allow required accuracy/ security of erection/ fixing and if structural testing is required.

535 Execution generally

1. Structural members: Do not modify, cut notch or make holes in structural members without permission.
2. Frameworks: Assemble and brace, including temporary members required for installation.
   2.1. Temporary support: Do not use access systems as temporary support or strutting for other work.
3. Bolted joints
   3.1. Contact between dissimilar metals: Avoid.
   3.2. Bolts and washers: Select types, sizes and quantities of fasteners or packings and spacings to retain supported components without distortion or loss of support.
4. Welded joints: Comply with latest edition of National Structural Steelwork Specification (NSSS), Section 5.
5. Finished components: Smooth, free from distortion, cracks, burrs and sharp arrises.

540 Mechanical fixings

1. Materials: Unless otherwise recommended by equipment manufacturer:
   1.1. Connecting bolts and other fixings fully accessible for inspection: Carbon steel hot dip galvanized to BS 7371-6.
2. Nuts: Tapped after galvanizing.
   2.1. Cast-in anchors and other fixings not accessible for routine inspection: Austenitic stainless steel, grade 1.4401 (316) to BS EN 10088-1.

550 Fasteners, inserts and bolts for building in

1. Supplier: Equipment manufacturer/ supplier.

560 Fixings for securing equipment

1. Adjustment capability: Adequate three dimensional adjustment to accommodate building structure/ fabric irregularities.

570 Fixing anchor installation

1. Site drilling or cutting into structure/ fabric: Permitted only in approved locations.
2. Distance between all fixing devices and edges of supporting material: Not less than recommended by fixing manufacturer.

615 UKCA/ UKNI/ CEmarking and declaration of conformity of permanently installed suspended access equipment

1. Marking: Equipment to be clearly labelled with a UKCA/ UKNI/ CE mark indicating conformity with the current edition of the Supply of Machinery (Safety) Regulations.
2. Declaration of conformity: Provide for the complete installation a declaration of conformity with Machinery Directive 2006/42/EC together with certificates of incorporation for parts not supplied or installed by the main equipment manufacturer or supplier.

640 Marking of anchor devices

1. Provision: Provide on or near each anchor device a label or other clear marking giving:
   1.1. Manufacturer's name and telephone number.
   1.2. Serial number and year of manufacture of device.
   1.3. Maximum number of personnel that may be attached to the device at any one time.
   1.4. Requirements for energy absorbers, ground clearance, etc.
2. Anchor devices intended solely for use with personal protective equipment: Indicate restriction of use by pictogram or other suitable marking on or near the device.

810 Service/ Maintenance

1. General: Following acceptance of the completed installation, service and maintain the equipment for the period stated below as and at intervals recommended by the manufacturer. Such maintenance to include a ‘call-out’ service during normal working hours to maintain the equipment in an acceptable and safe condition.
2. Service/ Maintenance period: TBC with Museum PFM team.

820 Operating instructions

1. Equipment and accessories: Where appropriate, mark in such a way that it is possible to identify the correct mode of operation for their safe use.

830 Operating and maintenance manual

1. General: Provide, for inclusion in the Building Manual, printed instructions and recommended procedures to be established by the Employer for operating and routinely maintaining the equipment. Provide diagrams where appropriate.
2. Content
   2.1. Instructions for assembling/ erecting equipment for use.
   2.2. Comprehensive operating instructions, including safety and emergency procedures, for all motions including upward, downward and lateral travel, and slew.
   2.3. Servicing and planned maintenance procedures, including assembly instructions where maintenance necessitates dismantling of machinery parts.
   2.4. List of replacement parts, with references.
   2.5. Recommended procedures for testing equipment.

840 As installed drawings

1. General: After commissioning/ testing of the equipment provide as installed drawings for inclusion in the Building Manual.

1.1. Number of sets: 2

2. Drawing content
   2.1. Contractor's name and contract number.
   2.2. Location and date of installation.
   2.3. Manufacturer's name, model and type numbers.
   2.4. General arrangement of the complete installation.
   2.5. Electrical circuit wiring diagrams complete with details and ratings of all items of equipment.

Ω End of Section

P10
Sundry insulation/ proofing work

Types of insulation

140 Mineral wool insulation

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: info@rockwool.com
   1.2. Product reference: NyRock® Frame Slab 032 (Steel frame applications, 120 mm thick)
2. Standard: To BS EN 13162:2012+A1:2015.
3. Thickness: 120 mm.
4. Edges: Square.
5. Density: Manufacturer's standard.
6. Thermal conductivity (maximum): To BS EN 13162:2012 + A1:2015, 0.032 W/m·K.
7. Compressive strength (minimum): Manufacturer's standard.
8. Fire performance: To BS EN 13501-1, A1.
9. Sound insulation rating: Manufacturer's standard.
10. Moisture vapour resistance: 5.9 MNs/gm.

310 Air and vapour control layer, 500 gauge

1. Manufacturer: Visqueen
   1.1. Contact details
      1.1.1. Address: Visqueen
      Heanor Gate Industrial Estate
      Derbyshire
      Heanor
      Derbyshire
      United Kingdom
      DE75 7RG
      1.1.2. Telephone: +44 (0) 333 202 6800
      1.1.3. Web: www.visqueen.com
      1.1.4. Email: enquiries@visqueen.com
   1.2. Product reference: Visqueen Class B FR Vapour Check
2. Material: Polyethylene.
3. Purpose: Vapour control layer.
4. Standard: UKCA/ UKNI Mark EN 13984.
5. Performance characteristics
   5.1. Tensile strength (minimum): 15 N/mm².

5.2. Elongation to break: 400%.
5.3. Water vapour resistance (minimum): 266 MN·s/g.
5.4. Fire performance: B-s1, d0 to BS EN 13501-1.

6. Physical properties
6.1. Colour: Orange.
6.2. Weight (minimum): 128 g/m².
6.3. Dimensions
6.3.1. Thickness (minimum): 0.125 mm.
6.3.2. Width (minimum):
6.3.3. Roll length (minimum): 50 m.

7. Accessories:
8. Joint strength: 50 N.
9. Water vapour resistance: 341 MNs/g.
10. Water vapour transmission: 0.481 g/m²/d.
11. Air leakage: 0 m³/h/m² at ±100 Pa.
12. Impact resistance: 200 mm.
13. Installation requirements
13.1. Setting out: Joints minimized.
13.2. Method of fixing: Refer to manufacturer's recommendations.
13.3. Joints: At supports only, lapped 150 mm minimum.
13.4. Openings: Membrane fixed to reveals.
13.5. Joints and edges: Sealed with double-sided tape with vapour resistivity not less than the air and vapour control layer.

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® Housewrap
2. Standard: To BS EN 13859-2.
3. Class (minimum): W1.
4. Material: High-density polyethylene (PE-HD).
5. Form: Spun-bonded.
6. Third-party certification: British Board of Agrément (BBA) Certificate.
7. Weight (minimum): 63 g/m².
8. Thickness (minimum): 0.175 mm.
9. Standard: BS EN 13859-1 & BS EN 13859-2.

10. Installation requirements
    10.1. Setting out: Joints minimized. Membrane to form a continuous barrier to prevent water, snow and wind blown dust reaching the substrate.
    10.2. Method of fixing: Plastics retaining head, stainless steel insulation pins at 600 mm maximum centres on line of laps, through insulation into concrete blockwork substrate.
    10.3. Joints: Lapped 100 mm minimum horizontally and 150 mm minimum vertically.
    10.4. Openings: Membrane fixed to reveals.
    10.5. Bottom edges: Membrane lapped over flashings, sills, etc. to allow free drainage to the exterior.
11. Penetrations: Sealed.

420 Stone wool firestop

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: info@rockwool.com
    1.2. Product reference: FirePro® SP FireStop EN 120 - 90mm
2. General requirements: Insulation products generally.
3. Size: 1200 mm.
4. Residual cavity width: Minimal residual cavity, to manufacturer's recommendations.
5. Fire performance: Euroclass A1; up to 120 minutes.
6. Thickness: 90 mm.
7. Material: Black aluminium foil on both sides.
8. Installation requirements
    8.1. Horizontal barriers: SP FireStop Fixing Bracket, as required.
    8.2. Joints and intersections: Butted, with barriers compressed along full length to give complete seal.

Ω End of Section

P12
Fire-stopping systems

General

160 Linear gap sealing

1. Description: Sealant to fire-resisting compartment walls.
2. Control samples: Provide area for review in-situ within a back of house plant room.
3. Fire resistance: Refer to Fire Strategy and detail drawings.
4. Gap width or height (nominal): 10 mm.
5. Gap filler: Sealant backing material, as clause 385
6. Capping sealant: Fire-resisting silicone, as clause 390
   6.1. Colour: Submit proposals, to match adjacent material's colour.

System performance

240 Fire performance

1. Description: To compartment walls, floors and ceilings as Fire Strategy drawings.
2. Resistance to fire: Refer to Fire Strategy report.
3. Reaction to fire: Refer to Fire Strategy report.
4. Smoke resistance
   4.1. Air leakage rate (maximum): Refer to Fire Strategy report.

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 to floor services penetrations

1. Manufacturer: Nullifire – a brand of Tremco CPG UK Ltd
   1.1. Contact details
      1.1.1. Address: Tremco CPG UK Limited
      Coupland Road
      Hindley Green
      Wigan
      Greater Manchester
      WN2 4HT
      1.1.2. Telephone: +44 (0) 1942 251 400
      1.1.3. Web: www.nullifire.com
      1.1.4. Email: hello@tremcocpg.com
   1.2. Product reference: FF197 Gun Grade Fire Rated PU Foam
2. Material: Fire rated polyurethane semi-rigid foam.
3. Colour: Grey.
4. AcousticRating: Up to 41 dB.
5. Fire performance: Up to four hours.

6. Loading: 24 hours.
7. ShearStrength: 80 kPa.
8. TensileStrength: 103 kPa.
9. ThermalConductivity: 36 mW/mK.

338 Intumescent mastic

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

340 Intumescent mortar

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: info@rockwool.com
   1.2. Product reference: ROCKWOOL® FIREPRO® Firestop Compound
2. Material: Gypsum based.
3. Fire resistance: 360 minutes.
4. LoadBearingCapacity: Up to 2.5 KN.
5. Acoustic performance: Up to 51 dB.

342 Fire-resisting mortar

1. Manufacturer: Promat, or similar approved to suit UKPN requirements.
   1.1. Product reference: Promaseal-AG, 4-hour fire-rated mortar or similar after cable installation. Installation to be coordinated with UKPN.

360 Mineral wool rigid batts

1. Surface treatment: ROCKWOOL ablative coating, where batts are butt-joined and/or required.
2. Manufacturer: ROCKWOOL Ltd
   2.1. Contact details
      2.1.1. Address: ROCKWOOL Ltd
      Wern Tarw
      Pencoed
      Bridgend
      United Kingdom
      CF35 6NY
      2.1.2. Telephone: +44 (0)1656 862621
      2.1.3. Web: https://www.rockwool.com/uk/
      2.1.4. Email: info@rockwool.com
   2.2. Product reference: ROCKWOOL® FIREPRO® Ablative Coated Batt
3. General requirements: Insulation products generally.
4. Thickness: 50 mm.

