WRIGHT & WRIGHT ARCHITECTS

Wright & Wright Architects LLP

The British Museum

Energy Centre Programme: SWEC & Distribution Main Works

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Architectural Specification

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

C02

08-11-2024

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

120 Extent of deconstruction/ demolition

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

130 Groundworks

1. Old foundations, slabs and the like: Break out in locations and to the extents stated.
2. Contaminated material: Remove, and carry out remediation required by the Enforcing Authority.
3. Removal of deleterious material: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
4. Ancillary items: Backfill 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. Services as defined by the MEP Engineers Drawings/Specifications. All historic building fabric unless otherwise stated, including stone cornices, bands, sills and parapets; boundary walls. Existing services retained and adjacent those parts noted on the Demolition Drawings. Within basement, natural stone flags are to be lifted carefully, stored on site and relaid.
2. Temporary protections to Lycian building facade, including acoustic hoarding to windows and doors on west facade, are to be carried out as part of the prior enabling works.

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 MEP Engineer's specification and drawings.
2. Timing: Do not start deconstruction or demolition until disconnections are completed.

240 Disconnection of drains

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

250 Live foul and surface water drains

1. Drains and associated manholes, inspection chambers, gullies, vent pipes and fittings: Protect and maintain normal flow during deconstruction or demolition. Make good any damage arising

from deconstruction or demolition work. Leave clean and in working order at completion of deconstruction or demolition work.

2. Other requirements: None.

260 Service bypass connections

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

270 Services to be retained

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

Deconstruction and demolition work

310 Workmanship

1. Standard: Demolish structures in accordance with BS 6187.
2. Operatives
   2.1. Appropriately skilled and experienced for the type of work.
   2.2. Holding, or in training to obtain, relevant Construction Skills certification of competence.
3. Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of deconstruction and demolition to be used.

320 Gas and vapour risks

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

330 Dust control

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

340 Health hazards

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

350 Adjoining property

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

360 Structures to be retained

1. Extent: Refer to demolition drawings and Structural Engineer's drawings.

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

370 Partly demolished structures

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

380 Dangerous openings

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

390 Asbestos-containing materials – known occurrences

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

391 Asbestos-containing materials – unknown occurrences

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

410 Unforeseen hazards

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

420 Open basements, etc

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

430 Filling of basements, etc

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

442 Site surface at completion

1. Topography: Grade the site to follow the levels of adjacent areas.
2. Temporary surface: Cover the site with 100 mm-thick consolidated layer of crushed hard rock.

450 Site condition at completion

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

C40
Cleaning masonry/ concrete

General/ preparation

110 Scope of work

1. Cleaning of parts of Lycian Building brick and stone masonry façade, as scoped on drawing 2260.
2.
    - Scope of work includes demonstration trials using alternative cleaning methods prior to cleaning.
    - Trials will be used to determine most effective cleaning method and that which has least deleterious effect on brickwork.
    - Trial cleaning and the programme of cleaning itself shall be supervised by a recognised specialist in masonry cleaning of historic buildings.
    - Cleaning programme shall be carried out by contractors with experience in the field of conservation and cleaning of historic buildings.
    - Contractor is to be fully aware of the type and nature of all materials to be cleaned and of constraints posed by the location and use of the buildings, openings and access routes to each elevation. Contractor must also note adjoining roads, vehicular routes and pedestrian access.
3. The following work will be required in sequence to the required standard:
    - Carry out sample trials using various cleaning methods and record.
    - Protect building fabric and provide of temporary drainage where necessary if existing downpipes are removed / taken out of service.
    - Brush down, prepare and inspect surfaces.
    - Pre-wet surfaces to be cleaned with nebulous water sprays and clean surface soiling by brush / spatula to approved standard.
    - Cleaning by other means:
        - Option 1: DOFF cleaning system (steam)
        - Option 2: TORC cleaning system (water, fine inert granulate and air)
        - Option 2: Nebulous or hand brush clean with stiff bristle or phosphor bronze brushes and water.
    - Cleaning up building fabric prior to dismantling scaffold.
4. Comply with BS 8221-1:2012 'Code of practice for cleaning and surface repair of buildings. The standard of cleaning expected will be established during cleaning trials. Where soiling is ingrained, surfaces should be under-cleaned rather than risking damage.

120 Related repair and remedial works

1. Work to be carried out after cleaning work: Pointing to cracks and joints in masonry, as section C41.

160 Protection

1. Surfaces not designated for cleaning: Prevent damage, including marking and staining.
2. Openings: Prevent ingress of water, cleaning agents and detritus.
    2.1. Vents and grilles: Seek instructions before sealing up.
3. Temporary mechanical fastenings
    3.1. In masonry: Locate in joints.
    3.2. In other surfaces: Seek instructions.

175 Control and disposal of wash water and detritus

1. Disposal: Safely. Obtain approvals from relevant Authority.
2. Control of wash water: Collect and divert to prevent ingress and damage to building fabric and adjacent areas.
3. Above and below ground drainage systems: Keep free from detritus and maintain normal operation.

180 Cold weather

1. Cleaning procedures using water: Do not use when air temperature is at or below 5°C. Protect damp surfaces from frost.
2. Chemical cleaning agents: Do not use when surface temperatures are below those recommended by manufacturer.

190 Cleaning generally

1. Timing: Works may not start on site until all necessary approvals are received from the local planning authority and from Historic England, as appropriate.
2. Operatives: Appropriately trained and experienced for each type of cleaning work.
   2.1. Evidence of training: Submit on request.
3. Control of cleaning: Confine cleaning processes and materials to designated areas. Prevent wind drift.
4. Detritus: Remove regularly. Dispose of safely.
5. Monitoring
   5.1. Frequently check results of cleaning compared to approved trial samples. If results established by trials are not achieved, seek instructions.
   5.2. Works to be inspected and approved in accordance with the requirements of the local planning authority.
6. Modifications to cleaning methods and materials: Seek instructions.

215 Record of cleaning works

1. Written report: Record cleaning methods and procedures used for each type of surface and deposit.
   1.1. Content: Relevant attributes of cleaning methods used including:
      1.1.1. Equipment and settings.
      1.1.2. Dwell times.
      1.1.3. Number of applications.
      1.1.4. Ambient temperatures.
2. Additional documentation: Survey before cleaning: Photogrammetric records of each elevation.
3. Submission: At completion of cleaning works.

230 Trial samples

1. Trial sample reference:
   1.1. Surface: London stock brick; Portland stone.
   1.2. Location/ Size: Lycian Building west facade, size TBC.
   1.3. Type of soiling: Atmospheric soiling, bird droppings.
   1.4. Cleaning methods: Steam, water spray.
2. Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.

Products/ equipment

300 Compatibility of chemical products

1. Products: Compatible and produced by the same manufacturer.

312 Surface biocides

1. Types: Registered by the Health and Safety Executive (HSE) and listed on the HSE website under non-agricultural pesticides.
2. Compatibility with surface: Free from staining or other harmful effects.

332 Water spray (mounted nozzles)

1. Equipment
   1.1. Spray/ Nozzle types: Subject to site trials.
   1.2. Nozzles: Position and direction adjustable, relative to surfaces and profiles.
   1.3. Controls: Submit proposals.

352 Steam cleaning equipment

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals

Application

400 General

1. All works to be completed in accordance with BS 8221-1:2012 Code of practice for cleaning and surface repair of buildings. Cleaning of natural stone, brick, terracotta and concrete (Incorporating corrigendum No. 1).

412 Removal of loosely adhered deposits

1. Timing: Before commencement of other cleaning methods.
2. Surfaces: Prevent damage, including abrasion.

432 Tooling

1. Tooling of surfaces: Not permitted.

462 Water spray cleaning (mounted nozzles)

1. Surfaces: Minimize water run-off. Prevent damage.
2. Adjustment of washing cycle and nozzle positions: Regularly to achieve optimum cleaning performance.

482 Steam cleaning

1. Surfaces: Prevent damage, including abrasion.
2. Equipment settings (including nozzle type and distance from surface): Adjust regularly to achieve optimum cleaning performance for each surface.

Ω End of Section

C41
Repairing/ renovating/ conserving masonry

Generally/ preparation

110 Scope of work

1. Schedule: Repairs, as required, to historic brick and stone masonry walls to Lycian building and to exposed brick masonry walls within newly excavated trenches at basement level.
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.

120 Site inspection

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

130 Removal of plant growths from masonry

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

140 Record of work

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

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.

190 Control samples

1. General: Complete an area of each of the following types of work, and arrange for inspection before proceeding with the remainder: repairs to historic brick and stone masonry walls to Lycian building and to exposed brick masonry walls within newly excavated trenches at basement level.

Materials/ production/ accessories

210 Advance registration

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

215 Material samples

1. Representative samples of designated materials: Submit before placing orders.
   1.1. Designated materials: Sands for bedding and pointing; facing bricks and ashlar stonework, if required.
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.

Dismantling/ rebuilding - Not Used

Replacements and insertions - Not Used

Tooling/ dressing stone in situ - Not Used

Mortar repairs

510 Preparation for mortar repairs

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

515 Reinforcement for mortar repairs

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

520 Mortar repairs

1. Description: To Lycian Building facade.
2. Undercoats: As section Z21.
   2.1. Standard: BS EN 998-2.
   2.2. Mix: Submit proposals.
   2.3. Sand source/ type: Submit proposals.
   2.4. Building up: In layers where necessary, each layer not exceeding 12 mm.
3. Finishing coat: To match approved samples.
   3.1. Standard: BS EN 998-2.
   3.2. Mix: Submit proposals.

3.3. Sand source/ type: Sharp well graded sand to approval.

3.4. Finished thickness: Submit proposals.

3.5. Finish: To match existing.

540 Applying mortar

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

550 Scraped finish to mortar repairs

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

Crack repairs/ ties/ reinforcement

610 Mortar repair of cracks

1. Description: Repairs, as required, to cracks in historic brick and stone masonry walls to Lycian building and to exposed brick masonry walls within newly excavated trenches at basement level.
2. Mortar: As section Z21.
   2.1. Standard: BS EN 998-2.
   2.2. Mix: 1:3 feebly hydraulic lime:sand, to approval.
3. Preparation: Clean out cracks to remove debris, dust and dirt. Dampen recesses, as necessary, to control suction.
4. Applying mortar: Press well into cracks so that they are fully filled. Ensure that mortar does not encroach upon exposed faces. Finish mortar flush with masonry face.
5. Other requirements: Exclude isolated hair line cracks (less than about 1.0 mm wide).

Grouting rubble filled cores - Not Used

Pointing/ repointing

810 Preparation for repointing

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

840 Pointing with tools/ Irons

1. General: Press mortar well into joints using pointing tools/ irons that fit into the joints, so that they are fully filled.

2. Face of masonry: Keep clear of mortar. Use suitable temporary adhesive tape on each side of joints where necessary. Finish joints neatly.

860 Brushed finish to joints

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

Ω End of Section

C90
Alterations - repair, refurbish, refit

General

110 Descriptions

1. Location of alterations: Demolition and reconstruction of brick and block masonry walls; removal and reinstatement of cupboards in basement corridors as part of distribution works.
2. Details of alterations: Demolish brick and block masonry partition walls to enable the construction of new services trenches. Reinstate on a like-for-like basis the partition walls, including trims and finishes, upon completion of the trench works. Dismantle cupboards to enable the construction of new services trenches. Reinstate on a like-for-like basis the cupboards upon completion of the trench works.

115 Survey report

1. Submittal: Report prepared as a schedule of works, including photographic survey of existing partition walls and cupboards.
2. Timing: Before work commences on site.

130 Recycled materials

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

140 Removal

1. Scope of removal: Refer to Distribution drawings.

150 Refixing

1. Scope of refixing: Refer to Distribution drawings.

Ω End of Section

E41
Worked finishes to in situ concrete

To be read with preliminaries/ general conditions.

120 Directly finished concrete wearing surfaces

1. Description: To exposed floor slabs.
2. Tolerances
   2.1. Surface regularity: Class SR1.
   2.2. Level: Permissible deviation of wearing surface from datum (maximum): ±5 mm.
3. Finish: Smooth floated finish as clause 310.
   3.1. Slip resistance (minimum): PTV 36.