5. Facing: Ablative coated.
6. Density: 160 kg/m³.
7. Fire performance: Euroclass fire rating A1.
8. Width: 600 mm.
9. Air leakage: 0.8 m³/h/m².

370 Pipe collar

1. Type: Insulated wrap pipe collar.
2. Manufacturer: ROCKWOOL Ltd.
   2.1. Product reference: FIREPRO® Pipe Collar CE.

385 Sealant backing material

1. Manufacturer: Firetherm or similar approved.
   1.1. Product reference: Submit proposals.

390 Intumescent sealant

1. Type: One part fire resistance acrylic.
2. Manufacturer: ROCKWOOL Ltd
   2.1. Contact details
      2.1.1. Address: ROCKWOOL Ltd
      14th Floor, Chiswick Tower
      389 Chiswick High Road
      London
      W4 4AJ
      2.1.2. Telephone: +44 (0)16556 862621
      2.1.3. Web: https://www.rockwool.com/uk/
      2.1.4. Email: info@rockwool.com
   2.2. Product reference: FIREPRO® Acoustic Intumescent Sealant
3. Fire performance: Up to four hours.

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.

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

670 Applying intumescent mortar

1. Sequence: Install mortar after services are permanently installed.
2. Loose dust and combustible materials: Remove from the opening.

3. Shuttering: Install suitable shuttering panels to the faces of the opening.
4. Temperature: Do not apply mortar when it could be damaged by frost.
5. Powder:water ratio:
6. Mortar cure: Do not disturb mortar before final set has taken place.
7. Shuttering: Remove after mortar has cured.

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: Not applicable.
2. Face of batts: Double layered batts, centred to rigid walls, tightly fit with all edges of the aperture, as per manufacturer's recommendations.
3. Joints between batts: Butt joints, seal with fire-resisting sealant and ablative coating.
4. Gaps between services and barrier: Seal with fire-resisting sealant.

730 Fixing pipe collars

1. Collar fixing: Submit proposals.
2. Gap around collar: As per manufacturer's standard.
3. Length of wraps: Project 50 mm from each side of the element, or similar approved requirements, i.e. UKPN requirements.

740 Inserting sealant backing material

1. Preparation: Removed debris from service penetration.
2. Installation: Build-in joint filler as the work proceeds.

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): Five working days.

Ω End of Section

P20
Unframed isolated trims/ skirtings/ sundry items

To be read with preliminaries/ general conditions

120 Hardwood architrave

1. Description: Architraves for external doors and windows, rebated to suit doors and windows fixing details.
2. Quality of wood and fixing: To BS 1186-3.
   2.1. Species: European oak.
   2.2. Class: CSH.
3. Moisture content at time of fixing: 9 -13%
4. Preservative treatment: Not required.
5. Reaction to fire rating: Not applicable.
6. Profile: Square edge. Rebated to allow for door and window frame fixings. Refer to Architect's drawings.
   6.1. Finished size: 20 x 135mm.
7. Finish as delivered: One coat clear finish, as section M60.
8. Fixing: Plugged, screwed and pelleted at 450mm centres.
9. Samples: 300mm long sample. To be referenced against/matched to internal timber doors.

260 Wood-veneered MDF skirting

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals.
2. Reaction to fire rating: Not applicable.
3. Veneer species: European oak.
4. Finished thickness: 15 mm
5. Finished height: 100mm
6. Edges: Hardwood lipping to match veneer.
7. Support/ Fixing: Plugged, screwed and pelleted at 450mm centres.
8. Samples: 300mm long sample. To be referenced against/matched to internal timber doors.

Execution

510 Installation generally

1. Joinery workmanship: As section Z10.
2. Metal workmanship: As section Z11.
3. Methods of fixing and fasteners: As section Z20 where not specified.
4. Straight runs: To be in one piece, or in long lengths with as few joints as possible.
5. Running joints: Location and method of forming to be agreed where not detailed.
6. Joints at angles: Mitre, unless shown otherwise.
7. Position and level: To be agreed where not detailed.

Ω End of Section

P21
Door/ window ironmongery

Pre-tender

10 Quantities and locations

1. Quantities and locations of ironmongery are as per Internal and External Ironmongery Schedules .
2. Fixing: As sections L10 and L20.

General

120 Ironmongery range selected by Contractor

1. Source: From specified manufacturers' range.
2. Notification: Submit details of selected range, manufacturer and/ or supplier.
3. Principal material/ finish: As per Internal and External Ironmongery Schedules/Specifications.
4. Items unavailable within selected range: Submit proposals.

122 Ironmongery from listed proprietary ranges

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

130 Approved suppliers

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

140 Samples

1. General: Before placing orders with suppliers submit labelled samples of the following: each type of handle, bolt, signage, thumbturn set, escutcheon and door stop in Internal and External Ironmongery Schedules .
   1.1. Conformity: Retain samples on site for the duration of the Contract. Ensure conformity of ironmongery as delivered with labelled samples.

170 Ironmongery for fire doors

1. Relevant products: Ironmongery fixed to, or morticed into, the component parts of a fire resisting door assembly.
2. Compliance: Ironmongery included in successful tests to BS 476-22 or BS EN 1634-1 on door assemblies similar to those proposed.
   2.1. Certification: 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 Internal and External Ironmongery Schedules.
2. Other requirements: To BS EN 1935.

Window hanging devices

370 Window hinges

1. Description: Refer to External Ironmongery Schedule.

Door operating devices

410 Overhead door closers/openers

1. Description: Refer to Internal and External Ironmongery Schedules.
2. Standard: To BS EN 1154.
3. Operational adjustment
   3.1. Variable power: Matched to size, weight and location of doors.
   3.2. Latched doors: Override latches and/ or door seals when fitted.
   3.3. Closing against smoke seals of fire doors: Positive. No gaps.
4. Accessibility requirement: Power-assisted or automatic opening required as indicated in the Internal and External Ironmongery Schedules to comply with ADM. Compatibility of ironmongery selection and access requirements to be confirmed.

412 Performance specification for overhead door closers/openers

1. Standard: To BS EN 1154.
2. Minimum classification grades
   2.1. Suitability for use on fire/ smoke doors: 1.
   2.2. Safety: 1.
3. Type: Face fixed.
4. Other functions: Back check and delayed closing.
5. Casing finish: As Internal and External Ironmongery Schedules.
6. Operational adjustment
   6.1. Variable power: Matched to the sizes and weights of doors.
   6.2. Latched doors: Override latches and/ or door seals when fitted.
   6.3. Unlatched doors: Hold shut under normal working conditions.
   6.4. Closing against smoke seals of fire doors: Positive. No gaps.

Door securing devices

515 Door locks

1. Description: Refer to Internal and External Ironmongery Schedules.
2. Standard: To BS EN 12209.

525 Performance specification for door locks and latches

1. Standard: To BS EN 12209.
2. Minimum classification grades
   2.1. Suitability for use on fire/ smoke doors: 1.
   2.2. Safety: 0.
   2.3. Security and drill resistance: 2.
   2.4. Field of door application: Equivalent to the products currently specified.
   2.5. Type of key operation and locking: Equivalent to the products currently specified.
3. Keying: Assa Abloy Protec2 system.

530 Special function door locks

1. Description: Refer to Internal and External Ironmongery Schedules.
2. Manufacturer: Salto Systems
   2.1. Contact details
      2.1.1. Address: No.1 The Court
      Holywell Buisness Park
      Northfield Road
      Southam
      Warwickshire
      CV47 0FG
      2.1.2. Telephone: +44 (0)1926 811979
      2.1.3. Web: www.saltosystems.com
      2.1.4. Email: k.carey@saltosystems.com
   2.2. Product reference: SALTO XS4 Original+, Scandinavian configuration, standard line Washington handle with mechanical override.
3. Keying: As per Museum's security requirements.

540 Door latches

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

582 Door bolts

1. Description: Refer to Internal Ironmongery Schedule.
2. Standard: To BS EN 12051.

586 Privacy indicator bolts

1. Description: Refer to Internal Ironmongery Schedule.
2. Emergency release facility: Required.

Window securing devices - Not Used

Door furniture

610 Lever handles

1. Description: Refer to Internal and External Ironmongery Schedules.
2. Standard: To BS EN 1906.

641 Pull handles

1. Description: Refer to External Ironmongery Schedule.
2. Standard: To BS 8424.

690 Kick plates

1. Description: Refer to Internal Ironmongery Schedule.

710 Escutcheons

1. Description: Refer to Internal and External Ironmongery Schedules.

720 Door stops

1. Manufacturer: Refer to Internal and External Ironmongery Schedules.

Window furniture

900 Casement handles

1. Description: Refer to External Ironmongery Schedule.

935 Remote window openers

1. Description: Refer to Architect's drawings and as L10/460A.

Ω End of Section

Q10
Kerbs/ edgings/ channels/ paving accessories

Types of kerbs/edgings and channels

120 Natural stone kerbs

1. Manufacturer: Marshalls plc
2. Contact details
   - 2.1. Address: Landscape House
     Lowfields Business Park
     Elland
     West Yorkshire
     HX5 9HT
   - 2.2. Telephone: +44 (0)330 0574472
   - 2.3. Web: www.marshalls.co.uk
   - 2.4. Email: info@marshalls.co.uk
3. Product reference: Altair Granite
4. Standard: To BS EN 1341.
5. Stone denomination
   - 5.1. Petrological family: Granite.
   - 5.2. Colour: Black.
   - 5.3. Origin: India.
6. Physical properties
   - 6.1. Profile
     - 6.1.1. Slab type: Regular plan form.
     - 6.1.2. Arrises: Square.
   - 6.2. Dimensions and associated tolerances
     - 6.2.1. Nominal sizes: 1000 x 300 x 135 mm.
   - 6.3. Finish: Blasted.
7. Performance requirements
   - 7.1. Breaking load: To EN 12372, 13.6 MPa.
   - 7.2. Water absorption (maximum): To EN 13755, 0.1%.
8. Abrasion resistance: To EN 14157, 15.5 mm.
9. Durability: To EN 12371, 25.7/24.9 MPa.
10. Material density: To EN 1936, 2780 kg/m³.
11. Porosity: To EN 1936, 0.4%.
12. CompressiveStrength: To EN 1926, 163 MPa.

170 Linear slot drainage channel systems

1. Manufacturer: ACO Technologies plc
   - 1.1. Product reference: ACO RainDrain® Brickslot B 125 Channel
2. Bore: As per manufacturer's recommendations to provide a flush finish of inlet slot to top of paving.
3. Finish: Standard.
4. Colour: Submit proposal.
5. Accessories: As per manufacturer's recommendations.

6. Bedding: Cement mortar or similar approved to manufacturer's recommendations.
7. Joints generally: As per manufacturer's recommendations.

180 Drainage channel systems with gratings

1. Manufacturer: ACO Technologies plc
   1.1. Product reference: ACO Multiline Sealin V100S with MultiDrain M100D Intercept Ductile Iron grating, galvanised edge rails and sump.
2. Size: Nominal internal width 100 mm x 500/ 1000mm long.
3. Type of fall: Constant depth.
4. Finish: Standard.
5. Colour: Submit proposal.
6. Accessories: As per manufacturer's recommendations.
7. Bedding: Cement mortar.
8. Joints generally: As per manufacturer's recommendations.
9. Cover gratings: Ductile iron, slotted.
   9.1. Fixings: As per manufacturer's recommendations.
   9.2. Loading grade to BS EN 124-1: C250.
   9.3. Finish/ Colour: Black.