145 Control samples

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

150 Finishing

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

310 Smooth floated finish

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

Ω End of Section

F10
Brick/ block walling

Types of walling

110A Clay facing brickwork Flemish bond

1. Description: To SWEC facades as indicated on drawings.
2. Bricks: To BS EN 771-1.
   - 2.1. Manufacturer: Imperial Bricks Limited.
     - 2.1.1. Product reference: Original London Stock, Yellow Stock
   - 2.2. Brick type: Through colour clay handmade brick.
   - 2.3. Work size (length x width x height): 215 x 102.5 x 65 mm.
   - 2.4. Tolerances
     - 2.4.1. Mean value: TM.
     - 2.4.2. Range: RM.
   - 2.5. Compressive strength
     - 2.5.1. Mean compressive strength (minimum): 15.7 N/mm^2.
   - 2.6. Water absorption: Mean 21%.
   - 2.7. Soluble salt classification: S2.
   - 2.8. Reaction to fire: A1.
   - 2.9. Durability against freeze thaw: F2.
   - 2.10. Special shapes: Queen closers.
3. Mortar: Tarmac TRUTONE coloured mortar, Yellow Y12 Medium; or Cemex Coloured Mortar, Yellow Dark. Final selection to be made by Client and Architect subject to sample panel approval. As section Z21.
   - 3.1. Standard: To BS EN 998-2.
   - 3.2. Mix: To manufacturer's recommendations.
   - 3.3. Additional requirements: Coloured mortar to match bricks.
4. Bond: Flemish.
5. Joints: Bucket handle.

110B Clay facing brickwork Soldier bond

1. Description: To SWEC facades as indicated on drawings.
2. Bricks: To BS EN 771-1.
   - 2.1. Manufacturer: Imperial Bricks Limited.
     - 2.1.1. Product reference: Original London Stock, Yellow Stock
   - 2.2. Brick type: Through colour clay handmade brick.
   - 2.3. Work size (length x width x height): 215 x 102.5 x 65 mm.
   - 2.4. Tolerances
     - 2.4.1. Mean value: TM.
     - 2.4.2. Range: RM.
   - 2.5. Compressive strength
     - 2.5.1. Mean compressive strength (minimum): 15.7 N/mm^2.
   - 2.6. Water absorption: Mean 21%.
   - 2.7. Soluble salt classification: S2.

2.8. Reaction to fire: A1.

2.9. Durability against freeze thaw: F2.

3. Mortar: Tarmac TRUTONE coloured mortar, Yellow Y12 Medium; or Cemex Coloured Mortar, Yellow Dark. Final selection to be made by Client and Architect subject to sample panel approval. As section Z21.

3.1. Standard: To BS EN 998-2.

3.2. Mix: To manufacturer's recommendations.

3.3. Additional requirements: Coloured mortar to match bricks.

4. Bond: Soldier.

5. Joints: Bucket handle.

110C Clay facing brickwork Stretcher bond

1. Description: To SWEC facades as indicated on drawings.

2. Bricks: To BS EN 771-1.

2.1. Manufacturer: Imperial Bricks Limited.

2.1.1. Product reference: Original London Stock, Yellow Stock

2.2. Brick type: Through colour clay handmade brick.

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

2.4. Tolerances

2.4.1. Mean value: TM.

2.4.2. Range: RM.

2.5. Compressive strength

2.5.1. Mean compressive strength (minimum): 15.7 N/mm^2.

2.6. Water absorption: Mean 21%.

2.7. Soluble salt classification: S2.

2.8. Reaction to fire: A1.

2.9. Durability against freeze thaw: F2.

2.10. Special shapes: Queen closers.

3. Mortar: Tarmac TRUTONE coloured mortar, Yellow Y12 Medium; or Cemex Coloured Mortar, Yellow Dark. Final selection to be made by Client and Architect subject to sample panel approval. As section Z21.

3.1. Standard: To BS EN 998-2.

3.2. Mix: To manufacturer's recommendations.

3.3. Additional requirements: Coloured mortar to match bricks.

4. Bond: Half-lap stretcher.

5. Joints: Bucket handle.

111A Glazed clay facing brickwork Flemish bond

1. Description: Glazed clay facing brickwork to light well and north stair.

2. Bricks: To BS EN 771-1.

2.1. Manufacturer: Wienerberger Ltd

2.1.1. Contact details

2.1.1.1. Address: Wienerberger House
Brooks Drive
Cheadle Royal Business Park
Cheadle
Cheshire

United Kingdom
SK8 3SA

2.1.1.2. Telephone: +44 (0)161 4918200

2.1.1.3. Web: www.wienerberger.co.uk

2.1.1.4. Email: WBUKMarketing@wienerberger.com

2.1.2. Product reference: London White Glazed

2.2. Brick type: Extruded wirecut, glazed.

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

2.4. Tolerances

2.4.1. Mean value: T2.

2.4.2. Range: R1.

2.5. Compressive strength

2.5.1. Mean compressive strength (minimum): 50 N/mm^2.

2.6. Water absorption: ≤2%.

2.7. Soluble salt classification: S2.

2.8. Reaction to fire: A1.

2.9. Durability against freeze thaw: F2.

2.10. Special shapes: Queen closers.

3. Mortar: Tarmac TRUTONE coloured mortar, Y101 White; or Cemex Coloured Mortar, Doveholes White; or Cream Braintree Light. Final selection to be made by Client and Architect subject to sample panel approval. As section Z21.

3.1. Standard: To BS EN 998-2.

3.2. Mix: To manufacturer's recommendations.

3.3. Additional requirements: Coloured mortar to match bricks.

4. Bond: Flemish.

5. Joints: Bucket handle.

111B Glazed clay facing brickwork Soldier bond

1. Description: Glazed clay facing brickwork to light well and north stair.

2. Bricks: To BS EN 771-1.

2.1. Manufacturer: Wienerberger Ltd

2.1.1. Contact details

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

2.1.1.2. Telephone: +44 (0)161 4918200

2.1.1.3. Web: www.wienerberger.co.uk

2.1.1.4. Email: WBUKMarketing@wienerberger.com

2.1.2. Product reference: London White Glazed

2.2. Brick type: Extruded wirecut, glazed.

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

2.4. Tolerances

2.4.1. Mean value: T2.

2.4.2. Range: R1.

2.5. Compressive strength

2.5.1. Mean compressive strength (minimum): 50 N/mm^2.

2.6. Water absorption: ≤2%.

2.7. Soluble salt classification: S2.

2.8. Reaction to fire: A1.

2.9. Durability against freeze thaw: F2.

3. Mortar: Tarmac TRUTONE coloured mortar, Y101 White; or Cemex Coloured Mortar, Doveholes White, or Cream Braintree Light. Final selection to be made by Client and Architect subject to sample panel approval. As section Z21.

3.1. Standard: To BS EN 998-2.

3.2. Mix: To manufacturer's recommendations.

3.3. Additional requirements: Coloured mortar to match bricks.

4. Bond: Soldier.

5. Joints: Bucket handle.

355A Concrete common blockwork 100mm

1. Description: Internal blockwork masonry walls.

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 100 mm)

2.2. Standard: To BS EN 771-3.

2.3. Block description: Paint grade.

2.4. Appearance: Dark grey.

2.5. Configuration: Group 1.

2.6. Compressive strength

2.6.1. Mean value: 10.4 N/mm².

2.6.2. Characteristic value: 5.7 N/mm².

2.6.3. 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 100 mm.

2.11. Tolerance category: D1.

2.12. Density

2.12.1. Gross dry density: 1850-2100 kg/m³.

2.13. Reaction to fire: Class A1 to BS EN 13501-1.
2.14. Water absorption by capillarity: 90 g/(m2 x s-0.5).
2.15. Water vapour permeability: 5/15 µ.
2.16. Thickness: 100 mm.
2.17. Weight: 190 kg/m²: walled weight. 18.0 kg: block weight.
2.18. Moisture movement: 0.6 mm/m.
2.19. Environmental Product Declaration (EPD): ISO 14001.
2.20. R-Value: 0.09 m² K/W.
2.21. Sound reduction: 48 dB (Rw).

3. Mortar: As section Z21.
   3.1. Standard: To BS EN 998-2.
   3.2. Mix: To manufacturer's recommendations.
4. Bond: Half-lap stretcher.

355B Concrete common blockwork 140mm

1. Description: Internal blockwork masonry walls.
2. Blocks: To BS EN 771-3.
   2.1. Manufacturer: Thomas Armstrong (Concrete Blocks) Ltd
      2.1.1. Contact details
         2.1.1.1. Address: Whinfield Road
         Rowlands Gill
         Newcastle-upon-Tyne
         Tyneside
         United Kingdom
         NE39 1EH
         2.1.1.2. Telephone: +44 (0)1207 544214
         2.1.1.3. Web: www.thomasarmstrongconcreteblocks.co.uk
         2.1.1.4. Email: blocks@thomasarmstrong.co.uk
      2.1.2. Product reference: Solid Dense Concrete Block (Solid Dense Concrete Block 140 mm)
   2.2. Standard: To BS EN 771-3.
   2.3. Block description: Paint grade.
   2.4. Appearance: Dark grey.
   2.5. Configuration: Group 1.
   2.6. Compressive strength
      2.6.1. Mean value: 10.4 N/mm².
      2.6.2. Characteristic value: 5.5 N/mm².
      2.6.3. Category: II.
   2.7. Freeze/ thaw resistance: Freeze thaw resistant.
   2.8. Thermal conductivity: 1.17 W/mK (inner leaf). 1.26 W/mK (outer leaf).
   2.9. Recycled content: 20%.
   2.10. Work sizes (length x width x height): 440 x 215 x 140 mm.
   2.11. Tolerance category: D1.
   2.12. Density
      2.12.1. Gross dry density: 1850-2100 kg/m³.
   2.13. Reaction to fire: Class A1 to BS EN 13501-1.
   2.14. Water absorption by capillarity: 90 g/(m2 x s-0.5).

2.15. Water vapour permeability: 5/15 μ.

2.16. Thickness: 140 mm.

2.17. Weight: 266 kg/m²: walled weight. 25.2 kg: block weight.

2.18. Moisture movement: 0.6 mm/m.

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

2.20. R-Value: 0.12 m² K/W.

2.21. Sound reduction: 51 dB (Rw).

3. Mortar: As section Z21.

3.1. Standard: To BS EN 998-2.

3.2. Mix: To manufacturer's recommendations.

4. Bond: Half-lap stretcher.

355C Cellular glass thermal blocks

1. Description: To bases of walls as indicated on drawings.
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.

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.

385 Engineering brickwork

1. Description: To transformer rooms.
2. Bricks: To BS EN 771-1.

2.1. Manufacturer: Wienerberger Ltd

2.1.1. Contact details

2.1.1.1. Address: Wienerberger House
Brooks Drive

Cheadle Royal Business Park
Cheadle
Cheshire
United Kingdom
SK8 3SA

2.1.1.2. Telephone: +44 (0)161 4918200

2.1.1.3. Web: www.wienerberger.co.uk

2.1.1.4. Email: WBUKMarketing@wienerberger.com

2.1.2. Product reference: Class A engineering bricks, blue.

2.2. Standard: To BS EN 771-1.

2.3. Brick description: Engineering brick.

2.4. Appearance: Smooth.

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

2.6. Tolerances

2.6.1. Mean value: T2.

2.6.2. Range: R1.

2.7. Compressive strength

2.7.1. Mean compressive strength (minimum): ≥125N/mm²

2.8. Water absorption: ≤4.5 %.

2.9. Configuration: Perforated.

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

3. Mortar: As section Z21.

3.1. Standard: To BS EN 998-2.

3.2. Mix: To manufacturer's recommendations.

4. Bond: English.

5. Joints: Bucket handle.

Testing

410 Compressive strength of mortar for each walling type

1. Testing authority: A UKAS-accredited laboratory.
2. Test method: To BS EN 1015-11.
3. Preliminary tests procedure: As follows:

3.1. Specimens

3.1.1. Number of specimens: Six.

3.1.2. Type: 40 x 40 x 160 mm prism.

3.1.3. Preparation: At least six weeks before walling commences.

3.2. Specimen testing: Half of specimens at seven days. Remainder at 28 days.

3.2.1. Retarded mixes: Extend curing periods to include retardation period.

3.3. Response to result: If mean compressive strength at 28 days is not within the range given below repeat tests with more suitable sand or next higher mortar class.

4. Site tests procedure: As follows.

4.1. Number of specimens: Six per 150m² of walling or per storey whichever the more frequent.

4.2. Specimen types: As preliminary test, but prepared during construction.

4.3. Specimen testing: Half of specimens at seven days. Remainder at 28 days.

4.3.1. Retarded mixes: Extend curing periods to include retardation period.

5. Required test mean compressive strength at 28 days (N/mm²): To be within the following range:
   5.1. Walling type: All external wall types.
      5.1.1. Preliminary tests minimum (N/mm²): 4.0
      5.1.2. Preliminary tests maximum (N/mm²): 6.0
      5.1.3. Site tests minimum (N/mm²): 11
      5.1.4. Site tests maximum (N/mm²): No value
6. Results: Submit.

415 Fresh mortar cement content

1. Test method: BREMORTEST in accordance with Building Research Establishment Information Paper 8/89.
2. Test specimens: Test mortar for the following wall types: F10/ 110, 111 and 385 .
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. Vertical joints in brick and concrete block facework: Even widths. Plumb at every fifth cross joint.

520 Accuracy

1. General note: Notwithstanding the below, comply with any critical dimensions given on the drawings.
2. Courses: Level and true to line.
3. Faces, angles and features: Plumb.
4. Permissible deviations
   - 4.1. Position in plan of any point in relation to the specified building reference line and/ or point at the same level: ± 10 mm.
   - 4.2. Straightness in any 5 m length: ± 5 mm.
   - 4.3. Verticality up to 3 m height: ± 10 mm.
   - 4.4. Verticality up to 7 m height: ± 14 mm.
   - 4.5. Overall thickness of walls: ± 10 mm.
   - 4.6. Level of bed joints up to 5 m (brick masonry): ± 11 mm.
   - 4.7. 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.

540 Height of lifts in walling using thin-layer mortar

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

545 Levelling of separate leaves

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

560 Coursing brickwork

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

561 Coursing brickwork with existing

1. Gauge: Line up with existing brick courses.

580 Laying frogged bricks

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

585 Laying cellular bricks

1. Orientation: Cavities downward.

595 Lintels

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

610 Support of existing work

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

615 Brickwork to receive asphalt dpc

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

620 Block bonding new walls to existing

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

635 Jointing

1. Profile: Consistent in appearance.

645 Accessible joints not exposed to view

1. Jointing: Struck flush as work proceeds.

671 Fire-stopping

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

690 Adverse weather

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

4.1. Rain and snow.

4.2. Drying out too rapidly in hot conditions and in drying winds.

Additional requirements for facework

710 The term facework

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

730 Brick/ Concrete block samples

1. General: Before placing orders with suppliers submit for approval of appearance labelled samples of the following: F10/110, F10/111, F10/355, F10/385.
2. Selection of samples: Representative of the range in variation of appearance.

740 Finished masonry work reference panels

1. General: Before proceeding to construct the following walling types, construct panels as specified. Give notice when panels are dry. Brickwork control panels must be tied to relevant blockwork inner skin as F10/355B with applicable wall ties as F30/215.
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 B; F10/111A and B.
      3.1.1. Location: Submit proposals.
      3.1.2. Size: Refer to drawing 4325.
      3.1.3. Other requirements: To include pointing and window frames. Allow for repointing of reference panels twice to enable the architect to select and approve the mortar colour.

750 Colour consistency of masonry units

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

760 Appearance

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

780 Ground level

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

790 Putlog scaffolding

1. Use: Not permitted in facework.

800 Toothed bond

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

830 Cleanliness

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

Ω End of Section

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

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.

155 Partial fill cavity 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: customersupportcentre@rockwool.com
   1.2. Product reference: NyRock® Cavity Slab 032 (100 mm)
2. General requirements: Insulation products generally.
3. Standard: To BS EN 13162; ISO 14001.
4. Thickness: 100 mm.
5. Edges: Square.
6. Thermal conductivity (maximum): 0.034 W/m·K.
7. Fire performance: To BS EN 13501-1, Class A1.
8. Size: 1200 x 455 mm.
9. Material: Mineral wool batts.
10. Placement: Secure against face of inner leaf.
    10.1. Residual cavity: Clear and unobstructed.
11. 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: customersupportcentre@rockwool.com
1.2. Product reference: RockClose® EN (Maximum Cavity Gap: 50 mm)
2. Accessories: Integral ROCKWOOL insulation. Integrated waterproofing layer.
3. To fit cavity width: Up to 50 mm.
4. Length (effective): 1200 mm.
5. Width: 100 mm.
6. Thickness: 60 mm.
7. Damp proof membrane: 1300 x 180 mm.
8. Thermal performance: To EN 13162:2012 + A1:2015, 0.035 W/mK.
9. Fire performance: To BS EN 1366-4, 60 minutes.
10. Reaction to fire: To EN 13501-1, A1 (stone wool core); B, s3, d0 (waterproofing layer).

Reinforcing/ fixing accessories

215A Cavity wall ties (uninsulated cavity)

1. Description: For uninsulated cavity walls.
2. Standard: To BS EN 845-1.
   2.1. Type: 1 (Masonry heavy duty).
3. Manufacturer: Leviat
   3.1. Contact details
      3.1.1. Address: President Way
      President Park,
      Sheffield
      South Yorkshire
      S4 7UR
      3.1.2. Telephone: +44 (0) 114 275 5224
      3.1.3. Web: www.leviat.com
      3.1.4. Email: info.uk@leviat.com
   3.2. Product reference: Ancon ST1 Wall Tie.
4. Material: Austenitic stainless steel.
5. Length: 225 mm.
6. Embedment length (minimum): 50 mm.

215B Cavity wall ties (partial fill insulation)

1. Description: For insulated cavity walls.
2. Standard: To BS EN 845-1.
   2.1. Type: 1 (Masonry heavy duty).
3. Manufacturer: Leviat
   3.1. Contact details
      3.1.1. Address: President Way
      President Park,
      Sheffield
      South Yorkshire
      S4 7UR
      3.1.2. Telephone: +44 (0) 114 275 5224

3.1.3. Web: www.leviat.com

3.1.4. Email: info.uk@leviat.com

3.2. Product reference: SDS T1 Wall Tie.

4. Material/ finish: Austenitic stainless steel.
5. Sizes: 375mm or 450mm to suit cavity width.
6. Embedment length (minimum): 50 mm.
7. Tie-mounted insulation retaining clips: As recommended by the manufacturer.

215C Cavity wall ties (cramps)

1. Description: Masonry to column ties.
2. Standard: To BS EN 845-1.
   2.1. Type: 1 (Masonry heavy duty).
3. Manufacturer: Leviat
   3.1. Contact details
      3.1.1. Address: President Way
      President Park,
      Sheffield
      South Yorkshire
      S4 7UR
      3.1.2. Telephone: +44 (0) 114 275 5224
      3.1.3. Web: www.leviat.com
      3.1.4. Email: info.uk@leviat.com
   3.2. Product reference: Ancon SDB.
4. Material/ finish: Austenitic stainless steel.
5. Sizes: 250mm to 325mm to suit cavity width.
6. Embedment length (minimum): 50mm.
7. Tie-mounted insulation retaining clips: As recommended by the manufacturer.

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 and connectors

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 36/8 Wall Extension System

2. Material: Stainless steel grade 1.4301 (304).
3. Tie type: Channel and ties.
4. Sizes
   4.1. Channel length: 2400 mm long channel section.
5. Accessories: Complete with ten ties (SP36 or PP36 ties complete with debonding sleeve), plugs and screws. A debonding sleeve can be supplied.

245 Channel/ slot ties

1. Description: To steel-framed brick masonry walls.
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 25/14 Brick Tie Channel
3. Length: 3000 mm.

251 Head restraint slip ties

1. Description: To heads of masonry walls.
2. Standard: To BS EN 845-1.
3. Manufacturer: Leviat
   3.1. Contact details
      3.1.1. Address: President Way
      President Park,
      Sheffield
      South Yorkshire
      S4 7UR
      3.1.2. Telephone: +44 (0) 114 275 5224
      3.1.3. Web: www.leviat.com
      3.1.4. Email: info.uk@leviat.com
   3.2. Product reference: Ancon IHR-B Head Restraint - 2D Detail (IHR-B Head Restraint)
4. Material: Austenitic stainless steel.
5. Length: To suit blockwork coursing.

265 Masonry angle supports

1. Description: Masonry support system for external brickwork leaf.
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: MDC Bracket Angle Support System

3. Material: Austenitic stainless steel, Grade 1.4301 (304).
4. Accessories: Shims as required.

266 Brick-faced lintels

1. Description: To form brickwork masonry reveals above windows and doors.
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 MDC Masonry Support

3. Material: Austenitic stainless steel, Grade 1.4301 (304).
4. Accessories: Shims as required.

282A Slip ties (hammer-on)

1. Description: Masonry to steel column ties.
2. Standard: To BS EN 845-1.
3. Manufacturer: Leviat

3.1. Contact details

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

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

3.1.3. Web: www.leviat.com

3.1.4. Email: info.uk@leviat.com

3.2. Product reference: Ancon hammer-on section with HOS-TIE.

4. Material/ finish: Austenitic stainless steel.
5. Sizes: To suit blockwork and steel columns.
6. Fixing centres: Alternate courses.

282B Slip ties (screw-on)

1. Description: Masonry to steel column ties.

2. Standard: To BS EN 845-1.
3. Manufacturer: Leviat
   3.1. Contact details
      3.1.1. Address: President Way
      President Park,
      Sheffield
      South Yorkshire
      S4 7UR
      3.1.2. Telephone: +44 (0) 114 275 5224
      3.1.3. Web: www.leviat.com
      3.1.4. Email: info.uk@leviat.com
   3.2. Product reference: Ancon SPB frame cramp.
4. Material/ finish: Austenitic stainless steel.
5. Sizes: To suit blockwork and steel columns.
6. Fixing centres: Alternate courses.

Flexible damp-proof courses/ cavity trays

330 Damp-proof courses

1. Manufacturer: Delta Membrane Systems Ltd
   1.1. Contact details
      1.1.1. Address: Delta House
      Merlin Way
      North Weald
      Epping
      Essex
      United Kingdom
      CM16 6HR
      1.1.2. Telephone: +44 (0)1992 523523
      1.1.3. Web: https://www.deltamembranes.com
      1.1.4. Email: info@deltamembranes.com
   1.2. Product reference: Delta High Performance DPC.

345 Site-formed flexible sheet cavity trays – plastics

1. Standard: To BS EN 14909 and BS 6515.
2. Material: Polyolefin.
3. Manufacturer: Delta Membrane Systems Ltd
   3.1. Contact details
      3.1.1. Address: Delta House
      Merlin Way
      North Weald
      Epping
      Essex
      United Kingdom
      CM16 6HR
      3.1.2. Telephone: +44 (0)1992 523523
      3.1.3. Web: https://www.deltamembranes.com
      3.1.4. Email: info@deltamembranes.com
   3.2. Product reference: Delta High Performance DPC.

Installation of dpcs/ cavity trays

415 Installation of horizontal dpcs

1. Placement: In continuous lengths on full even bed of fresh mortar, with 100 mm laps at joints and full laps at angles.
2. Width: At least full width of leaf unless otherwise specified. Edges of dpc not covered with mortar or projecting into cavity.
3. Overlying construction: Immediately cover with full even bed of mortar to receive next masonry course.
4. Overall finished joint thickness: As close to normal as practicable.

425 Installation of ground level dpcs

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

435 Installation of stepped dpcs in external walls

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

445 Installation of sill dpcs

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

455 Installation of coping/ capping dpcs

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

475 Installation of site-formed cavity trays

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

485 Installation of cavity trays over openings and other cavity bridgings

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

495 Installation of gas-resistant dpcs/ cavity trays

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

560 Installation of vertical dpcs

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

570 Installation of jamb dpcs at openings

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

Joints

610 Movement joints with sealant

1. Description: To movement joints in external brickwork masonry and internal blockwork masonry.
2. Joint preparation and sealant application: As section Z22.
3. Filler: Compressible mineral wool backing rod wrapped with a glass fibre yarn.
   - 3.1. Thickness: To match design width of joint.
   - 3.2. Manufacturer: Sika Limited
     - 3.2.1. Contact details
       - 3.2.1.1. Address: Watchmead
         Welwyn Garden City
         Hertfordshire
         AL7 1BQ
       - 3.2.1.2. Telephone: +44 (0)1707 394444
       - 3.2.1.3. Web: https://www.sika.co.uk
       - 3.2.1.4. Email: enquiries@uk.sika.com
     - 3.2.2. Product reference: Sika® Backer Rod Fire
   - 3.3. Fire performance
     - 3.3.1. Fire resistance: To EN 13501-2, up to class EI 240; To EN 1366-4, up to 4 hours.
     - 3.3.2. Reaction to fire: To EN 13501-1, Class A1.
   - 3.4. Material: Mineral fibre wool wrapped with glass fibre yarn.
   - 3.5. Size
     - 3.5.1. Thickness: To suit joint widths.
   - 3.6. Density: ~250 kg/m³.
4. Sealant
   - 4.1. Designation: ISO 11600-F-25LM.
   - 4.2. Manufacturer: Sika Limited.
     - 4.2.1. Product reference: SikaHyflex®-250 Facade.
   - 4.3. 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.