250 Material samples

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.
   1.1. Designated materials: Stone kerbs.

Roads/paving accessories/ marking/ demarcation

312 Footway gratings

1. Description: Grating trench in Transformer Rooms to UKPN requirements.
2. Manufacturer: Lichtgitter UK Ltd
   2.1. Contact details
      2.1.1. Address: Fryers Road
      Bloxwich
      Walsall
      West Midlands
      WS2 7LZ
      2.1.2. Telephone: +44 (0)1922 711611
      2.1.3. Web: www.lichtgitter.co.uk
      2.1.4. Email: sales@lichtgitter.co.uk
   2.2. Product reference: GRP Moulded Grating (BK513-38-5)
3. Colour: Green (RAL 6010).
4. Size
   4.1. Length x width: Refer to Architect's drawings.
   4.2. Depth: 38 mm.
5. Type: Gritted.
6. Pitch: 38.1 x 38.1 mm.
7. E-Modulus to EN ISO 178: 14.500 N/mm².
8. Density: To EN ISO 178, 1.8 kg/dm³.

9. Flexural strength: To EN ISO 178, 216 N/mm².
10. BendingStrength: To EN ISO 178, 216 N/mm².
11. Designation fire retardant class: To BS EN 13501.

Laying

510 Laying kerbs, edgings and channels

1. Cutting: Neat, accurate and without spalling. Form neat junctions.
   1.1. Long units (450 mm and over) minimum length after cutting: 300 mm.
   1.2. Short units minimum length after cutting: The lower of one third of their original length or 50 mm.
2. Bedding of units: Positioned true to line and levelled along top and front faces, in a mortar bed on accurately cast foundations or on a race of fresh concrete.
3. Securing of units: After bedding has set, secured with a continuous haunching of concrete or on a race of fresh concrete with backing concrete cast monolithically.

520 Adverse weather

1. Conditions: Do not construct if the temperature is below 3°C on a falling thermometer or 1°C on a rising thermometer. Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.

530 Concrete for foundations, races and haunching

1. Standard: To BS 8500-2.
2. Designated mix: Not less than GEN0 or Standard mix ST1.
3. Workability: Very low.

540 Cement mortar bedding

1. General: To section Z21.
2. Mix (Portland cement:sand): 1:3.
   2.1. Portland cement: Class CEM I 42.5 to BS EN 197-1.
   2.2. Sand: to BS EN 12620, grade 0/4 or 0/2 (MP).
3. Bed thickness: 12-40 mm.

570 Channels

1. Installation: To an even gradient, without ponding or backfall.
2. Lowest points of channels: 6 mm above drainage outlets.

580 Drainage channel systems

1. Installation: To an even gradient, without ponding or backfall. Commence laying from outlets.
2. Silt and debris: Removed from entire system immediately before handover.
3. Washing and detritus: Safely disposed without discharging into sewers or watercourses.

620 Accuracy

1. Deviations (maximum)
   1.1. Level: ± 6 mm.
   1.2. Horizontal and vertical alignment: 3 mm in 3 m.

625 Regularity of paved surfaces

1. Maximum undulation of (non-tactile) paving surface: 3 mm.
   1.1. Method of measurement: Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).
2. Difference in level between adjacent units (maximum)
   2.1. Joints flush with the surface: Twice the joint width (with 5 mm max difference in level).
   2.2. Recessed, filled joints: 2 mm.
      2.2.1. Recess depth (maximum): 5 mm.
   2.3. Unfilled joints: 2 mm.
3. Sudden irregularities: Not permitted.

Ω End of Section

Q22
Asphalt roads/ pavings

Types of paving

160 Stone mastic asphalt paving

1. Standard: To BS EN13108.
2. Third party certification: BBA HAPAS Certified (16/H254).
3. Target composition
   - 3.1. Designation: Submit proposal.
   - 3.2. Binder grade: Submit proposal.
4. Colour: To be confirmed.
5. Aggregate properties
   - 5.1. Resistance to polishing - polished stone value (minimum): Submit proposal.
   - 5.2. Resistance to surface abrasion - AAV (maximum): Submit proposal.
6. Thickness: 25—40 mm.
7. Depth: Not applicable.
8. Porosity: 5000 mm/hour.
9. Description: TO FOOTWAYS
10. System manufacturer: Tarmac
11. Contact details
    - 11.1. Address: Ground Floor, T3 Building, Trinity Park
      Bickenhill Lane
      Solihull
      Birmingham
      West Midlands
      United Kingdom
      B37 7ES
    - 11.2. Web: https://tarmac.com/contact/
    - 11.3. Email: centralwestsales@tarmac.com
12. Geotextile: Submit proposal.
    - 12.1. Manufacturer: Submit proposal.
      - 12.1.1. Product reference: ULTICOLOUR (ULTICOLOUR SMA 6 mm.)
13. Surface course
    - 13.1. Manufacturer: Submit proposal.
14. Other requirements: Contractor to ensure the specified asphalt paving is suitable as substrate for the Triflex ProFloor system as clause J30/120

Preparatory work/ requirements

220 Bituminous materials generally

1. Suppliers' names: Submit.
   - 1.1. Timing (minimum): Two weeks before starting work.
2. Test certificates: At the time of delivery for each manufacturing batch submit certificate:
   - 2.1. Confirming compliance with this specification and the relevant standard.
   - 2.2. Stating full details of composition of mix.

230 Samples

1. Submit: Representative samples of coated chippings.

240 Acceptance of surfaces

1. Surface: Sound, clean and suitably close textured.
2. Level tolerances: To BS 594987.
3. Kerbs and edgings: Complete, adequately bedded and haunched and to the required levels.

250 Abutments

1. Vertical edges of manholes, gullies, kerbs and other abutments: Clean and paint with a thin uniform coating of Polymer modified bitumen emulsion bond coat.
2. Finishing: Tamp surface around projections.
    2.1. Level: Flush or not more than 3 mm above projections.

Laying

310 Laying generally

1. Preparation: Remove all loose material, rubbish and standing water.
2. Adjacent work: Form neat junctions. Do not damage.
3. Channels, kerbs, inspection covers etc: Keep clean.
4. New paving
    4.1. Keep traffic free until it has cooled to prevailing atmospheric temperature.
    4.2. Do not allow rollers to stand at any time.
    4.3. Prevent damage.
    4.4. Lines and levels: With regular falls to prevent ponding.
    4.5. Overall texture: Smooth, even and free from dragging, tearing or segregation.
    4.6. State on completion: Clean.

320 Adverse weather

1. Frozen materials: Do not use.
2. Suspend laying
    2.1. During freezing conditions
    2.2. If the air temperature reaches 0°C, or in calm dry conditions -3°C, on a falling thermometer.
    2.3. Hot rolled asphalt: During periods of continuous or heavy rain or if there is standing water on the base.

330 Levels

1. Permissible deviation from the required levels, falls and cambers (maximum): In accordance with BS 594987, clause 5.2.

350 Contractor's use of pavements

1. Before use
    1.1. Timing: allow newly laid sections to cool before trafficking.
    1.2. Open-grained surface: Fill with 0/4 mm size coated grit. Remove surplus.
    1.3. Finish: Uncoated chipping and binder surface treatment.
2. Preparation for final surfacing

2.1. Timing: Defer laying until as late as practicable.

2.2. Immediately before laying final surfacing: Clean and make good the base/ binder course. Allow to dry.

2.3. Adhesion: Submit proposals.

2.3.1. Application rate: As manufacturer's recommendation.

2.3.2. Accuracy: Uniform, without puddles.

2.4. Finishing: Allow emulsion to break completely before applying surface.

Completion

390 Documentation

1. Standard: BS EN 13108-1.
   1.1. Declaration of conformity: Submit.
2. Number of copies: Two.
3. Submission: Two weeks prior to date when Contractor expects work to be complete.

Ω End of Section

Q24
Interlocking brick/ block roads/ pavings

Types of paving

122 Conventional clay paver paving with bound base

1. Description: To East Road.
2. Subgrade improvement layer: As indicated on Architect's drawings.
   2.1. Compacted thickness: As indicated on Architect's drawings.
3. Granular sub-base: As indicated on Architect's drawings.
   3.1. Compacted thickness: As indicated on Architect's drawings.
4. Laying course
   4.1. Material: In accordance with BS 7533-3.
   4.2. Method of screeding, in accordance with BS 7533-3: Compacted.
   4.3. Nominal thickness after compaction: 50 mm.
5. Pavers: To BS EN 1344:
   5.1. Manufacturer: Wienerberger.
      5.1.1. Product reference: Nero Waterstruck DF (11223140).
   5.2. Sizes: 200 x 65 x 80mm.
   5.3. Colour/ Finish: Black, waterstruck.
   5.4. Requirements:
      5.4.1. Dimensional deviations: Class R1.
      5.4.2. Freeze/ thaw resistance class: FP100.
      5.4.3. Mean transverse breaking load: Class T4.
      5.4.4. Abrasion resistance (mm): Class A2.
      5.4.5. Slip/ Skid resistance: Class U3.
6. Jointing
   6.1. Material: In accordance with BS 7533-3.
   6.2. Joint width: 2-5 mm.
7. Sealer/ Stabilizer: Not required.
8. Samples: Sample to be provided. 1000 x 1000mm control sample on site to be agreed.
9. Setting out
   9.1. Bond: Stretcher, refer to drawing 9001.

160 Hard landscaping materials specification

1. Minimum BRE 'Green Guide to Specification' online rating: Refer to BREEAM Consultant's information.

Execution

200 Execution generally – concrete block and clay paver paving

1. Standard: In accordance with BS 7533-3.

211 Colour banding

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

220 Samples

1. General: Before ordering, submit samples of clay blocks/ pavers/ setts that are representative of colour and appearance.

230 Control samples

1. General: Carry out sample area of finished work:
   1.1. Location: North east corner of site.
   1.2. Size (minimum): 1000 x 1000mm.
   1.3. Features to be included: Granite kerb stones as Q10/120.
2. Give notice: When ready for inspection.
3. Timing: Obtain approval of appearance before proceeding.

240 Adverse weather

1. General: Do not use frozen materials or lay bedding on frozen or frost covered sub-bases.

452 Prepared existing and new bound bases (roadbases)

1. Condition before placing laying course: Sound, clean, free from rutting or major cracking and cleared of sharp stones, projections or debris.

485 Laying blocks/ pavers/ setts

1. Setting out: Start from an edge restraint.
2. Cutting: Cleanly, accurately and vertically, without spalling. Do not mark or damage visible surfaces.
3. Cut edges: Turn inwards where possible; do not position against edge restraints or other features.
4. Compaction: Vibrate to produce thoroughly interlocked paving of even overall appearance with regular joints and accurate to line, level and profile. Do not mark or damage paving units, kerbs and adjacent work.
   4.1. Concrete blocks and clay pavers: In accordance with BS 7533-3, Annex F, to site category required for laying course material.