660 Pinning up to soffits

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

670 Head of non-loadbearing walls

1. Restraints: As clause 251.

1.1. Fixing: Secure to soffit.

2. Joint filler: Compressible filler as P12/360B.
   2.1. Placement: Full, no gaps.

Proprietary sills/ lintels/ copings/ dressings

720 Precast concrete sills

1. Standard: To BS 5642-1.
2. Material: Precast concrete.
3. Manufacturer: Submit proposals
   3.1. Product reference: Submit proposals
4. Dimensions: As shown on drawings 2151, 4359.
5. Finish: Smooth.
6. Colour: Buff, to match brickwork masonry as F10/110. Provide samples for review by architect.
7. Mortar for bedding/ jointing: Cement-gauged as section Z21.
   7.1. Standard: To BS EN 998-2.
   7.2. Additional requirements: Coloured mortar to match bricks.
8. Joints: Flush.
9. Bedding one-piece sills: Leave bed joints open except under end bearings and masonry mullions. On completion, point to match adjacent work.

780A 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: Polyester powder coating.
4. Material thickness (minimum): 2.5 mm.
5. Fixings: Secret fix.
6. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
7. Accessories: End caps, corner pieces as required.
8. Profile: Twice weathered.
9. Type: Clip on, sloped in two directions to replicate traditional stone and concrete capping systems.

780B Acoustic canopy

1. Material: Aluminium or galvanised steel.
2. Finish: Polyester powder coating.
3. Material thickness (minimum): 2.5 mm.

4. Fixings: Secret fix.
5. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
6. Accessories: End caps, corner pieces as required.

780C Lift canopy

1. Material: Aluminium or galvanised steel.
2. Finish: Polyester powder coating.
3. Material thickness (minimum): 2.5 mm.
4. Fixings: Fixed to external wall.
5. Colour: RAL TBC (PPC).

Miscellaneous items - Not Used

Ω End of Section

G10
Structural steel framing

General requirements/ information

112 Contractor's design

1. Description: Design of steel framing system infill walls as G10/150.
2. Design concept: Refer to drawings.
3. Design responsibility: Design and detail members and joints to suit the conceptual layout detailed in the contract drawings.

123 Drawings and calculations prepared by Contractor

1. General arrangement drawings: Submit before preparing calculations. Clearly identify:
   1.1. Individual steel members.
   1.2. Conflicts with other work.
   1.3. Proposed changes to contract drawings.
2. Member and joint calculations: Submit before preparing fabrication drawings.

Frame systems

150 Steel framing system

1. Manufacturer: Metsec (voestalpine Metsec)
   1.1. Contact details
      1.1.1. Address: Broadwell Road
      Oldbury
      West Midlands
      B69 4HF
      1.1.2. Telephone: +44 (0) 121 601 6000
      1.1.3. Web: https://www.metsec.com
      1.1.4. Email: david.atkinson@voestalpine.com
2. System performance: Structural design supervision and checking. Design of framing systems generally.
3. Framing members: Cold-formed galvanized steel sections.
4. Connections
   4.1. Connection fasteners: Self drilling tek screws.
5. Anchors to concrete and masonry
   5.1. Type of anchor: To contractor's design.
6. Movement joints: Deflection allowance at the top of the wall.
7. Insulation: Refer to drawings.
8. Sheathing board: As K11/485.
9. Framing: Metsec SFS 120 mm stud depth.
10. Inner layer: As K11/485.
11. Face layer: As K11/485.
12. Fasteners: Drywall screws.
13. System accessories: Flatstrap / partition brace.
14. Internal face: 120 minutes (insulation/ integrity).

15. External face: 120 minutes (insulation/ integrity).
16. Fire performance: 120 minutes.
17. Thermal performance (U-value maximum): Variable.
18. Air tightness: Variable.

Cold-formed materials - Not Used

Fabrication - Not Used

Welding

255 Site welding

1. Usage: Not permitted.

Bolt assemblies - Not Used

Erection

420 Setting out

1. Permissible deviations: In addition to the requirements of the NSSS, add permissible deviations for different types of dimension and locations, as necessary.

432 Temporary support

1. Permanent bracing system
   1.1. Vertical: Steel columns.
   1.2. Horizontal: Composite floor slabs.
2. Temporary bracing/ restraints: Provide as necessary until permanent bracing system is complete and sufficiently mature to carry loads and all connections have been made to the permanent system.
3. Elements to be supported: Studwork.
4. Bracing/ Restraints: Provide as necessary until permanent connection can be made to floors.

Testing - Not Used

Protective coatings - Not Used

Protective coating systems - Not Used

Preparation for painting - Not Used

Painting - Not Used

Ω End of Section

H11
Curtain walling

Tendering

10 Information to be provided with tender

1. Submit the following curtain walling particulars
   1.1. Evidence of compliance: All curtain walling to be CE marked to BS EN 13830. Submit Declaration of Performance (DoP). CE marking and Declaration of Performance (DoP) requirements for structural sealant glazing to be submitted on the basis of a manufacturer's European Technical assessment (ETA) prepared in accordance with EOTA technical guide ETAG 002 (Parts 1, 2 and 3).
   1.2. Typical plan, section and elevation drawings at suitable scales.
   1.3. Typical detailed drawings at large scales, including jambs, mullions, head and sill.
   1.4. Certification, reports and calculations demonstrating compliance with specification of proposed curtain walling.
   1.5. Proposals for connections to and support from the building structure and building components.
   1.6. Proposals for amendments to primary supporting structure and for secondary supporting structure additional to that shown on preliminary design drawings.
   1.7. Schedule of builder's work, special provisions and special attendance by others.
   1.8. Examples of standard documentation from which project quality plan will be prepared.
   1.9. Preliminary fabrication and installation method statements and programme.
   1.10. Schedule of products and finishes with a design life expectancy less than that specified in clause 440, with proposals for frequencies and methods of replacement.
   1.11. Proposals for replacing damaged or failed products.
   1.12. Areas of non-compliance with the specification.

Types of curtain walling

110 Curtain walling

1. Description: To recessed west facade between phases 1 and 2.
2. Supporting structure: Composite steel
3. Curtain walling system
   3.1. Manufacturer: Schueco UK Ltd
      3.1.1. Contact details
         3.1.1.1. Address: Whitehall Avenue
         Kingston
         Milton Keynes
         Buckinghamshire
         MK10 0AL
         3.1.1.2. Telephone: +44 (0)1908 282111
         3.1.1.3. Web: https://www.schueco.com/uk/
         3.1.1.4. Email: mkinfobox@schueco.com
      3.1.2. Product reference: Highly Thermally Insulated Steel Stick Curtain Walling Façade System - VISS 50
   3.2. Framing
      3.2.1. Frame members: Steel curtain wall frame sections, polyester powder-coated.

3.2.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
3.2.3. Fasteners: Manufacturer's standard.
3.3. Cladding units
3.3.1. Glass units: Double glazed units, as L40.
3.3.2. Panels and facings
3.3.2.1. Material: Steel.
3.3.2.2. Thermal insulation: Non-combustible mineral wool.
3.3.3. Fasteners: Manufacturer's standard.
3.3.4. Perimeter seals: Manufacturer's standard.
3.4. Face width: 50 mm.
3.5. Thermal transmittance (U-Value): 1.5 W/m^{2}K (maximum).
3.6. Label: Schueco 'IoF' ID tag with QR code.
3.7. Type: Stick system, drained and ventilated.
4. Internal framing member
4.1. Material: Steel.
4.2. Finish: Powder-coating.
4.2.1. Colour/ texture: Syntha Pulvin, RAL Metallic, colour TBC.
5. External cover cap
5.1. Material: Steel.
5.2. Finish: Powder-coating.
5.2.1. Colour/ texture: Syntha Pulvin, RAL Metallic, colour TBC.
6. Glazing: Insulating glass units.
6.1. Inner pane: As L40.
6.2. Outer pane: As L40.
7. Panel/ facing type: Composite facings, mechanically fixed to secondary framing.
7.1. External material: Steel sheet.
7.2. External finish: Powder-coating.
7.3. Internal material: Steel sheet.
7.4. Internal finish: Powder-coating.
7.5. Core insulation: Non-combustible mineral wool board to BS EN 13162.

140 Louvres

1. Manufacturer: Gilberts (Blackpool) Ltd.
1.1. Product reference: WG38 louvre.
2. Material: Aluminium.
3. Finish: Polyester powder-coated.
3.1. Colour/ texture: Syntha Pulvin, RAL Metallic, colour TBC.
4. Fixing: Glazed in.
5. Other requirements: Insect mesh to rear side.

General requirements/ preparatory work

210 Design

1. Curtain walling and associated features: Complete the detailed design. Submit before commencement of fabrication.

2. Related works: Coordinate in the detailed design.

215 Design proposals

1. Submission of alternative proposals: Preliminary design drawings indicate intent. Other reasonable proposals will be considered.

220 Specification

1. Compliance standards: BS EN 13830 and The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
2. Reference information: For the duration of the contract, keep available at the design office, workshop and on site copies of:
   2.1. The CWCT 'Standard for systemised building envelopes'.
   2.2. Publications invoked by the CWCT 'Standard for systemised building envelopes'.

230 Information to be provided during detailed design stage

1. Submit the following curtain walling particulars
   1.1. A schedule of detailed drawings and dates for submission for comment.
   1.2. A schedule of loads that will be transmitted from the curtain walling to the structure.
   1.3. Proposed fixing anchor details relevant to structural design and construction.
   1.4. A detailed testing programme in compliance with the main contract master programme.
   1.5. A detailed fabrication and installation programme in compliance with the main contract master programme.
   1.6. Proposals to support outstanding applications for Building Regulation consents or relaxations.

232 Quality plan

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

235 Information to be provided before commencement testing or fabrication of curtain walling

1. Submit the following curtain walling particulars

1.1. Detailed drawings to fully describe fabrication and installation.

1.2. Detailed calculations to prove compliance with design/ performance requirements.

1.3. Project specific fabrication, handling and installation method statements.

2. Certification for incorporated components manufactured by others confirming their suitability for proposed locations in the curtain walling.

2.1. Recommendations for spare parts for future repairs or replacements.

3. Recommendations for safe dismantling and recycling or disposal of products.

250 Product samples

1. General: Before commencing detailed design, submit labelled samples of: H11/110 .

260 Samples of fixings

1. General: During detailed design, submit labelled samples of each type of fixing anchor, including casting-in restraints and shims, together with manufacturers' recommended torque figures; sample of louvre.

Design/ performance requirements

320 Deflection under dead loads

1. Requirement: Framing members parallel to the curtain walling plane must not:

1.1. Reduce glass bite to less than 75% of design dimension.

1.2. Reduce edge clearance to less than 3 mm between members and immediately adjacent glazing units, panel/ facing units or other fixed units.

1.3. Reduce clearance to less than 2 mm between members and movable components such as doors and windows.

330 General movement

1. Requirement: Curtain walling must accommodate anticipated building movements as follows: refer to Structural Engineer's specification for deflection allowances .

332 Appearance and fit

1. Requirement: Design curtain walling system:

1.1. To ensure position and alignment of all parts and features as shown on preliminary design drawings.

1.2. To accommodate deviations in the primary support structure.

2. Primary support structure: Before commencing installation of curtain walling system, carry out survey sufficient to verify that required accuracy of erection can be achieved.

2.1. Give notice: If the structure will not allow the required accuracy or security of erection.

370 Thermal properties

1. Method of calculating the thermal transmittance (U-value) of curtain walling/ each zone of curtain walling: Weighted U-value.
2. Average U-value of curtain walling: 1.5 W/m^2K (maximum).
3. Curtain wall zone interfaces: Co-ordinate to achieve required average U-value.

385 Thermal stress in glazing

1. Glass panes/ units: Must have adequate resistance to thermal stress generated by orientation, shading, solar control and construction.

410 Sound transmittance

1. Note: Refer to Acoustic Consultant's report for further information on acoustic requirements.
2. Minimum weighted sound reduction index (Rw) to BS EN ISO 717-1
   2.1. Between internal and external surfaces of curtain walling: 5 dB Rw + Ctr.
3. Minimum weighted standardized level difference (DnTw) to BS EN ISO 717-1
   3.1. Between adjacent floors abutting curtain walling: ≥52.0 dB DnT,w.
   3.2. Between adjacent rooms on same floor abutting curtain walling: 37 dB DnT,w.