495 In situ surrounds to obstructions

1. Locations: Where blocks/ pavers cannot be fitted tight up to features.
2. Material: 3:1 mix of coarse aggregate and mortar in accordance with BS 7533-3, clause 5.4.3.2.
3. Shape and size: Rectangular, 100 mm (minimum) all round obstruction.
4. Thickness (minimum): Combined depth of blocks/ pavers/ setts and sand laying course.
5. Colour: To match paving units.
6. Timing: Lay and allow to cure in advance of laying blocks/ pavers/ setts.

500 Regularity of paved surfaces

1. Maximum variation in gap under a 3 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface)
   1.1. Precast concrete paving blocks and clay pavers for flexible pavements: 10 mm.
2. Difference in level between adjacent paving units (maximum): 2 mm.
3. Sudden irregularities: Not permitted.

505 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 max 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.

Completion

615 Completion of paving

1. Final compaction of the surface course: In accordance with BS 7533-3.
2. Vacuum cleaning machines: Not allowed.

Ω End of Section

Q25
Slab/ brick/ sett/ cobble pavings

General

127 Pedestal supported paving slab/ flag system

1. Description: To external generator enclosure.
2. Paving support: Pedestals as clause 480.
3. Paving units: Concrete slabs as clause 315.

System performance - Not Used

Products

315 Concrete flags

1. Description: To external rooftop generator enclosure.
2. Standard: To BS EN 1339.
   - 2.1. Manufacturer: Marshalls plc
     - 2.1.1. Contact details
       - 2.1.1.1. Address: Landscape House
         Lowfields Business Park
         Elland
         West Yorkshire
         HX5 9HT
       - 2.1.1.2. Telephone: +44 (0)330 0574472
       - 2.1.1.3. Web: www.marshalls.co.uk
       - 2.1.1.4. Email: info@marshalls.co.uk
     - 2.1.2. Product reference: Standard Pimple Paving (50 mm thick)
   - 2.2. Standard: To BS EN 1339.
   - 2.3. Physical properties
     - 2.3.1. Colour: Natural.
     - 2.3.2. Finish: Pimple.
     - 2.3.3. Profile
       - 2.3.3.1. Flag type: Regular plan form.
       - 2.3.3.2. Arrises: Square.
     - 2.3.4. Dimensions and associated tolerances
       - 2.3.4.1. Nominal sizes: 300 x 300 x 50 mm.
     - 2.3.5. Weathering resistance: ≤1.0 kg/m² as a mean with no individual value > 1.5 kg/m² (freeze thaw durability).
     - 2.3.6. Abrasion resistance: ≤23 mm, wide wheel abrasion test.
     - 2.3.7. Slip resistance: USRV to BS EN 1339 of >45.
   - 2.4. Fibre reinforcement: Not required.

480 Support pedestals

1. Description: To external rooftop generator enclosure.
2. Manufacturer: Bauder.
   - 2.1. Product reference: Non-Combustible Pedestal (NC Range).

3. Type: Adjustable.
4. Material: Recycled aluminium.
5. Dimensions: To achieve FFLs shown on drawings.
6. Additional pedestals: Adjacent to perimeters.

Execution

610 Material samples

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.
   1.1. Designated materials: All pavings.

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.

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 max 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. Access: Restrict access to paved areas to prevent damage from site traffic and plant.

810 Pedestal installation

1. Surface to accept pedestals: Clean and free of debris.
2. Setting out: Mark centre-point of pedestal on substrate surface, with perpendicular guidelines to ensure square layout.
   2.1. Orientation: Align parallel with adjacent features.
   2.2. Spacing: To suit paving material and dimensions.
3. Movement tolerance at perimeter of paver system (maximum): 5 mm.

Completion - Not Used

Ω End of Section

Q37
Green roofs

General

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.*

NBS Section Q37 - Description of Works

1. Section Q37 deals with the design and installation of the Bauder Green Roof landscaping system, including the various related elements i.e. separation, protection, and drainage layers, substrates, Bauder supplied planting and accessories such as inspection chambers, trims etc. It invokes clauses from related sections for waterproofing, insulation, landscaping and maintenance as necessary for a complete system.

   It is intended for use on projects where the detailed design is completed by the specifier (architect or landscape architect) with technical assistance from the manufacturer as required and should be read in conjunction with any project specific drawings provided.

110 BauderGREEN Intensive Hard Landscaping Concrete w/ J31

1. Bauder Project Reference: B234121
2. Roof Area(s): Level 02 (Paved Areas)
3. Description: Paving on pedestals to areas marked by architect, as Q25/127.
4. Roof type: Warm
   4.1. Substrate: New Concrete Deck
   4.2. Slope: 1:60
5. Waterproofing: Bauder Bakor Monolithic Membrane Roof System, as per J31-130
6. Slip Layer: N/A
7. Protection layer: N/A
8. Drainage layer: N/A
9. Filter Membrane: N/A
10. Surfacing - Paving Slabs on Pedestals: **Paving slabs and support pedestals for paving:** Paving to be supplied by others to the landscape designers specification (as clause 465), installed on the **Bauder Slope Correcting (DPH) Pedestal Support System** (refer Clause 835A). Installation of paving as clause 841A.
11. Accessories: N/A
12. Additional requirements: As clauses 210, 710, 715A, 720, 910, 916, 920, 930.

130 Extensive Green (BauderSOLAR G LIGHT with BauderGREEN Flora3) Concrete w / J31 Bakor

1. Bauder Project Reference: B234121
2. Roof Area(s): Main & Level 02 (Green Areas)

3. Roof type: Inverted
   3.1. Substrate: New Structural Concrete Deck
4. Waterproofing: Bauder Bakor Monolithic Membrane Roof System, as per J31-130
5. Slip Layer: N/A
6. Protection: N/A
7. Drainage Layer:
   - **(Non-PV Area) BauderGREEN DSE 40** drainage board – 40mm. Installation as clause 770E.
   - **(PV Area)** Photovoltaic mounting system: **BauderSOLAR G LIGHT** BioSolar photovoltaic mounting system, supplied by Bauder Ltd and ballasted using Bauder substrate. Installation as clause 770L.
8. Filter membrane: **(Non-PV Areas ONLY): BauderGREEN FV 125** filter fleece. Installation as clause 780A.
9. Growing medium:
   - **(Non-PV Area) BauderGREEN SUB-BM UK** biodiverse substrate (FLL compliant), depth 100mm above the **BauderGREEN FV 125** filter fleece. Installation as clause 790A.
   - **(PV Area) BauderGREEN SUB-BM UK** biodiverse substrate, FLL compliant (Photovoltaic mounting system areas only), to a required depth as per the scheme's design. Installation as clause 790L.

   9.1. Depth: TBC
10. Vegetation: **Bauder Flora 3 seed mix**. Installation as Clause 801D.
    10.1. Landscaping depth: TBC
11. Accessories:
    - Pedestal paving vegetation barrier provided at all perimeters and protrusions, as clause 460. Installation as clause 840.
    - **(Strictly Non-PV Areas ONLY)** Project specific drip line irrigation system (designed and supplied by others), as clause 463A. Installation of irrigation pipe work to the waterproofing as clause 825.
    - Purpose designed aluminium or stainless-steel perimeter retention angles, used to contain landscaping or pebble ballast when interfacing soft or hard landscaping. These retention angles are to be supplied and fabricated by others to the landscape architect's requirements and incorporating drainage perforations where required. Refer clause 820N.
    - **BauderGREEN KS ALU 250 inspection chamber**, to be installed over all internal rainwater outlets within soft landscaping areas. The lid of the chamber must be level with, or higher than the surrounding landscaping. For landscaping exceeding 100mm, additional height adapter units (available in 50mm or 100mm depths) must be used to achieve the required chamber depth, with the chamber lid being at least level with the surrounding landscaping or higher. Installation as clause 830.
12. Additional Requirements: As clauses 210, 710, 715A, 720, 910, 915D, 916, 920, 930.

140 Paving and decking systems

1. Type: Concrete slabs, as section Q25
2. Paving support: Pedestals, as section Q25

Performance

210 Contractor's design of green roofs

1. Design responsibility: Complete the detailed design of the green roof.
2. Structural and fire requirements
   2.1. Generally: As section B50 and B05.

2.2. Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.

3. Functional requirements
   3.1. Performance: As specified in this section.
4. Design and production information: As Preliminaries section A31.
5. Timing of submissions: As Preliminaries section A31.

255 Maximum permitted green roof loads

1. Permanent loads
   1.1. Green roof layers: Refer to Structural Engineer's information.
2. Imposed loads
   2.1. Actions: Refer to Structural Engineer's information.
   2.2. Vegetation: Refer to Structural Engineer's information.
   2.3. Allowance for additional loads during construction: Refer to Structural Engineer's information.
3. Service loads: Refer to Structural Engineer's information.
4. Requirement: Restrict site activities to ensure that design loads are not exceeded, or submit proposals for temporary supports.

Products

310 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 EN 13167.
3. Reaction to fire: To EN 13501-1, Euroclass A1 (core material).
4. Third-party product certification: Environmental Product Declaration (EPD), BRE Green Guide generic product rating A+.
5. Thermal conductivity (maximum): 0.043 W/m·K.
6. U-value (maximum): 0.12 W/m²K
7. Thickness: 340mm.
8. Compressive strength (minimum): ≥ 400 kPa.
9. Density: 100 kg/m³.
10. Recycled content: ≥ 60%.
11. Facing: Pre-applied inorganic coating on the topside.
12. Edges: Square.
13. BendingStrength: ≥ 400 kPa.
14. TensileStrength: ≥ 100 kPa.
15. Width: 450 mm.

16. Length: 600 mm.

350 Drainage layer corrugated 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: BauderGREEN DSE Drainage Board (40 mm DSE Drainage Board)
2. Material: High density polyethylene.
3. Compressive strength at 10% compression: 80 KN/m² empty, ≥1000 KN/m² filled.
4. Depth: 40 mm.
5. Weight: Dry 1.8 kg/m², Saturated 15.3 kg/m².
6. WaterStorageCapacity: 13.5 L.
7. Size:: 1040 x 2030 mm.

360 Plastics sheets

1. Description: Fine mesh PP geotextile used in conjunction with Bauder substrates.
2. Manufacturer: Bauder Ltd
   2.1. Contact details
      2.1.1. Address: 70 Landseer Road
      Ipswich
      Suffolk
      IP3 0DH
      2.1.2. Telephone: +44 (0)1473 257671
      2.1.3. Web: www.bauder.co.uk
      2.1.4. Email: info@bauder.co.uk
   2.2. Product reference: BauderGREEN FV 125 Filter Fleece
3. Material: Polypropylene.
4. Purpose: Fleece.
5. Physical properties
   5.1. Weight (minimum): 125 g/m².
   5.2. Dimensions
      5.2.1. Thickness (minimum): 1 mm.
      5.2.2. Width (minimum): 2 m.
      5.2.3. Roll length (minimum): 100 m.
6. Recycled content: Varied, >10%.

450A Roof drainage outlets

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: Bauder Hot Melt Compact – Vertical Outlet DN 100

2. Material: Rigid polyurethane foam body and EPDM reinforcement.
3. Grating: Domed leaf grille.
4. Spigots: Designed to fit standard 110 mm pipework.
5. Integral accessories: EPDM shock ring, clamping ring and fixings to secure to main body.