426 Reaction to fire of curtain walling

1. Standard: To BS EN 13501-1.
   1.1. Class: A2-s1, d0 or better.

430 Fire stopping

1. Locations: At junctions of curtain walling with compartment or separating walls and floors.
2. Materials and methods of fixing: To ensure fire resistance not less than that specified for compartment or separating walls and floors when tested from both sides.

450 Safety

1. Finished surfaces of curtain walling: Accessible internal and external areas must not:
   1.1. Have irregularities capable of inflicting personal injury.
   1.2. Release irritant or staining substances.

Breeam performance requirements - Not Used

Testing - Not Used

Products

715 Carbon steel framing sections/ Reinforcement

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

717 Carbon steel sheet

1. Standards: To relevant parts of BS 1449-1, BS EN 10048, BS EN 10051, BS EN 10111, BS EN 10131, BS EN 10132, BS EN 10139, BS EN 10140, BS EN 10149, BS EN 10209 and BS EN 10268.
2. Grade and thickness: Suitable for the application, and for galvanizing or other protective coating.

730 Mechanical fixings

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

732 Adhesives

1. General: Not degradable by moisture or water vapour, or exposure to UV light.

735 Fixing anchors

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

737 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 1096 for coated glass.
   1.3. BS EN 1748 for borosilicate glass.
   1.4. BS EN 1863 for heat-strengthened soda lime silicate glass.
   1.5. BS EN 12150 for thermally toughened soda lime silicate glass.
   1.6. BS EN 13024 for thermally toughened borosilicate glass.
   1.7. BS EN ISO 12543 for laminated glass.
2. Selection of glass type and thickness in accordance with recommendations of CIRIA publication ‘Guidance on glazing at height’.
3. Glass quality: Clean and free from obvious scratches, bubbles, cracks, ripplings, dimples and other defects.
4. Glass 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.

747 Glass edge condition for structural sealant/ bonded glazing

1. Bonded, unframed outer edges: Flat ground with a small arris suitable for open jointing or for weatherseal jointing.

750 Infill panels/ Facings

1. Tolerances
   1.1. Deviation in size (maximum): ± 1 mm.
   1.2. Deviation in flatness from plane per 2 m length (maximum): ± 1 mm.
2. Rigidity: Adequate to comply with design/ performance requirements.
3. Fire performance: BS EN 13501-1, Class A2-s1, d0 or better.

760 Gaskets

1. Material
   1.1. Noncellular rubber to BS 4255-1.
   1.2. Cellular rubber to ASTM-C509-06.
2. Continuity: Outer gaskets of single front sealed curtain walling systems and inner gaskets of drained and ventilated or pressure equalized curtain walling systems must be formed in a complete frame with sealed joints. Vulcanized rubber gaskets must have factory moulded corner joints.
3. Durability: Resistant to oxidation, ozone and UV degradation.

765 Weatherstripping of opening units

1. Material
   1.1. Noncellular rubber to BS 4255-1.

1.2. Cellular rubber to ASTM-C509-06.

1.3. Polypropylene woven pile, silicone treated.

2. Attachment: Fixed in undercut grooves in framing sections using preformed corners, with any joints in the length.

770 General sealants

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

772 Curtain walling joint assembly sealants

1. Material: One part, low modulus silicone to BS EN ISO 11600, type F or G. Neutral curing where in contact with or close proximity to other products that may be adversely affected by acetoxy curing.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals in accordance with curtain walling manufacturer's recommendations.

775 Bonding sealants for structural sealant/ bonded glazing

1. Material: Silicone, neutral curing, designed and manufactured for bonding of structural sealant/ bonded glazing. Compatible with contact and close proximity products and finishes.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals in accordance with curtain walling manufacturer's recommendations.

777 Weathersealing for structural sealant/ bonded glazing

1. Material: Silicone, one or two parts, neutral curing. Designed and manufactured for weathersealing of structural sealant/ bonded glazing. Compatible with contact and close proximity products and finishes.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals in accordance with curtain walling manufacturer's recommendations.
3. Colour: To match frames.

780 Thermal insulation

1. Material: Mineral wool boards to BS EN 13162.
   1.1. Properties: Durable, rot and vermin proof and not degradable by moisture or water vapour.
2. Fixing: Attached to or supported within the curtain walling so as not to bulge, sag, delaminate or detach during installation or in situ during the life of the curtain walling.

785 Air and vapour control layer

1. Acceptable materials
   1.1. Aluminium alloy.
   1.2. Carbon steel, galvanized or protective-coated.

1.3. Stainless steel.

1.4. Reinforced membranes: Foil, plastics or rubbers, protected both sides by rigid facings/ linings.

2. Location: Warm side of thermal insulation.

3. Integrity: Continuous, free from gaps and sealed at joints.

Finishes

810 Protective coating of carbon steel framing sections/ Reinforcement

1. Treatment: One of the following to all surfaces:

1.1. Hot dip galvanized to BS EN ISO 1461.

1.2. An appropriate equivalent coating to BS EN ISO 12944-5 or BS EN ISO 14713-1, -2 and -3.

820 Protective coating of carbon steel mechanical fixings

1. Treatment: One of the following to all surfaces:

1.1. Hot dip galvanized to BS EN ISO 1461.

1.2. Sherardized to BS 7371-8, Class 30 coating thickness and passivated.

1.3. Zinc plated to BS EN ISO 2081, coating designation Fe//Zn//C for an iridescent (yellow passivate) chromate conversion coating or Fe//Zn//D for an opaque (olive green) chromate conversion coating.

830 Powder-coating

1. Requirement: As section Z31.

Fabrication and installation

910 Generally

1. Electrolytic corrosion: Prevent. Submit proposed methods.

2. Fixings: Concealed unless indicated on detailed drawings. Where exposed they must match material and finish of the products fixed.

3. Fabrication: Machine cut and drill products in the workshop wherever possible.

4. Identification of products: Mark or tag to facilitate identification during assembly, handling, storage and installation. Do not mark surfaces visible in the completed installation.

912 Metalwork

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

915 Glazing

1. Requirement: As section L40, unless specified otherwise in this section.

2. Directional patterned/ wired glass: Generally fix parallel to surround and align adjacent panes where seen together at close quarters.

917 Fixings/ Adhesives application

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

920 Sealant application

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

925 Structural sealant/ bonded glazing

1. Curing: Do not transport units until structural bonding sealant has adequately cured for the period stated in the project specific approval.

930 Assembly

1. General: Carry out as much assembly as possible in the workshop.
2. Joints (other than movement joints): Rigidly secured, reinforced where necessary and fixed with hairline abutments.
3. Displacement of components in assembled units: Submit proposals for reassembly on site.

955 Fixing anchor installation

1. Site drilling or cutting into structure: Submit proposals for positions other than shown on detailed drawings.
2. Concrete supporting structure
   2.1. Cast-in inserts: Provide detailed locational information. Protect cavities in inserts from entry of concrete.
   2.2. Edge fixing distances: Not less than recommended by fixing anchor manufacturers.
3. Corrective fabrication: Minimize. Where necessary, submit proposals.

970 Curtain walling installation

1. Securing to fixing anchors: Through holes formed during fabrication only.
2. Tightening mechanical fasteners: To manufacturer's recommended torque figures. Do not overtighten fasteners intended to permit differential movement.
3. Protective coverings: Remove only where necessary to facilitate installation and from surfaces that will be inaccessible on completion.

975 Welding

1. In situ welding: Not permitted.

978 Installing fire and smoke stops

1. Fire and smoke stops: To be located at all junctions between the curtain wall and compartment or separating walls and floors. To be installed strictly in accordance with manufacturers' guidelines and as recommended in CWCT Technical Note TN 98.
2. Installer qualification: To be a member of a UKAS-accredited installer scheme.

980 Interfaces

1. Flashings, closers, etc: Locate and form correctly to provide weathertight junctions with the curtain walling.

982 Ironmongery

1. Assembly and fixing: Accurately, using fasteners with matching finish supplied by ironmongery manufacturer.
2. Completion: Check, adjust and lubricate as necessary to ensure correct functioning.

Ω End of Section

H20
Rigid sheet cladding

Type(s) of sheet cladding

150 Sheet cladding (attached to metal support systems)

1. Description: To close reveals of SWEC ground floor transformer room doors. Refer to drawing 4331.
2. Manufacturer: Submit proposals
3. Backing wall: Brickwork cavity wall.
4. Board/ Sheet
   - 4.1. Material: Pressed aluminium panels.
   - 4.2. Thickness: Submit proposals.
   - 4.3. Finish/ Colour: Polyester powder-coated. Syntha Pulvin, RAL Metallic, colour TBC.
   - 4.4. Fasteners: Concealed fixings.
   - 4.5. Joints
     - 4.5.1. Type/ Treatment: Open.
     - 4.5.2. Width: Close-butted.
5. Support system: Submit proposals.
   - 5.1. Material: Galvanized steel.
6. Cavity barriers: As clause P10/432.

General requirements

220 Fire performance of cladding

1. Reaction to fire
   - 1.1. External surfaces: A2-s1, d0 or A1.
   - 1.2. Support system: A2-s1, d0 or A1.
2. Fire resistance
   - 2.1. Cavity fire barriers: 120 minutes integrity and insulation.
     - 2.1.1. Standard: To BS 476-20.
     - 2.1.2. Requirement: To resist the passage of flame and smoke for not less than 120 minutes' integrity, 120 minutes' insulation.

260 Fixing sheets

1. General: Secure to supports without producing distortion.
2. Fasteners: Evenly spaced in straight lines, in pairs across joints and sufficient distance from edge of sheet to prevent damage.

Ω End of Section

H71
Lead sheet fully supported roof and wall coverings/ flashings

Types of leadwork

470 Flashings

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

General requirements/ preparatory work

510 Workmanship generally

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

515 Lead-welding

1. In situ lead-welding: Not permitted.

520 Lead sheet

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

555 Layout

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

560 Control samples

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

610 Suitability of substrates

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

630 Plywood overlay

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

640 Timber for use with leadwork

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

Fixing lead

705 Head fixing lead sheet

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

710 Fixings

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

2.2. Length: Not less than 19 mm.

2.3. Washers and plastic plugs: Compatible with screws and lead.

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

715 Clips

1. Manufacturer: Submit proposals
2. Material
   2.1. Lead clips: Cut from sheets of same thickness/ code as sheet being secured.
   2.2. Copper clips
      2.2.1. Thickness: Submit proposals.
      2.2.2. Temper: BS EN 1172, designation R220 in welts, seams and rolls, R240 elsewhere; dipped in solder if exposed to view.
   2.3. Stainless steel clips
      2.3.1. Thickness: Submit proposals.
      2.3.2. Grade: BS EN 10088-1, 1.4301(304) terne-coated if exposed to view.
3. Dimensions
   3.1. Width: 50 mm where not continuous.
   3.2. Length: To suit detail.
4. Fixing clips: Secure each to substrate with either two screw or three nail fixings not more than 50 mm from edge of lead sheet. Use additional fixings where lead downstands exceed 75 mm.
5. Fixing lead sheet: Welt clips around edges and turn over 25 mm.

770 Wedge fixing into joints/ Chases

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

780 Wedge fixing into damp-proof course joints

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

790 Screw fixing into joints/ Chases

1. Joint/ chase: Rake out to a depth of not less than 25 mm.
2. Lead: Dress into joint/ chase and up back face.
   2.1. Fixing: Into back face with stainless steel screws and washers and plastics plugs at not more than 450 mm centres, at every change of direction, and with at least two fixings for each piece of lead.
3. Sealant: Submit proposals.

3.1. Application: As section Z22.

Jointing lead

810 Forming details

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

862 Drips with splash laps

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

880 Welted joints

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

Ω End of Section

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

Types of aluminium work

250 Aluminium PPC flashing

1. Aluminium: Coated sheet/ strip, as clause 525.
   1.1. Alloy designation: Manufacturer's standard.
   1.2. Temper: Manufacturer's standard.
   1.3. Finish: Polyester powder-coated.
   1.4. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
   1.5. Thickness: 1.0 mm.

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.

520 Aluminium strip/ sheet

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

525 Coated aluminium strip/ sheet

1. Standard: To BS EN 14783 and BS EN 1396.

2. Manufacturer: Submit proposals
   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.

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: Submit proposals.
3. Location: Submit proposals.

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.

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.

750 Clips for flashings/ cross joints

1. Material: Cut from same alloy and thickness as that being secured.
2. Stainless steel (austenitic) clips: Cut from same thickness of metal as the aluminium being secured.
3. Dimensions

3.1. Width: Not less than 50 mm.

3.2. Length: Sufficient to suit detail.

4. Fixing: Secure each clip to substrate with two fixings, not more than 50 mm from edge of strip/ sheet being fixed.

760 Continuous clips

1. Material: Cut from same alloy and thickness as that being secured.
2. Stainless steel (austenitic) clips: Cut from same thickness of metal as the aluminium being secured.
3. Dimensions

3.1. Width: Sufficient to suit detail.

3.2. Length: Not more than 1.8 m.

4. Fixing: To substrate at 150 mm centres. Welt edge of strip/ sheet being fixed to continuous clip and dress down.

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.

860 Drip/ Step joints

1. Strip/ Sheet from below step: Fold up full height of upstand and fix to top edge.
2. Form aluminium underlap/ continuous clip

2.1. Cover to roof slope: Not less than 100 mm with anticapillary welt at top edge.

2.2. Projection: 25 mm for forming into drip welt.

2.3. Downstand: Not less than 40 mm with welt at bottom edge.

2.4. Fixing: To roof slope at 100 mm centres, avoiding through fixings at longitudinal joint positions.

3. Strip/ Sheet from above step: Fold around underlap projection and single welt to form a drip.

Ω End of Section

J10
Cementitious mortar tanking/ damp-proofing

Types of tanking/ damp-proofing

130 Crystallization active slurry mortar

1. Description: Tanking to below-ground trenches.
2. Substrate: Concrete; concrete blockwork, existing brick masonry.
3. Manufacturer: Delta Membrane Systems Ltd
   - 3.1. Contact details
     - 3.1.1. Address: Delta House
       Merlin Way
       North Weald
       Epping
       Essex
       United Kingdom
       CM16 6HR
     - 3.1.2. Telephone: +44 (0)1992 523523
     - 3.1.3. Web: https://www.deltamembranes.com
     - 3.1.4. Email: info@deltamembranes.com
   - 3.2. Product reference: Koster NB 1 - Crystallization Active Slurry Mortar.
4. Coats
   - 4.1. Number: Minimum two coats.
   - 4.2. Consumption: 1.5 kg/m2.
   - 4.3. Density: 1.85 kg/L.
5. Colour: Grey.
6. Additive: Koster NB 1 Flex.
7. Primer: Köster Polysil® TG 500.
8. Other requirements: Contractor to submit details of movement joints, services penetrations, interface with cavity drain membrane.

Materials and making of mortar

320 Admixtures for site-batched and mixed mortar

1. Admixtures other than proprietary waterproofing admixture: Do not use.

350 Mixing

1. Site-batched constituents
   - 1.1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
   - 1.2. Mix proportions: Adjust to suit moisture content of sand.
2. Factory-made pre-blended constituents: Mix using methods recommended by the coating manufacturer.
3. Mixes: Of uniform consistency and free from lumps.
   - 3.1. Free-fall drum mixers: Do not use.

360 Cold weather

1. General: Do not use frozen materials or apply coatings to frozen or frost-bound substrates.

2. Air temperature requirements: Do not apply coatings when at or below 5°C and falling, or below 3°C and rising.
3. Temperature of work: Maintain above 5°C until coatings have hardened sufficiently.

Preparing substrates

410 Suitability of substrates

1. Preparation generally: To tanking mortar/ admixture manufacturer's recommendations.
2. Stability and soundness: Free from movement, and loose or weak areas that will cause failure of tanking.
3. Key: To achieve firm adhesion of tanking.
4. Contamination: Free from previous coatings and contaminants including dirt, dust, efflorescence, mould, oil, paint and plaster.
5. Cracks, porous patches and other defective areas subject to water pressure and liable to admit water: Control and seal using waterproof mortar recommended by the tanking mortar manufacturer.
6. Holes/ recesses for fixings (where permitted): Prepared to receive fasteners.
7. Openings and chases: Prepared, including sleeves for pipe penetrations and chases to receive waterproofing compounds/ sealants.

420 Preparation of mortar joints and cavities

1. Mortar joints: Rake out to a depth of 12 mm (minimum).
   1.1. Debris: Remove and flush out with water.
   1.2. Fill: Repoint with waterproof mortar to the tanking mortar manufacturer's recommendations.
2. Blow holes, cavities, cracks, etc: Remove loose material and fill flush using waterproof mortar recommended by the tanking mortar manufacturer.

430 Tanking integrity

1. Penetrations for fixings, services, etc: Permitted for bolt fixings using coating manufacturer's recommended methods.

Execution

510 Application generally

1. Application methods and coating sequence: As recommended by the tanking mortar/ admixture manufacturer to achieve a water-resistant structure.

520 Joints/ junctions and penetrations

1. Abutments, joints and active cracks: Sealed and watertight.
   1.1. Movement joints: Centred over joints in substrate and extended through waterproof coating and finishes.
   1.2. Daywork joints in successive coatings: Staggered and lapped.
   1.3. Angled joints: Not permitted.
2. Penetrations: Watertight.

530 Appearance of tanking

1. Render/ screed coatings: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
   1.1. Accuracy: A true plane, to correct line and level. Walls and reveals plumb and square with neat arrises

2. Thin slurry coatings: Consistent and free from hollows, cracks and crazing. Suitable to receive specified finish.

540 Flatness/ surface regularity of tanking screeds

1. Measurement method: From the underside of a 3 m straight edge (between points of contact) placed anywhere on surface and using a slip gauge to BS 8204-1 or -2 (or equivalent).
2. Deviation of surface: Sudden irregularities not permitted.

550 Curing and drying

1. General: Prevent premature setting, uneven drying and cracking of each coat.
2. Curing coatings: Prevent evaporation from surface.
   2.1. Curing period (minimum): As the tanking mortar manufacturer's recommendations.

560 Protection

1. Mechanical damage: Prevent impact and abrasion.
2. Application of protective coatings/ linings: After completion of curing.

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 BauderGLAS Inverted Insulation

1. Manufacturer: Bauder Ltd
2. Description: Hot liquid applied, inverted, hot melt structural waterproofing roof system suitable for new build applications and used primarily on concrete decks.
3. Roof Area(s): SWEC main roof and lift overrun roof.
4. Product reference: Bauder Bakor Hot Melt Inverted Roof System - Hot Applied
5. 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.
   - 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.

5.1. 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.

5.1.1. Skirtings and vertical work: As horizontal work.

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

6.1. Application: As clause 722, 760

7. Reinforcement: **Bauder Polyester reinforcing**

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

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

10. Insulation: **BauderGLAS Inverted Insulation** for flat roofs subject to permanent loads of up to 400 kPa.
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.

10.1. 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.

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

12. Surfacing: Intensive Hard landscaping as J31/370.

13. 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

14. Additional Requirements: Refer clauses 210, 230, 310, 410, 411, 412,413, 415A, 910, 920A, 940

15. 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

337A 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. Thickness: 320 mm (140 + 180 mm).
7. Compressive strength (minimum): ≥ 400 kPa.
8. Density: 100 kg/m³.
9. Recycled content: ≥ 60%.
10. Facing: Pre-applied inorganic coating on the topside.
11. Edges: Square.
12. BendingStrength: ≥ 400 kPa.
13. TensileStrength: ≥ 100 kPa.
14. Width: 450 mm.
15. Length: 600 mm.

337B Upstand insulation boards

1. Manufacturer: Bauder Ltd
2. Contact details

2.1. Address: 70 Landseer Road
Ipswich
Suffolk
IP3 0DH

2.2. Telephone: +44 (0)1473 257671

2.3. Web: www.bauder.co.uk

2.4. Email: info@bauder.co.uk

3. Product reference: BauderROCK NC 56mm Upstand Insulation.
4. Standard: To EN 13167.
5. Reaction to fire: To EN 13501-1, Euroclass A2-s1, d0.
6. Third-party product certification: Environmental Product Declaration (EPD), BRE Green Guide generic product rating A+.
7. Thermal conductivity (maximum): 0.034 W/m·K.
8. Thickness: 50 mm insulation + 6 mm facing cement board.
9. Compressive strength (minimum): NPD.
10. Density: 100 kg/m³.
11. Recycled content: Mineral wool 97% excluding fibre cement board.
12. Facing: Fibre cement board.
13. Edges: Square.
14. Width: 600 mm.
15. Length: 1200 mm.

358 Roof penetration boxes

1. Manufacturer: Nicholson STS Ltd

1.1. Contact details

1.1.1. Address: Unit 13 Wireless
Station Park
Bassingbourn
Royston
Hertfordshire
SG8 5JH

1.1.2. Telephone: +44 (0) 1763 295828

1.1.3. Web: www.nicholsonsts.com

1.1.4. Email: info@nicholsonsts.com

1.2. Product reference: ROOFBOX® S2

2. Material: 2.0 mm-thick, grade 5251 grade aluminium.
3. Insulation: 50 mm-thick non-combustible mineral wool.
4. Factory finish

4.1. Coating: Polyester powder-coated.

4.2. Colour: RAL 7047.

4.3. Film thickness (minimum): Manufacturer's standard.

5. Dimensions

5.1. Services requirements: Openings for cable ladders, pipes.

5.2. Cabinet: 277 x 554 x 854 mm.

6. Accessories: Flashings.
7. Standards: To ISO 9001, ISO 14001, BS EN 13501-1, BS 476, Part 7, CE marked.
8. Fire classification: Euroclass A2-s3, d2 or better.

370 Precast concrete paving slabs

1. Manufacturer: Marshalls plc
   1.1. Contact details
      1.1.1. Address: Landscape House
      Lowfields Business Park
      Elland
      West Yorkshire
      HX5 9HT
      1.1.2. Telephone: +44 (0)330 0574472
      1.1.3. Web: https://www.marshalls.co.uk
      1.1.4. Email: specification.support@marshalls.co.uk
   1.2. Product reference: Standard Pimple Paving (50 mm thick)
2. Standard: To BS EN 1339.
3. Physical properties
   3.1. Colour: Natural.
   3.2. Finish: Pimple.
   3.3. Profile
      3.3.1. Flag type: Regular plan form.
      3.3.2. Arrises: Square.
   3.4. Dimensions and associated tolerances
      3.4.1. Nominal sizes: 450 x 450 x 50 mm.
   3.5. Weathering resistance: ≤1.0 kg/m² as a mean with no individual value > 1.5 kg/m² (freeze thaw durability).
   3.6. Abrasion resistance: ≤23 mm, wide wheel abrasion test.
   3.7. Slip resistance: USRV to BS EN 1339 of >45.

377 Support system for paving slabs Lower

1. Manufacturer: Buzon UK Ltd
   1.1. Contact details
      1.1.1. Address: Unit 6
      Teddington Business Park
      Station Road
      Teddington
      Middlesex
      TW11 9BQ
      1.1.2. Telephone: +44 (0)20 8614 0874
      1.1.3. Web: www.buzonuk.com
      1.1.4. Email: info@buzonuk.com
   1.2. Product reference: BC-FR fire rated pedestals (BC-02-FR)
2. Pedestal type: Adjustable.
3. Material: Copolymer of polypropylene and fire-retardant material.
4. Adjustment: 28—40 mm.
5. Accessories: Spacer tabs. Shims. Slope correctors.
6. Execution: Installing decking and paving pedestals.
7. Fire classification (EN 13501-1): Bfl s1.
8. Head: 145 mm.
9. Base: 200 mm.

390 Water flow-reducing layer

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

Execution generally

410 Adverse weather

1. Do not apply coatings: In wet conditions or at temperatures below 5°C, unless otherwise permitted by coating manufacturer. 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

615 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 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.

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

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.

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.

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.*

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.

110 Soft blinding to hardcore beds

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

Types of tanking/ damp proofing

295 Geocomposite studded cavity drainage/ venting membrane

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

297 Waterproofing/ damp-proofing/ gas-retardant membrane

1. Manufacturer: Delta Membrane Systems Ltd
   1.1. Contact details
      1.1.1. Address: Delta House
      Merlin Way
      North Weald
      Epping
      Essex
      United Kingdom
      CM16 6HR
      1.1.2. Telephone: +44 (0)1992 523523
      1.1.3. Web: https://www.deltamembranes.com
      1.1.4. Email: info@deltamembranes.com
   1.2. Product reference: Delta DualProof - Pre Applied Waterproofing Membrane (Machine direction (MD))
2. Material: Polypropylene.