450B Parapet drainage outlets

1. Description: Cast-in parapet rainwater drainage outlets.
2. Manufacturer: Bauder Ltd
   2.1. Contact details
      2.1.1. Address: 70 Landseer Road
      Ipswich
      Suffolk
      IP3 0DH
      2.1.2. Telephone: +44 (0)1473 257671
      2.1.3. Web: www.bauder.co.uk
      2.1.4. Email: info@bauder.co.uk
   2.2. Product reference: Proprietary rainwater outlet.
3. Material: Aluminium.
4. Grating: Leaf grate.
5. Spigots: To suit rainwater drainage.
6. Integral accessories: EPDM shock ring, clamping ring and fixings to secure to main body.

450C Parapet emergency overflow

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: Bauder Parapet Emergency Overflow Stainless Steel DN 70
2. Grating: Leaf grille.
3. Spigots: Bauder Parapet Emergency Overflow Stainless Steel DN70 with overflow with 800 mm long spigot.

460 Pebble Ballast

1. Type: Washed, round pebbles
2. Size: Graded 20-40mm and free from fines and sharps
3. Supplier: Locally sourced

463 Irrigation

1. Supplier:
    - Access Irrigation Ltd. Crick, Northampton NN6 7XS
    - Tel: 01788 823811, Fax: 01788 824256, E-mail: sales@access-irrigation.co.uk
2. Product reference: Permadrip Pro - drip line irrigation system with anti-syphon design to resist clogging and pressure regulation.
3. Material: Perforated UV resistant plastic - Colour: Dark Brown
4. Height: 10mm
5. Operating range: 0.8 - 4.3 bar
6. Wall thickness: 1.2mm
7. Nozzle output: 1.6L/h
8. Pipe connection: For Bauder Green/Blue Roofs, all irrigation systems using Permadrip Pro must use PoziLock compression fittings for both the dripline and water feed pipework. Barbed connectors are not permitted.
9. Location: Green roofs.
    9.1. Bauder Vegetation Blankets: Irrigation system to be installed flush with the surface of the vegetation blanket and tested to ensure that it is fully operational.
    9.2. Bauder Plug Plants, Flora Seeded Systems & Biodiversity: Irrigation system to be installed flush with the surface of the growing medium and tested to ensure that it is fully operational prior to installation of the vegetation.
10. Design: The design, water pressure, positioning and spacing of the drip line is critical to the performance and effectiveness of the system. Therefore, the irrigation scheme for each project should be designed accordingly to ensure it is fit for purpose. Irrigation is a specialist subjects and Access Irrigation Ltd provide a design service and can assist with information pertaining to any individual project upon request.
11. **IMPORTANT NOTE:** These are permanent irrigation systems and do not negate the need for the establishment watering regime.

Execution

710 Installation generally

1. Preparation: Clear all surfaces of debris.
    1.1. Timing: After certification of waterproof membrane integrity.
    1.2. Surface condition: Visually inspect waterproof membrane, report any damage.
2. Faults in waterproof membrane: Report.
3. Contamination: Do not use materials detrimental to healthy plant growth.
4. Storage: Do not overload.
    4.1. Point loads: Avoid.
5. Outlets: Do not block.
    5.1. Outlet grilles: Installed.

715A Landscaping Roof Related Requirements

1. **The following are vital to the accurate pricing, correct installation, and ultimately the long-term life of a green/blue roof, and must, therefore, be included within the specification and tender documents:**
2. Loadings: 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 green/blue roof system and landscape both during construction and on completion of the works.

3. Additional protection: A planned or contractual delay between the installation of the waterproofing and landscape 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.
4. Detailed drawings: Correct detailing design and construction is essential to the long-term life of the green/blue 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.
5. Minimum upstand height requirements: The waterproofing should be taken up all abutment upstands, pipes, detailing protrusions etc. a minimum of 150mm above finished landscape surface level to comply with British Standards and current code of practice BS8217:2005.
6. • Provision for living products in hot weather conditions: : During hot weather conditions, living products such as plants, turf, sedum blankets etc. must be laid on the day of delivery to site. With regard to sedum blankets or turf, any rolls not installed should be laid out and kept watered prior to final installation.
7. Watering / Irrigation: Initial watering should be by surface sprinklers to ensure that the plants are kept moist until established. Adequate provision for watering the installed planting must be in place on site before the product is installed. Irrigation systems if fitted should be operational. Surface sprinklers should be used to water in the fertiliser. All watering should be carried out in strict accordance with the Bauder watering requirements and guidance document.
8. Final inspection: No landscaping work should be installed until Bauder have carried out a final inspection to the waterproofing and have passed this as suitable for guarantee. It is the responsibility of the roofing contractor to advise and organise this inspection with Bauder. We cannot guarantee any waterproofing that has been landscaped without this inspection having been carried out and passed as acceptable.
Please note, there are/maybe further 'sign-off' inspections required to complete the roof(s) for this specification.
9. Sign Off Inspections
    9.1. Bauder Extensive Green Roofs: Bauder Extensive or Biodiverse soft landscaped green roof installations require an inspection and it is the responsibility of the installing contractor to inform Bauder Ltd when the installation has been completed.
    9.2. Bauder Blue Roofs: Landscaped roofs designated as 'Blue Roofs' and featuring outlets fitted with Bauder Blue roof flow rate restrictors, must be inspected and signed off by Bauder. This is to ensure correct installation of integral 'Blue Roof' components. Safe access to carry out this inspection must be provided.
10. Damage risk from other trades: No landscaping should be installed while the roof area is subject to other site traffic. Bauder will carry out an inspection of the completed roof 4-6 weeks following installation and any site related damage by others will be reported to the client. Bauder accept no responsibility whatsoever for damage to the product or the installation caused by site work carried out by others after the landscaping has been installed.
11. First year maintenance: The contractor must price into his tender the cost of post installation maintenance for a minimum period of 1 year to ensure the handover of a flourishing soft landscaped roof.

720 Adverse weather

1. Unfinished work: Secure from damage and wind uplift.
2. Conditions: Do not install or work with frozen materials.

730 Installation of inverted roof insulation

1. Preparation: Clear roof of other trades.
2. Condition of substrate: Clean.
3. Fitting: Loose lay.
4. Joints: Butt together.
    4.1. End joints: Stagger.

5. Cutting: Minimize.
   5.1. Perimeters and upstands: Fit full sized pieces.
   5.2. Penetrations: Cut cleanly and fit closely.
6. Stability: Springing and rocking not permitted.
7. Protection: Cover to prevent wind uplift.

740 Root barrier installation

1. Joints: Minimize.
   1.1. Overlaps (minimum): Manufacturer's recommendation.
2. Upstands: Extend to top of growing medium.

755 Separation layer installation

1. Joints: Minimize.
   1.1. Overlaps (minimum): Manufacturer's recommendation.
2. Upstands: Extend to top of growing medium.

770E Drainage / water storage layer installation

1. Extent: Continuous over entire roof area.
2. Fitting: Loose laid over the protection layer. Boards to overlap and interlock by one cup profile at sides and ends and each row be laid staggered. The ‘X’ stamped impression on the highpoint of the cup moulding indicates where boards overlap.
3. Upstands: Carefully cut to fit closely around penetrations and outlets.
4. Construction of planter walls:
   - The drainage/water storage board provides a suitable base surface for building concrete or brick kerbs/walls. The specified infill haunching should be installed over the board to required depth of cover, poured directly into the cells of board. These should be constructed to provide an adequate support for the raised masonry planters
   - For the specification of the type of infill and all kerb/wall construction elements – please refer to the structural engineer’s plans and the specification. An internal surface of the planter wall may be primed using bituminous primer and then lined with single layer of torch applied Bauder root resistant capping sheet. The bright green slate finish may be considered undesirable, but the slate is necessary for long-term UV protection of the bitumen. To disguise and blacken the slate colour, paint exposed areas above anticipated soil level with a light coat of bituminous primer.

770L Drainage / water storage layer installation

1. **BauderSOLAR G LIGHT** BioSolar photovoltaic mounting system to be loose laid and positioned directly on to a protection layer. They are to be butted up to adjacent boards (not overlapped). **BauderSOLAR G LIGHT** Anchor boards must be ballasted using **BauderGREEN SUB-BM UK** biodiverse substrate growing medium, applied directly into the cups of the anchor board and then built up to a minimum depth of 100mm above the crowns of the board. Please refer to project specific design and windload calculation. Allowance should be made for any settlement that may occur. Please see the project specific **BauderSOLAR G LIGHT** roof layout for location and quantity of mounting system.
2. **PV module specification** - please refer to NBS Engineering services Section V14, clauses 310 and 315 and the corresponding **BauderSOLAR G LIGHT** roof layout for further information on scheme design or BioSOLAR installation guidelines for further information on installation method.

780A Filter membrane installation BauderGREEN FV 125

1. Joints: Minimize.
   1.1. Overlaps (minimum): 150 mm

2. Fitting: Loose laid over drainage layer in accordance with manufacturer's recommendation.
3. Upstands: Extend up, between vegetation barrier and growing medium and trim flush with finished surface level.
    3.1. Upstands (hard landscaping areas): Extend to top of perimeter abutments and trim flush just below finished surface level.

790A Growing medium installation Seed mixes

1. Handling: Minimize.
    1.1. Conditions: Handle in the driest condition possible. Do not handle or install when wet or frozen.
2. Layers
    2.1. Start by applying two equal layers, building up to required maximum depth.
    2.2. Sequence: Gently firm each layer before spreading the next. Allowance should be made for any settlement that may occur. It is recommended that measuring stick markers of the required depth be used around the roof area to ensure that a minimum acceptable thickness of growing medium is achieved.
3. Supply:
    - Depending on size and access of the project the 'substrate' can be supplied by various methods i.e. Tipper, big bags, or sacks. Prior to costing this element of the installation the 'Approved Contractor' must contact Bauder Ltd so that they may advise on the best solution on any specific contract.
    - ***Important note regarding alternative substrates:*** If alternative substrates are required (e.g. topsoil…etc.), Bauder does not take any responsibility for the performance of such substrates supplied from an alternative source. We recommend that alternative substrates should be covered by a technical data sheet and certified in writing as suitable to support the system and plants specified. Saturated weight loadings must be provided directly from the supplier of the substrate and should be the subject to a structural engineer's approval.

790L Growing medium installation BauderSOLAR G Light

1. Handling: Minimize.
    1.1. Conditions: Handle in the driest condition possible. Do not handle or install when wet or frozen.
2. Layers
    2.1. Start by applying consecutive layers, building up to required maximum depth.
    2.2. Sequence: Apply the substrate growing directly into the cups of the anchor board and then built up to a depth as per the scheme's design. Allowance should be made for any settlement that may occur. Please see the project specific **BauderSOLAR G Light** layout plan for further information.
3. Gently firm each layer before spreading the next. Allowance should be made for any settlement that may occur. It is recommended that wooden measuring sticks are used randomly around the roof to test and ensure that a minimum acceptable thickness is always maintained.
4. Supply:
    - Depending on size and access of the project the 'substrate' can be supplied by various methods i.e. Tipper, big bags, or sacks. Prior to costing this element of the installation the 'Approved Contractor' must contact Bauder Ltd so that they may advise on the best solution on any specific contract.
    - ***Important note regarding alternative substrates:*** Not permitted.