3. Purpose: Protection layer.
4. Performance characteristics
   4.1. Tensile strength (minimum): 1254 N/50 mm.
   4.2. Tear resistance: 641 N/50 mm.
   4.3. Elongation to break: 110%.
   4.4. Fire performance: To DIN EN ISO 11925-2 and EN 13501-1, class E.
5. Third-party certification: CE marked and DIN certified.
6. Form: Woven.
7. Physical properties
   7.1. Weight (minimum): 1470 g/m².
   7.2. Dimensions
      7.2.1. Thickness (minimum): 1.7 mm.
8. Watertightness: To DIN EN 1928 B: Watertight.
9. Resistance: Resistance to impact (to DIN EN 12691): Watertight.

Workmanship

310 Workmanship generally

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

320 Inspection

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

345 Cold-applied bonding compounds

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

350 Angles in bonded damp-proofing/ tanking

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

360 Junctions with projecting dpcs/ cavity trays

1. Adjoining surfaces: Clean and dry.
2. Dpcs/ cavity trays: Lap and fully bond/ seal with sheeting.
   2.1. Laps (minimum): 150 mm.
   2.2. Bonding/ sealing: As per manufacturer's recommendations.

Ω End of Section

K10
Gypsum board dry linings/ partitions/ ceilings

Types of dry lining

125B Metal stud partition system Type D1

1. Description: Double sided metal stud wall with moisture resistant plasterboard.
2. Manufacturer: British Gypsum
   2.1. Contact details
      2.1.1. Address: East Leake
      Loughborough
      Leicestershire
      United Kingdom
      LE12 6JU
      2.1.2. Telephone: +44 (0)844 800 1991
      2.1.3. Web: www.british-gypsum.com
      2.1.4. Email: bg.technical@saint-gobain.com
   2.2. Product reference: GypWall Single Frame - A206016 (A) MR2 (EN).
3. Framing: Base channel: Gypframe 72 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Head channel: Gypframe 72 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Stud: Gypframe 70 S 50 'C' Stud. Abutments and openings: Gypframe 70 S 50 'C' Stud.
4. Linings: Board side 1, Layer 1: Gyproc WallBoard 15mm. Board side 1, Layer 2: Gyproc Moisture Resistant 15mm. Board side 2, Layer 1: Gyproc WallBoard 15mm. Board side 2, Layer 2: Gyproc Moisture Resistant 15mm.
5. Fasteners: Screws side 1, Layer 1: British Gypsum Drywall Screws 25mm. Screws side 1, Layer 2: British Gypsum Drywall Screws 40mm. Screws side 2, Layer 1: British Gypsum Drywall Screws 25mm. Screws side 2, Layer 2: British Gypsum Drywall Screws 40mm.
6. Joint treatment: Fixing strap: Gypframe GFS1 Fixing Strap.
7. Finish: 2mm Thistle BoardFinish skim as M20/280.
8. System accessories: Sealant: Gyproc Sealant.
9. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/internal-partitions-walls/GypWall-Single-Frame/A206016-A-EN#details
10. Fire resistance: BS EN 1364-1, 60 / 60 Integrity / Insulation
11. Sound insulation: BS 2750-3, 46 Rw dB
12. Strength grade: BS 5234-2, Severe duty (SD)
13. Partition height: 4200mm (max.)
14. Partition thickness: 132mm
15. Other requirements: Gypframe Service Support Plates and 18mm plywood pattressing as required.

125C Metal stud partition system Type D2

1. Description: Double sided metal stud wall with ceramic tile finish.
2. Manufacturer: British Gypsum
   2.1. Contact details
      2.1.1. Address: East Leake
      Loughborough
      Leicestershire

United Kingdom
LE12 6JU

2.1.2. Telephone: +44 (0)844 800 1991

2.1.3. Web: www.british-gypsum.com

2.1.4. Email: bg.technical@saint-gobain.com

2.2. Product reference: GypWall Single Frame - H206015 (A) (EN)

3. Framing: Base channel: Gypframe 72 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Head channel: Gypframe 72 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Stud: Gypframe 70 S 50 'C' Stud. Abutments and openings: Gypframe 70 S 50 'C' Stud.
4. Linings: Board side 1, Layer 1: Gyproc WallBoard 12.5mm. Board side 1, Layer 2: Glasroc H TileBacker 12.5mm. Board side 2, Layer 1: Gyproc WallBoard 12.5mm. Board side 2, Layer 2: Glasroc H TileBacker 12.5mm.
5. Fasteners: Screws side 1, Layer 1: British Gypsum Drywall Screws 25mm. Screws side 1, Layer 2: British Gypsum Drywall Screws 35mm. Screws side 2, Layer 1: British Gypsum Drywall Screws 25mm. Screws side 2, Layer 2: British Gypsum Drywall Screws 35mm.
6. Joint treatment: Fixing strap: Gypframe GFS1 Fixing Strap.
7. Finish: Ceramic tiles as M40/110 or 2mm Thistle BoardFinish skim as M20/280. Refer to drawings.
8. System accessories: Sealant: Gyproc Sealant.
9. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/internal-partitions-walls/GypWall-Single-Frame/H206015-A-EN#details
10. Fire resistance: BS EN 1364-1, 30 / 30 Integrity / Insulation
11. Sound insulation: BS EN ISO 140-3, 45 Rw dB
12. Strength grade: BS 5234-2, Severe duty (SD)
13. Partition height: 4200mm (max.)
14. Partition thickness: 122mm
15. Other requirements: Gypframe Service Support Plates and 18mm plywood pattressing as required.

125D Metal stud partition system Type D3

1. Description: Double sided metal stud wall with moisture resistant paint and ceramic tile finishes, to opposite sides.
2. Manufacturer: British Gypsum

2.1. Contact details

2.1.1. Address: East Leake
Loughborough
Leicestershire
United Kingdom
LE12 6JU

2.1.2. Telephone: +44 (0)844 800 1991

2.1.3. Web: www.british-gypsum.com

2.1.4. Email: bg.technical@saint-gobain.com

2.2. Product reference: GypWall Single Frame - H206015 (A) (EN)

3. Framing: Base channel: Gypframe 72 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Head channel: Gypframe 72 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Stud: Gypframe 70 S 50 'C' Stud. Abutments and openings: Gypframe 70 S 50 'C' Stud.
4. Linings: Board side 1, Layer 1: Gyproc WallBoard 12.5mm. Board side 1, Layer 2: Glasroc H TileBacker 12.5mm. Board side 2, Layer 1: Gyproc WallBoard 12.5mm. Board side 2, Layer 2: Glasroc H TileBacker 12.5mm.

5. Fasteners: Screws side 1, Layer 1: British Gypsum Drywall Screws 25mm. Screws side 1, Layer 2: British Gypsum Drywall Screws 35mm. Screws side 2, Layer 1: British Gypsum Drywall Screws 25mm. Screws side 2, Layer 2: British Gypsum Drywall Screws 35mm.
6. Joint treatment: Fixing strap: Gypframe GFS1 Fixing Strap.
7. Finish: Ceramic tiles as M40/110 or 2mm Thistle BoardFinish skim as M20/280. Refer to drawings.
8. System accessories: Sealant: Gyproc Sealant.
9. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/internal-partitions-walls/GypWall-Single-Frame/H206015-A-EN#details
10. Fire resistance: BS EN 1364-1, 30 / 30 Integrity / Insulation
11. Sound insulation: BS EN ISO 140-3, 45 Rw dB
12. Strength grade: BS 5234-2, Severe duty (SD)
13. Partition height: 4200mm (max.)
14. Partition thickness: 122mm
15. Other requirements: Gypframe Service Support Plates and 18mm plywood pattressing as required.

125E Metal stud partition system Type E1

1. Description: Single sided metal stud wall with skim finish.
2. Manufacturer: British Gypsum
   2.1. Contact details
      2.1.1. Address: East Leake
      Loughborough
      Leicestershire
      United Kingdom
      LE12 6JU
      2.1.2. Telephone: +44 (0)844 800 1991
      2.1.3. Web: www.british-gypsum.com
      2.1.4. Email: bg.technical@saint-gobain.com
   2.2. Product reference: GypLyner Independent - B216004 (C) (EN)
3. Support: Base channel: Gypframe 62 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Head channel: Gypframe 62 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Stud: Gypframe 60 I 70 'I' Stud. Abutments and openings: Gypframe 60 S 50 'C' Stud.
4. Insulation: Insulation, Layer 1: 50mm Isover Steel Frame Infill Batt.
5. Linings: Board side 1, Layer 1: Gyproc WallBoard 15mm. Board side 1, Layer 2: Gyproc WallBoard 15mm.
6. Fasteners: Screws side 1, Layer 1: British Gypsum Jack-Point Screws 25mm. Screws side 1, Layer 2: British Gypsum Jack-Point Screws 41mm.
7. Joint treatment: Fixing strap: Gypframe GFS1 Fixing Strap.
8. Finish: 2mm Thistle BoardFinish skim as M20/280.
9. System accessories: Sealant: Gyproc Sealant. Thermal sealant: Gyproc Sealant.
10. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/wall-linings/GypLyner-Independent/B216004-C-EN#details
11. Fire resistance: BS EN 1364-1, 30 / 30 Integrity / Insulation
12. Strength grade: BS 5234-2, Severe duty (SD)
13. Partition height: 3900mm (max.)

14. Other requirements: Gypframe Service Support Plates and 18mm plywood pattressing as required.

125F Metal stud partition system Type E2

1. Description: Single sided metal stud wall with moisture resistant plasterboard and moisture resistant paint finish.
2. Manufacturer: British Gypsum
   2.1. Contact details
      2.1.1. Address: East Leake
      Loughborough
      Leicestershire
      United Kingdom
      LE12 6JU
      2.1.2. Telephone: +44 (0)844 800 1991
      2.1.3. Web: www.british-gypsum.com
      2.1.4. Email: bg.technical@saint-gobain.com
   2.2. Product reference: GypLyner Independent - B216004 (C) MR1 (EN)
3. Support: Base channel: Gypframe 62 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Head channel: Gypframe 62 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Stud: Gypframe 60 I 70 'I' Stud. Abutments and openings: Gypframe 60 S 50 'C' Stud.
4. Insulation: Insulation, Layer 1: 50mm Isover Steel Frame Infill Batt.
5. Linings: Board side 1, Layer 1: Gyproc WallBoard 15mm. Board side 1, Layer 2: Gyproc Moisture Resistant 15mm.
6. Fasteners: Screws side 1, Layer 1: British Gypsum Jack-Point Screws 25mm. Screws side 1, Layer 2: British Gypsum Jack-Point Screws 41mm.
7. Joint treatment: Fixing strap: Gypframe GFS1 Fixing Strap.
8. Finish: 2mm Thistle BoardFinish skim as M20/280.
9. System accessories: Sealant: Gyproc Sealant. Thermal sealant: Gyproc Sealant.
10. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/wall-linings/GypLyner-Independent/B216004-C-EN#details
11. Fire resistance: BS EN 1364-1, 30 / 30 Integrity / Insulation
12. Strength grade: BS 5234-2, Severe duty (SD)
13. Partition height: 3900mm (max.)
14. Other requirements: Gypframe Service Support Plates and 18mm plywood pattressing as required.

125G Metal stud partition system Type E3

1. Description: Single sided metal stud wall with ceramic tile finish.
2. Manufacturer: British Gypsum
   2.1. Contact details
      2.1.1. Address: East Leake
      Loughborough
      Leicestershire
      United Kingdom
      LE12 6JU
      2.1.2. Telephone: +44 (0)844 800 1991
      2.1.3. Web: www.british-gypsum.com
      2.1.4. Email: bg.technical@saint-gobain.com

2.2. Product reference: GypLyner Independent - B216004 (C) (EN)

3. Support: Base channel: Gypframe 62 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Head channel: Gypframe 62 FEC 50 Folded Edge Standard Floor & Ceiling Channel. Stud: Gypframe 60 I 70 'I' Stud. Abutments and openings: Gypframe 60 S 50 'C' Stud.
4. Insulation: Insulation, Layer 1: 50mm Isover Steel Frame Infill Batt.
5. Linings: Board side 1, Layer 1: Gyproc WallBoard 15mm. Board side 1, Layer 2: Glasroc H TileBacker 12.5mm.
6. Fasteners: Screws side 1, Layer 1: British Gypsum Jack-Point Screws 25mm. Screws side 1, Layer 2: British Gypsum Jack-Point Screws 41mm.
7. Joint treatment: Fixing strap: Gypframe GFS1 Fixing Strap.
8. Finish: Ceramic tiles as M40/110 or 2mm Thistle BoardFinish skim as M20/280. Refer to drawings.
9. System accessories: Sealant: Gyproc Sealant. Thermal sealant: Gyproc Sealant.
10. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/wall-linings/GypLyner-Independent/B216004-C-EN#details
11. Fire resistance: BS EN 1364-1, 30 / 30 Integrity / Insulation
12. Strength grade: BS 5234-2, Severe duty (SD)
13. Partition height: 3900mm (max.)
14. Background: Background: Steel Clad External Wall
15. Other requirements: Gypframe Service Support Plates and 18mm plywood pattressing as required.