801D Bauder Flora Seed Mixes

1. General: The ideal time for seeding is in the spring and autumn. Please note that increased post installation aftercare will be required for installations that take place during the summer and winter months.
   Please note that the best time to plant seeds is springtime (late March-April.) or early autumn (Sept/Oct).
2. Packaging: 2Kg bag (20m² coverage), 5Kg bag (50m² coverage), 20 Kg bag (200m² coverage)
3. Sowing Rate: 100g/m² of mix (mix includes blend of selected seeds, bulking aggregate, seed adhesive, organic nutrients & beneficial Mycorrhizal fungi
4. Application: Avoid sowing in strong winds. The substrate is to be watered immediately prior to application of the seed mix. Sow approximately 50% of the mix longitudinally down the roof, and then over-sow at 90° with the remainder of the mix. **Do not rake the seed mix into the substrate surface.** The seed mix needs light to germinate.
5. Watering: The substrate is to be watered immediately prior to application of the seed mix. Please note that the seed mix is only to be lightly watered in during the summer or where activation of the adhesive element is required in exposed locations. Please avoid over-watering to prevent seed washout.
6. Post installation watering: It is essential that the growing medium remains moist following germination for a further 10 weeks until established – Refer to 'Establishment Watering' below for further guidance.
7. **BIODIVERSITY DESIGN CONSIDERATIONS**
   - Biodiversity planting and landscape elements are typically drafted in accordance with an ecologist's report and recommendations.
   - Biodiversity roofs can be seeded with Bauder Flora seed mixes or planted, as specified by the client and in accordance with an ecologist's report and recommendation.
   - Some of the areas can be left to naturally colonise with indigenous flora and fauna.
   - Within the substrate elements, graded shingle can also be incorporated. These areas can be designed to provide raised mounds within the broad design and should be of varying height. They should constitute at least one fifth of any roof area.
   - It is suggested that dead wood elements (e.g. dry logs 100mm x 500mm x 1000mm), be placed onto the substrate to provide an important rotting wood ecological niche for rare invertebrates (supplied by others).
   - Weight loadings for any surface landscaping items, such as rocks, logs, undulating areas of growing medium and fully established planting /vegetation, making up the biodiversity landscaping (non-Bauder products), should be provided directly from the relevant supplier and should be the subject to a structural engineer's approval.
   - Please note - Bauder Ltd does not take any responsibility for the design, performance or maintenance of any planting schemes.

820N Retention profile installation

1. Cutting: Neat, accurate and without spalling.
   1.1. Junctions: Cut with a hacksaw to form 90º corners – mitre cut fixing arm
2. Position: True to line and level. Smooth continuous lines.
3. Fabrication: Obtained from a specialist metal fabricating company. The metal should be regularly perforated on the vertical face to allow drainage, with drainage holes being 3mm-5mm maximum diameter. The top leading edge should be folded fully or at a right angle by a minimum of 20mm to eliminate the sharp edge.
4. Horizontal leg:
   - **Warm/Cold roof system** - To be 200mm wide with 60mm diameter holes positioned and cut centrally along the fixing arm at a rate of 6/Linear metre.
   - **Blue Roofs** – to be 200mm wide with 60mm diameter holes positioned and cut centrally along the fixing arm at a rate of 6/Linear metre.

- **Inverted roof system** - To be 200mm wide. Only the vertical section needs to be perforated

5. Height: To be as landscaping build up
6. Installation:
    - **Warm/Cold roof system** - The retention trims must be secured in place using the specified Bauder capping sheet/waterproofing strips/flashing pieces (1000mm x 200mm size), bonded to the surface of the horizontal leg and set at intervals of 400mm between flashing pieces. The main capping sheet/membrane/waterproofing must be overlapped by a minimum of 100mm.
    - **Blue roof system** - The retention trims should be loose laid over the **BauderGREEN RWR 100** attenuation cell layer. We recommend that the retention trim pieces should be fixed together to form a frame, either welded or mechanically connected for added stability of the frame. The horizontal leg must be retained and ballasted by the landscaping. Please note that these retention angles are not recommended for landscaping retention at open perimeter edges, as the trim will be loose laid (not fixed) and will not provide sufficient security.
    - **Inverted roof system** - The retention trims should be loose laid over the insulation and vapour permeable membrane layers. We recommend that he retention trim pieces should be fixed together to form a frame, either welded or mechanically connected for added stability of the frame. The horizontal leg must be retained and ballasted by the drainage/water storage board and subsequent landscaping. Please note that these retention angles are not recommended for landscaping retention at open perimeter edges, as the trim will be loose laid (not fixed) and will not provide sufficient security.
7. Hard edge: The retention trims should be used in conjunction with the paving vegetation barrier/hard edge, width and depth as below:
    - **At the base of the slope at open perimeters and roof verges (e.g., where green roofs are being terminated)** – min. 500mm wide paving.
    - **At the top of the slope and all perimeter abutments** – min. 500mm wide paving.
8. **Precautionary note: when cutting metal, please** ensure that appropriate tools and personal protection equipment are used.

825 Installation of Irrigation Pipework

1. Pipe work should be installed and connected in accordance with the irrigation supplier's installation guidelines and set as per the plan provided.
    1.1. Bauder Vegetation Blankets : Pipework should be secured at intervals to the vegetation blanket using wire or cable ties, as required. Over time the planting will cover the pipework, visually hiding it.
    1.2. Bauder Plug Plants / Bauder UK Native Plug Plants / Flora Seed Mixes / Biodiversity : Pipework should be secured at intervals to the substrate as required using plastic pegs (available from irrigation supplier). Please note pegs should be installed in a manner so as not to cause damage to the waterproofing.

830 Inspection chamber installation BauderGREEN KS ALU 250

1. Location: Install centrally over rainwater outlets
    1.1. Orientation: Align parallel with adjacent features.
2. Surround: Using 20/40mm grade washed pebbles; the inspection chamber must be surrounded by a 500mm vegetation barrier surround to prevent unwanted growth obstructing the drainage system.
3. Positioning: Never place directly on the waterproofing membrane – see options below:
    - **Intensive / extensive soft landscaping:** Placed directly on to the drainage / water storage layer.
    - **Inverted roof with paving on pedestals:** Placed directly on the vapour permeable membrane or filter layer.

- **Decorative aggregate finishes:** Placed directly on the protection layer or vapour permeable membrane / filter layer

Important Note: Ensure that a suitably sized hole has been cut out of the underlying drainage board / protection layer to allow water to flow freely into the outlet.

4. Chamber Height: The contractor should also allow for the installation of additional Bauder height adapter units as required, in order to bring the inspection chamber up to at least the height of the surrounding landscaping. These are available in either 50mm or 100mm units.
5. Box gutters and gullies: Where a box gutter is to be constructed, provision should be made to accommodate the 250mm diameter of the inspection chamber. The front support leg of the chamber will need to be removed (see installation guide) for the unit to fit inside a box gutter /gully. We recommend that all box gutters are constructed to a minimum finished width of 500mm to ensure that the support feet of the inspection chamber sufficiently clears the angle fillets within the gutter sole and leaves space to dress the pebble vegetation barrier around the main body of the chamber.
6. **Precautionary note:** When cutting metal, please ensure that appropriate tools and personal protection equipment are used

830F Purpose Fabricated Parapet Emergency Overflow Gravel Guard

1. Location: Install/place centrally over Bauder Parapet Emergency Overflow opening. The bottom edge of the gravel guard is to sit on the Bauder Protection Layer.
2. Width: Bauder recommends a width of 200mm to ensure full coverage of the Bauder Parapet Emergency Overflow opening
3. Backfill: 20/40mm washed pebbles
4. Installation: Provision should be made by the contractor to supply a ‘pre-bent’ perforated stainless steel gravel guard, placed centrally to all Bauder Parapet Emergency Overflow openings. The plate should cover the whole of the opening and be constructed / designed to ensure that no growing medium or vegetation barriers pebble can pass through once installed. Bauder should be contacted if there are any queries relating to this item.

835A Laying precast concrete paving slabs Bauder Slope Correcting (DPH) Pedestal Support System

1. Product: **Bauder Slope Correcting (DPH) Pedestal Support System**
2. Material: Polypropylene copolymer with min 65% recycled content
3. Colour: Black
4. Placement - Supports to be Installed according to Bauder System build up below::
    - **Bituminous membranes (including Bauder Blue Roofs):** directly on to the waterproofing.
    - **Inverted insulation:** directly on to filter layer / WFRL.
    - **BauderTHERMOFOL Single Ply Membrane:** directly on to membrane surface.
    - **BauderTHERMOPLAN Single Ply membrane:** directly on to membrane surface.
    - **LiquiTEC Balcony, Walkway cold applied liquid system with Quartz:** directly on to waterproofing surface (or WFRL if inverted).
    - **LiquiTEC Balcony, Walkway cold applied liquid system Without Quartz:** directly on **to BauderGREEN FSM 600 Protection Mat** (or WFRL if inverted).
    - **LiquiTEC Roof, Terrace cold applied liquid system:** directly on to **BauderGREEN FSM 600 Protection Mat** (or WFRL if inverted).
    - **LiquiTOP cold applied liquid system:** directly on to **BauderGREEN FSM 600 Protection Mat**.
5. Range of adjustment: 17mm - 1070mm (bracing system used on heights over 600mm)
6. Top/Head Diameter: 150mm - 155mm
7. Top/Head Support (surface area): 190cm²

8. Base Diameter: 200mm
9. Base Support (surface area): 315cm²
10. Spacers/shims: Range available.
11. Spacer tabs: Available to provide drainage gaps of 2, 3 & 4.5mm
12. Slope compensation: 0 - 5% @ half degree increments.
13. Compressive strength: Maximum 1000kg / (10KN)
14. Installation: Please refer to the manufacturer's technical literature and guidelines.
15. Extenders: Additional height adjustment, where required, can be obtained by using extenders. See information above and the technical literature.
16. Installation: System to be installed in accordance with the technical literature and installation instructions. If there is any doubt as to the exact requirements consultation should be made with Bauder Limited.

840 Vegetation barrier / Drainage barrier

1. A vegetation barrier must be provided to all perimeters, abutments penetrations including protrusions i.e. man-safe posts etc. We recommend 20/40mm rounded river washed pebbles. Stones/ aggregates with sharp edges must not be used i.e. flint.
   In accordance with current GRO guidelines, the specified barrier widths are as follows: -
   1.1. Minimum 300mm wide / 50mm deep vegetation barrier to be installed around rainwater outlets to prevent vegetation blocking the outlets.
   1.2. Minimum 300mm wide / 50mm deep vegetation barrier, to be installed at all open perimeters and roof verges (e.g., where green roofs are being terminated), in conjunction with a purpose designed metal perimeter retention/drainage angle.
   1.3. Minimum 500mm wide / 75mm deep vegetation barrier is installed wherever the green roof abuts a vertical element i.e., at all perimeters and protrusions such as rooflights, man-safe posts, soil vent pipes, etc.
   1.4. Additionally, on large roofs, a one-metre-wide / 50mm deep fire break is to be constructed from non-flammable materials such as solid paving or gravel/pebbles. This should be installed at 40m intervals across the roof. This is in accordance with the CWFT (Classified without Further Testing - EU fire protection standards)
2. At all open drainage perimeters, drainage trim must be used to contain the vegetation barrier.
3. For extensive green/blue roofs where **BauderGREEN XF301 lightweight sedum system** is specified, the vegetation barrier must cover the edges of the blanket by a minimum of 100mm in order to protect the exposed edge of the blanket against wind uplift and substrate erosion. Please refer to Bauder standard green roof detailing for other extensive green roof systems.
4. Vegetation barriers removal or reduction of the recommended width: Pebble vegetation barriers function as a fire break between potentially flammable dry vegetation and abutting construction materials that are also potentially flammable, to prevent fire spreading. These can be seen as an aesthetic issue for smaller green/blue roof areas and for this reason some clients/designers choose to reduce this width or otherwise remove the barrier altogether.
   The current barrier guidelines are set by the GRO codes of practice that Bauder follows and promotes. These are guidelines and not currently a legal requirement under British Standards or Building Regulations (for information, please see www.greenrooforganisation.org).
   However, not following these guidelines may affect an insurance claim in the unlikely event of a fire. Consequently, Bauder Ltd cannot accept liability for issues arising from non-compliance with the current GRO guidelines.

841A Laying precast concrete paving slabs Paving on Pedestals

1. Extent: To designated areas – See landscape designers plan.
2. Paving installation: Slabs to be laid on to the specified bedding layer, installed as specified by the architect / landscape designer and strictly in accordance with their specific recommendations regarding the layout in keeping with the landscape design.

3. Setting out: Minimize cutting
4. Joints: 4.5mm
5. Completion: Slabs must be level and stable

Completion

910 Inspection

1. Timing: Before handover.
   1.1. Give notice (minimum): Three days.

915D Establishing watering requirements Seed mixes

1. **BauderGREEN Flora Seed Mixes** require that the substrate will have been watered prior to application of the seed mix. Please note that the seed mix should only then be lightly watered in during the summer or where activation of the adhesive element is required in exposed locations. Please avoid over-watering to prevent seed washout.
2. Once the seeds have germinated, it is essential that the growing medium is kept moist for a further 10 week period until planting is established. It is the responsibility of the roofing contractor to liaise with the main contractor/ building owner to provide water and ensure that the necessary watering programme (as indicated above) is instigated following installation.
3. An adequate mains water supply of sufficient pressure must be available and operational prior to the plants being delivered and installed. Initial watering must be by surface mounted sprinklers.
4. See the Bauder Watering Guide document for detailed information on watering requirements.
5. Bauder Ltd accepts no responsibilities whatsoever for the condition of installed sedum blankets that are not properly watered in accordance with our recommendations.

920 Completion

1. General: Leave the works in a clean, tidy condition.
2. Surfaces: Clean immediately before handover.
3. Outlets: Clean and clear of obstructions.
4. Completed green roof: Protect from adjacent or high level working.

930 Documentation

1. Timing: Submit at handover.
2. Contents
   2.1. Manufacturer's guarantees and warranties
   2.2. Procedures for maintenance of the green/blue roof
   2.3. Record drawings showing the location of planting and associated features
3. Number of copies: As required by client

Ω End of Section

Q41
Barriers/ guardrails

Types of barriers/ guardrails

130 Protective barriers

1. Description: Bespoke guarding to roof access hatch. Flat bar steel section vertical supports and horizontal rails, welded and polyester powder coated.
2. Standard: To BS 6180.
3. Height above datum: 1100 mm.
4. Material/ Protection: Steel to BS EN 10025-2 S275 Grade.
5. Surface finish: Powder coating, as section Z31.
   5.1. Colour/ Texture: RAL TBC by Architect.
   5.2. Minimum film thickness: 50 micrometres.
6. Fixings/ Foundations: Mechanical fixings to structural upstand.
7. Other requirements: Latched gate to roof access hatch. Handrail and intermediate rails. Vertical supports mechanically fixed to reinforced concrete upstand at locations indicated on Architect's drawings.

Performance/ inspection/ testing

300 Contractor's structural design

1. Design responsibility: Completion of technical design.
2. Requirement
   2.1. Generally: As section B51. Submit drawings and schedules in accordance with the designated code of practice and to satisfy the performance criteria specified in section B51.
3. Member sizes and locations: Refer to Architect's drawings.
4. Design and production information: Shop drawings at 1:5, specification, loading calculations.
5. Timing of submissions: Allow 10 working days for review and comment.

Installation - Not Used

Completion

900 Documentation

1. Contents
   1.1. General product information.
   1.2. Installation information.
   1.3. Inspection and maintenance reports.
2. Number of copies: 2.
3. Submission: Two weeks prior to date when principal contractor expects work to be practically complete.

Ω End of Section

Q50
Site/ street furniture/ equipment

Gates, barriers and parking controls - Not Used

Site and street furniture

350 Bird nesting boxes

1. Manufacturer: Habitat by Ecosurv Ltd.
   1.1. Product reference: Habitat Bespoke Sparrow Nest Box
2. Material: Insulating concrete with bespoke clay facing brick finish, as clause F10/110B
   2.1. Finish: Clay facing brick, as F10/110B
3. Accessories/ Special requirements: Submit proposals.
4. Method of fixing: Concealed fixing, mortared and integrated into the clay facing brick facade.

351 Bat nesting boxes

1. Manufacturer: Habitat by Ecosurv Ltd.
   1.1. Product reference: Habitat 001 Bespoke Bat Box
2. Material: Insulating concrete with bespoke clay facing brick finish, as clause F10/110B
   2.1. Finish: Clay facing brick, as F10/110B
3. Accessories/ Special requirements: Submit proposals.
4. Method of fixing: Concealed fixing, mortared and integrated into the clay facing brick facade.

Installation

540 Building in to masonry walls

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

Ω End of Section

R10
Rainwater drainage systems

General

110 Gravity rainwater drainage system

1. Rainwater outlets: Proprietary.
2. Gutters: Aluminium.
3. Pipework: Aluminium.
4. Below ground drainage: Refer to Civil Engineer's information.
5. Disposal: To basement rainwater attenuation tank.

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

370 Aluminium rainwater pipes and fittings

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. Shoes.
10. Fire rating (to BS EN 13501): A2 to BS EN 13501: 2018.
11. Type: Spigot jointed system.
12. Materials: Aluminium, LM6 Marine Grade.
13. Samples: 300mm length sample.

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. Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
3. Protection
   3.1. Fit purpose made temporary caps to prevent ingress of debris.
   3.2. Fit access covers, cleaning eyes and blanking plates as the work proceeds.

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: Bolted into masonry.
2. Distance between bracket fixing centres (maximum): As recommended by manufacturer.

660 Jointing external pipework

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

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): 7 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.

905 Internal pipework test - England, Wales, Ireland and Northern Ireland

1. Preparation: Temporarily seal open ends of pipework with plugs.
2. Test apparatus: Connect a 'U' tube water gauge and air pump to pipework via a plug.
3. Testing: Pump air into pipework until gauge registers 38 mm.
4. Required performance
   4.1. Allow a period for temperature stabilization, after which the pressure of 38 mm is to be maintained without loss for at least 3 minutes.

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

R11
Above ground foul drainage systems

General

115 Above ground foul drainage system

1. Sanitary and floor drainage outlets: Floor drains.
2. Waste pipework: Refer to MEP Engineer's information.
3. Discharge stack and branch pipework: Refer to MEP Engineer's information.
4. Separate ventilating pipework: Refer to MEP Engineer's information.
5. Accessories: Slip-resistant perforated circular grating, compatible with flexible sheet flooring.
6. Disposal: Refer to MEP Engineer's information.

System performance

210 Design

1. Design: Complete the design of the above ground foul drainage system.
2. Standards: To BS EN 12056-1 and BS EN 12056-2, and in accordance with BS EN 12056-2 National Annexes NA-NG.
    2.1. System type to BS EN 12056-2: System III.
3. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

220 Collection and distribution of foul water

1. General: Quick, quiet and complete, self-cleansing in normal use, without blockage, crossflow, backfall, leakage, odours, noise nuisance or risk to health.
2. Pressure fluctuations in pipework (maximum): ±38 mm water gauge.
3. Water seal retained in traps (minimum): 50 mm.

Products

315 Floor drains

1. Description: Shower floor drain.
2. Manufacturer: ACO Technologies.
    2.1. Product reference: Shower Gully System.
3. Floor finish: Flexible sheet vinyl as M50/155A.
4. Body type: Shower gully, compatible with flexible sheet flooring, 50mm horizontal outlet, flow rate 1.2L/s.
    4.1. Material: Stainless steel.
5. Grating/ cover
    5.1. Type: Slip-resistant perforated circular grating, compatible with flexible sheet flooring.
    5.2. Material: Stainless steel, screw fixed.
6. Outlet: Type and direction to suit pipework.

Fabrication - Not Used

Execution

601 Installation generally

1. Standard: To BS EN 12056-5.
2. Components: From the same manufacturer for each type of pipework.
3. Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
4. Plastics and galvanized steel pipes: Do not bend.
5. Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
6. Concealed or inaccessible surfaces: Decorate before starting work specified in this section.
7. Protection
   - 7.1. Purpose made temporary caps: Fit to prevent ingress of debris.
   - 7.2. Access covers, cleaning eyes and blanking plates: Fit as the work proceeds.

Completion

900 Testing generally

1. Dates for testing: Give notice.
   - 1.1. Period of notice (minimum): 5 working days.
2. Preparation
   - 2.1. Pipework: Securely fixed and free from obstruction and debris.
   - 2.2. Traps: Filled with clean water.
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.

915 Prehandover checks

1. Temporary caps: Remove.
2. Permanent blanking caps, access covers, rodding eyes, floor gratings and the like: Secure complete with fixings.

Ω End of Section

R16
Groundwater pressure relief drainage

Products

345 Pipes, bends and junctions – PVC-U – solid wall perforated

1. Description: Plastic channel, water collection conduit bedded into a preformed channel.
2. Manufacturer: Delta Membrane Systems Ltd
   2.1. Contact details
      2.1.1. Address: Delta House
      Merlin Way
      North Weald
      Epping
      Essex
      United Kingdom
      CM16 6HR
      2.1.2. Telephone: +44 (0)1992 523523
      2.1.3. Web: www.deltamembranes.com
      2.1.4. Email: info@deltamembranes.com
   2.2. Product reference: Delta Channel System
3. Body
   3.1. Material: Plastic.
4. Integral accessories: As per manufacturer's recommendations.

Execution - Not Used

Ω End of Section

X12
Vertical lifting platform and homelift systems

General - Not Used

System performance

210 Design of vertical lifting platform and homelift systems

1. Design: Complete the design of the vertical lifting platform and homelift systems.
2. Standard: Refer to MEP Engineer's information.
3. Environment: Indoor.
4. Duty cycle (minimum): Refer to MEP Engineer's information.
5. Maximum vertical travel distance (mm): 8460mm
6. Number of levels served (including lowest): Three
7. Rated speed (maximum): Refer to MEP Engineer's information.
8. Level access at lowest level: Via lift well.
9. Dwell time: Refer to MEP Engineer's information.
10. Lighting to landings and enclosed liftways (minimum): Refer to MEP Engineer's information.
11. Proposals: Submit dimensioned drawings, plans, elevations and sections, building loadings, builders' work requirements, controls and wiring diagrams, manufacturers' literature, mounting and fixing details, and schedule of labels.
12. User group: Public.

Products

350 Electric evacuation lift systems

1. Manufacturer: Stannah Lifts
    1.1. Contact details
        1.1.1. Address: Watt Close
        Andover
        Hampshire
        United Kingdom
        SP10 3SD
        1.1.2. Telephone: +44 (0)1264 343777
        1.1.3. Web: www.stannahlifts.co.uk
        1.1.4. Email: contact@stannah.co.uk
    1.2. Product reference: Xtralift Evacuation lift.
2. Lift type: Evacuation lift.
3. Drive space: Machine room-less (MRL).
4. Lift components: See below.
5. Electrical supplies to firefighters' and evacuation lifts
    5.1. Primary source: Refer to MEP Engineer's information.
    5.2. Secondary source: Refer to MEP Engineer's information.
6. Door arrangement: Single entrance.
7. Traction drive: Gearless.
8. Drive position: MRL.
9. Speed control: 1.0–2.5 m/s.

10. Control of lift drive: Refer to MEP Engineer's information.
11. Shaft type: Wall mounted.
12. Car size / Capacity (w x d): 8 person (630 kg)/ 1100 x 1400 mm.
13. Landing display: LCD-070E 7” display.
14. Standard: To BS EN 81-41 & BS EN 9999.
15. Carriage type: Fully enclosed.
16. Environment: Indoor.
17. Doors
    17.1. Arrangement: Single.
    17.2. Type: Sliding, two-panel stainless steel, side-opening.
    17.3. Fire classification: 120 minutes.
    17.4. Clear opening width: 1000mm.
    17.5. Frame material: Stainless steel Grade 1.4301 (304)
    17.6. Frame finish: Powder-coated.
    17.7. Frame colour: RAL colour TBC by Architect.
    17.8. Infill material: Stainless steel Grade 1.4301 (304)
    17.9. Infill finish: Powder-coated.
    17.10. Infill colour: RAL colour TBC by Architect.
18. Carrier floor
    18.1. Dimensions
        18.1.1. Width (minimum): 1100mm.
        18.1.2. Depth (minimum): 1400mm.
    18.2. Material: R28 Rubber circle.
    18.3. Colour: Grey.
19. Carrier walls
    19.1. Material: Stainless steel Grade 1.4301 (304)
    19.2. Finish: Satin brushed.
20. Carrier ceiling & lighting
    20.1. Material: Stainless steel.
    20.2. Finish: Mirror polish (standard finish).
    20.3. Lighting: L40 (4 no. recessed LED spotlights).
21. Mirror: Half height, fitted to rear wall.
22. Handrails
    22.1. Type: P13E04 end-mounted handrail with rounded ends.
    22.2. Material: Stainless steel.
    22.3. Finish: Black.
23. Car operating panel
    23.1. Type: Supra X02 full height panel.
    23.2. Material: Stainless steel Grade 1.4301 (304)
    23.3. Finish: Satin brushed.
24. Car operating display: LCD-070E 7" display.
25. Accessories: Emergency lighting.
26. Samples: Samples of lift car finishes (floor, wall, ceiling); lighting; handrail; operating panel.

395 Landing controls

1. Manufacturer: Stannah Lifts.
   1.1. Product reference: Surface mounted.
2. Functions: Refer to MEP Engineer's information.

Execution - Not Used

Completion

910 Testing and commissioning vertical lifting platform and homelift systems

1. Standards: Refer to MEP Engineer's information.
2. Operational tests: Undertake.
3. Test certificate: Submit.
   3.1. Number of copies: Two.

920 Electrical inspection and testing

1. Electrical inspection and testing: In accordance with BS 7671.

970 Documentation for vertical lifting platform and homelift systems

1. Standard: Refer to MEP Engineer's information.
2. Operation and maintenance instructions: Submit.
3. Record drawings: Submit.
4. Certificates: Submit.
   4.1. Number of copies: Two.
5. Instruction manual: Submit.
   5.1. Number of copies: Two.
6. Logbook: Individual for each lift.
   6.1. Type: Hardback cover embossed with the lift name and unique lift identification reference with A4 lined paper, minimum 100 pages.

975 Training for building users

1. Timing: Before completion.
2. Scope to include
   2.1. Daily lift operation.
   2.2. Routine and general maintenance.
   2.3. Emergency passenger release procedure.

980 Maintenance of vertical lifting platform and stairlift systems

1. Servicing and maintenance: Undertake.
   1.1. Duration: Until 24 months after practical completion.

Ω End of Section

Z10
Purpose made joinery

To be read with preliminaries/ general conditions.

110 Fabrication

1. Standard: To BS 1186-2.
2. Sections: Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.
   2.1. Machined surfaces: Smooth and free from tearing, wooliness, chip bruising and other machining defects.
3. Joints: Tight and close fitting.
4. Assembled components: Rigid. Free from distortion.
5. Screws: Provide pilot holes.
   5.1. Screws of 8 gauge (4 mm diameter) or more and screws into hardwood: Provide clearance holes.
   5.2. Countersink screws: Heads sunk at least 2 mm below surfaces visible in completed work.
6. Adhesives: Compatible with wood preservatives applied and end uses of timber.

120 Cross section dimensions of timber

1. General: Dimensions on drawings are finished sizes.
2. Maximum permitted deviations from finished sizes
   2.1. Softwood sections: To BS EN 1313-1:-
      2.1.1. Clause 6 for sawn sections.
   2.2. Hardwood sections: To BS EN 1313-2:-
      2.2.1. Clause 6 for sawn sections.
      2.2.2. Clause NA.3 for further processed sections.

130 Preservative treated wood

1. Cutting and machining: Completed as far as possible before treatment.
2. Extensively processed timber: Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.
3. Surfaces exposed by minor cutting and/ or drilling: Treat as recommended by main treatment solution manufacturer.

140 Moisture content

1. Wood and wood based products: Maintained within range specified for the component during manufacture and storage.

210 Laminated plastics veneered boards/ panels

1. Fabrication: To British Laminated Plastics Fabricators Association Ltd (BLF) fabricating standards.
2. Balancing veneer: From decorative veneer manufacturer and of similar composition. Applied to reverse side of core material.
3. Finished components: Free from defects, including bow, twist, scratches, chipping, cracks, pimpling, indentations, glue marks, staining and variations in colour and pattern.
4. Joints visible in completed work: Tight butted, true and flush.

220 Wood veneered boards/ panels

1. Core material and veneers: Conditioned before bonding.
2. Setting out: Veneer features and grain pattern aligned regularly and symmetrically unless instructed otherwise.
3. Balancing veneer: Applied to reverse side of core material.
   3.1. Moisture and temperature movement characteristics: As facing veneer.
4. Veneer edges: Tight butted and flush, with no gaps.
5. Tolerance of veneer thickness (maximum): ± 0.5 mm.
6. Finished components: Free from defects, including bow, twist, scratches, chipping, splits, blebs, indentations, glue marks and staining.
7. Surface finish: Fine, smooth, free from sanding marks.

250 Finishing

1. Surfaces: Smooth, even and suitable to receive finishes.
   1.1. Arrises: Eased unless shown otherwise on drawings.
2. End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.

Ω End of Section

Z11
Purpose made metalwork

To be read with preliminaries/ general conditions.

310 Materials generally

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

320 Steel long and flat products

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

330 Steel plate, sheet and strip

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

340 Hot rolled steel plate, sheet and strip

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

350 Cold rolled steel plate, sheet and strip

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

360 Coated steel flat products

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

370 Steel structural hollow sections (SHS)

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

380 Other steel sections

1. Equal flange tees: To BS EN 10055.
2. Equal and unequal angles: To BS EN 10056-1 and -2.
3. Wire, carbon steel for general engineering purposes: To BS 1052.
4. Wire and wire products, general: To BS EN 10218-2.
5. Tubes
    5.1. Seamless circular: To BS EN 10297-1.
    5.2. Seamless cold drawn: To BS EN 10305-1.
    5.3. Welded and cold sized square and rectangular: To BS EN 10305-5.
    5.4. Welded circular: To BS EN 10296-1.
    5.5. Welded cold drawn: To BS EN 10305-2.
    5.6. Welded cold sized: To BS EN 10305-3.

400 Stainless steel products

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

410 Aluminium alloy products

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

420 Copper alloy products

1. Sheet, strip, plate and circles for general purposes: To BS EN 1652.
2. Sheet and strip for building purposes: To BS EN 1172.
3. Rods: To BS EN 12163.
4. Profiles and rectangular bars: To BS EN 12167.
5. Wire: To BS EN 12166.
6. Tubes: To BS EN 12449.

Fabrication

515 Fabrication generally

1. Contact between dissimilar metals in components: Avoid.

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

520 Cold formed work

1. Profiles: Accurate, with straight arrises.

525 Adhesive bonding

1. Preparation of surfaces of metals to receive adhesives
    1.1. Degrease.
    1.2. Abrade mechanically or chemically etch.
    1.3. Prime: To suit adhesive.
2. Adhesive bond: Form under pressure.

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: Submit proposals.

790 Vitreous enamelling

1. Standard: To BS EN ISO 28722.
2. Substrate metal: Steel to BS EN 10209.

Completion

910 Documentation

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

920 Completion

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

Ω End of Section

Z20
Fixings and adhesives

Products

310 Fasteners generally

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

320 Packings

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

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.

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.

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

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 - Not Used

Ω End of Section

Z22
Sealants

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

To be read with preliminaries/ general conditions.

120 Powder coating materials

1. Manufacturer: Obtain from one only of the following: submit proposals.
2. Selected manufacturer: Submit details before commencement of powder coating including:
   2.1. Name and contact details.
   2.2. Details of accreditation schemes.
   2.3. Technical data of product including current Agrément certificates.

210 Working procedures

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

220 Powder coating applicators

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

225 Guarantees

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. Sequence: 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
   2.1. Product reference.
   2.2. Colour.

2.3. Reference number.
2.4. Name.
2.5. Gloss level.

250 Component design

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

310 Pretreatment of aluminium components

1. Condition of components to be pretreated
   1.1. Free from corrosion and damage.
   1.2. All welding and jointing completed and finish off as specified.
   1.3. Free from impurities including soil, grease and oil.
   1.4. Suitable for and compatible with the pretreatment process.
2. Conversion coating requirements
   2.1. Chromate system: To BS 6496 or BS EN 12206-1.
   2.2. Chromate-free system: To BS EN 12206-1. Submit details before using.
3. Rinsing requirements: Use demineralized water. Drain and dry.

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.

330 Pretreatment for protection in aggressive environments

1. Minimum thickness of 60 microns across significant and/ or primary surfaces.
2. Minimum thickness of 25 microns on non-significant and/ or secondary faces ensuring a coherent film layer.
3. All cut edges, drilled holes and mitres to be fully sealed.
4. Cleaning and maintenance: Carried out once every three to twelve months (dependent on proximity to pollutant).

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

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 microns across significant and/ or primary surfaces.
2. Minimum thickness of 25 microns on non-significant and/ or secondary faces ensuring a coherent film layer.
3. All cut edges, drilled holes and mitres to be fully sealed.
4. 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

Specification created using NBS Chorus