125H Metal stud partition system Type F1

1. Description: 120 mins fire rated Shaft Wall with painted skim finish.
2. Manufacturer: British Gypsum

   2.1. Contact details

   2.1.1. Address: East Leake
   Loughborough
   Leicestershire
   United Kingdom
   LE12 6JUhttps://nbs.fyi/8EMIcO

   2.1.2. Telephone: +44 (0)844 800 1991

   2.1.3. Web: www.british-gypsum.com

   2.1.4. Email: bg.technical@saint-gobain.com

   2.2. Product reference: GypWall Shaft - A306030 (B) (EN)
3. Framing: Base channel: Gypframe 62 DC 60 Deep Flange Floor & Ceiling Channel. Head channel: Gypframe 62 JC 70 'J' Channel. Stud: Gypframe 60 I 70 'I' Stud. Retaining channel: Gypframe G102 Retaining Channel.
4. Linings: Core: Gyproc CoreBoard 19mm. Board side 1, Layer 1: Gyproc FireLine 15mm. Board side 1, Layer 2: Gyproc FireLine 15mm. Board side 1, Layer 3: Gyproc FireLine 15mm.
5. Fasteners: Screws side 1, Layer 1: British Gypsum Jack-Point Screws 35mm. Screws side 1, Layer 2: British Gypsum Jack-Point Screws 41mm. Screws side 1, Layer 3: British Gypsum Jack-Point Screws 60mm.
6. Joint treatment: Fixing strap: Gypframe GFS1 Fixing Strap. Horizontal joint: Gypframe GA3 Steel Angle & Gyproc CoreBoard 19mm.
7. Finish: 2mm Thistle BoardFinish skim as M20/280.
8. System accessories: Sealant: Gyproc Sealant.

9. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/shaftwall/GypWall-Shaft/A306030-B-EN#details
10. Fire resistance: BS EN 1364-1, 120 / 120 Integrity / Insulation
11. Sound insulation: BS EN ISO 140-3, 43 Rw dB
12. Strength grade: BS 5234-2, Severe duty (SD)
13. Partition height: 4500mm (max.)
14. Partition thickness: 107mm

125I Metal stud partition system Type F2

1. Description: 120 mins fire rated, moisture resistant Shaft Wall with painted skim finish.
2. Manufacturer: British Gypsum
   2.1. Contact details
      2.1.1. Address: East Leake
      Loughborough
      Leicestershire
      United Kingdom
      LE12 6JU
      2.1.2. Telephone: +44 (0)844 800 1991
      2.1.3. Web: www.british-gypsum.com
      2.1.4. Email: bg.technical@saint-gobain.com
   2.2. Product reference: GypWall Shaft - A306030 (B) MR1 (EN)
3. Framing: Base channel: Gypframe 62 DC 60 Deep Flange Floor & Ceiling Channel. Head channel: Gypframe 62 JC 70 'J' Channel. Stud: Gypframe 60 I 70 'I' Stud. Retaining channel: Gypframe G102 Retaining Channel.
4. Linings: Core: Gyproc CoreBoard 19mm. Board side 1, Layer 1: Gyproc FireLine 15mm. Board side 1, Layer 2: Gyproc FireLine 15mm. Board side 1, Layer 3: Gyproc FireLine MR 15mm.
5. Fasteners: Screws side 1, Layer 1: British Gypsum Jack-Point Screws 35mm. Screws side 1, Layer 2: British Gypsum Jack-Point Screws 41mm. Screws side 1, Layer 3: British Gypsum Jack-Point Screws 60mm.
6. Joint treatment: Fixing strap: Gypframe GFS1 Fixing Strap. Horizontal joint: Gypframe GA3 Steel Angle & Gyproc CoreBoard 19mm.
7. Finish: Thistle Bond-it bonding agent; 2mm Thistle BoardFinish skim as M20/280.
8. System accessories: Sealant: Gyproc Sealant.
9. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/shaftwall/GypWall-Shaft/A306030-B-EN#details
10. Fire resistance: BS EN 1364-1, 120 / 120 Integrity / Insulation
11. Sound insulation: BS EN ISO 140-3, 43 Rw dB
12. Strength grade: BS 5234-2, Severe duty (SD)
13. Partition height: 4500mm (max.)
14. Partition thickness: 107mm

165A Wall lining system (metal framing) Type C3

1. Description: Lining to blockwork, Gypframe metalwork supporting plasterboard with painted skim finish.
2. Manufacturer: British Gypsum
   2.1. Contact details

2.1.1. Address: East Leake
Loughborough
Leicestershire
United Kingdom
LE12 6JU

2.1.2. Telephone: +44 (0)844 800 1991

2.1.3. Web: www.british-gypsum.com

2.1.4. Email: bg.technical@saint-gobain.com

2.2. Product reference: GypLyner Single - B226007 (EN)

3. Support: Bracket type: Gypframe GL9 Bracket. Fixing method: Gypframe GL11 GypLyner Anchor. Channel connector: Gypframe GL3 Channel Connector. Base channel: Gypframe GL8 Track. Head channel: Gypframe GL8 Track. Stud: Gypframe GL1 Lining Channel.
4. Insulation: Not required.
5. Linings: Board side 1, Layer 1: Gyproc WallBoard 15mm.
6. Fasteners: Screws side 1, Layer 1: British Gypsum Drywall Screws 25mm. Bracket fixing: British Gypsum Wafer Head Drywall Screws 13mm.
7. Joint treatment: Fixing strap: Gypframe GFS1 Fixing Strap. Fixing T: Gypframe GFT1 Fixing 'T'.
8. Finish: 2mm Thistle BoardFinish skim as M20/280.
9. System accessories: Sealant: Gyproc Sealant. Thermal sealant: Gyproc Sealant.
10. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/wall-linings/GypLyner-Single/B226007-EN#details
11. Strength grade: Not Stated

165B Wall lining system (metal framing) Type C4

1. Description: Lining to blockwork, Gypframe metalwork supporting plasterboard with lime plaster finish.
2. Manufacturer: British Gypsum

2.1. Contact details

2.1.1. Address: East Leake
Loughborough
Leicestershire
United Kingdom
LE12 6JU

2.1.2. Telephone: +44 (0)844 800 1991

2.1.3. Web: www.british-gypsum.com

2.1.4. Email: bg.technical@saint-gobain.com

2.2. Product reference: GypLyner Single - B226007 (EN)

3. Support: Bracket type: Gypframe GL9 Bracket. Fixing method: Gypframe GL11 GypLyner Anchor. Channel connector: Gypframe GL3 Channel Connector. Base channel: Gypframe GL8 Track. Head channel: Gypframe GL8 Track. Stud: Gypframe GL1 Lining Channel.
4. Insulation: Not required.
5. Linings: Board side 1, Layer 1: Gyproc WallBoard 15mm.
6. Fasteners: Screws side 1, Layer 1: British Gypsum Drywall Screws 25mm. Bracket fixing: British Gypsum Wafer Head Drywall Screws 13mm.
7. Joint treatment: Fixing strap: Gypframe GFS1 Fixing Strap. Fixing T: Gypframe GFT1 Fixing 'T'.
8. Finish: Proprietary lime plaster as M20/220.
9. System accessories: Sealant: Gyproc Sealant. Thermal sealant: Gyproc Sealant.

10. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/wall-linings/GypLyner-Single/B226007-EN#details
11. Strength grade: Not Stated

185B Wall lining system (adhesive) Type C1

1. Description: Lining to blockwork, plasterboard on adhesive dabs with painted skim finish.
2. Manufacturer: British Gypsum
   - 2.1. Contact details
     - 2.1.1. Address: East Leake
       Loughborough
       Leicestershire
       United Kingdom
       LE12 6JU
     - 2.1.2. Telephone: +44 (0)844 800 1991
     - 2.1.3. Web: https://www.british-gypsum.com
     - 2.1.4. Email: bg.technical@saint-gobain.com
   - 2.2. Product reference: DriLyner Dab - BASIC (C) (EN)
3. Support: Fixing method: Gyproc DriWall Adhesive.
4. Linings: Board side 1, Layer 1: Gyproc WallBoard 15mm.
5. Finish: 2mm Thistle BoardFinish skim as M20/280.
6. System accessories: Parge coat: Gyproc SoundCoat Plus. Thermal sealant: Gyproc DriWall Adhesive.
7. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/wall-linings/DriLyner-Dab/BASIC-C-EN#details
8. Strength grade: Not Stated
9. Background: Background: Masonry

185C Wall lining system (adhesive) Type C5

1. Description: Lining to blockwork, plasterboard on adhesive dabs with lime plaster finish.
2. Manufacturer: British Gypsum
   - 2.1. Contact details
     - 2.1.1. Address: East Leake
       Loughborough
       Leicestershire
       United Kingdom
       LE12 6JU
     - 2.1.2. Telephone: +44 (0)844 800 1991
     - 2.1.3. Web: www.british-gypsum.com
     - 2.1.4. Email: bg.technical@saint-gobain.com
   - 2.2. Product reference: DriLyner Dab - BASIC (C) (EN)
3. Support: Fixing method: Gyproc DriWall Adhesive.
4. Linings: Board side 1, Layer 1: Gyproc WallBoard 15mm.
5. Finish: Proprietary lime plaster as M20/220.
6. System accessories: Parge coat: Gyproc SoundCoat Plus. Thermal sealant: Gyproc DriWall Adhesive.

7. Execution: Please review details on the British Gypsum website at: https://www.british-gypsum.com/Specification/White-Book-Specification-Selector/wall-linings/DriLyner-Dab/BASIC-C-EN#details
8. Strength grade: Not Stated
9. Background: Background: Masonry

220A Board suspended ceiling systems Type B1

1. Manufacturer: Saint-Gobain Ecophon
   1.1. Contact details
      1.1.1. Address: Old Brick Kiln
      Ramsdell
      Tadley
      Hampshire
      RG26 5PP
      1.1.2. Telephone: +44 (0)1256 855208
      1.1.3. Web: www.ecophon.com/uk
      1.1.4. Email: technical@ecophon.co.uk
   1.2. Product reference: Ecophon Fade™ Duo (M624 - Suspended Grid, Mechanical Fixation to Substrate)
2. Suspension grid: Ecophon Connect C profile plus grid system.
3. Suspension grid fasteners: Fade Special washer (fixed with applicable screw).
4. Insulation: Glass mineral wool.
5. Linings
   5.1. Inner layers: Plasterboard (not supplied by Ecophon).
   5.2. Face layer: Acoustic board for Fade Duo.
   5.3. Fasteners: Fade Special washer (fixed with applicable screw).
6. Joint treatment: EU Fade Special joint tape.
7. Primer: Fade Duo Primer.
8. Plaster: Fade Duo Top as M22/120.
9. Colour: White.
10. Dimensions: 1200 x 1200 mm.
11. Thickness: 25 mm.
12. Reaction to fire classification: To EN 13501-1, A2-s1,d0.
13. Constant humidity resistance: To ISO DS/EN 6270-2, RH 100%, 40°C.
14. Installation: Mechanical fixation to substrate.

220B Proprietary suspended ceiling system (MR) Type B2

1. Standard: To BS EN 13964.
2. Evidence of compliance: Submit Declaration of Performance (DoP).
3. Manufacturer: British Gypsum
   3.1. Contact details
      3.1.1. Address: East Leake
      Loughborough
      Leicestershire
      United Kingdom
      LE12 6JU
      3.1.2. Telephone: +44 (0)844 800 1991

3.1.3. Web: www.british-gypsum.com

3.1.4. Email: bg.technical@saint-gobain.com

3.2. Product reference: GypCeiling MF C100017 MR1 (EN).

4. Suspension system

4.1. Framework: Soffit connection: Gypframe MF12 Soffit Cleat. Suspension type: Gypframe MF8 Strap Hanger. Suspension type (alternative): Gypframe FEA1 Steel Angle. Suspension fixing: Gypframe MF11 Nut and Bolt; British Gypsum Wafer Head Jack-Point Screws 13mm.

4.2. Primary framework: Gypframe MF7 Primary support channel (max. 1200mm centres).

4.3. Secondary framework: Gypframe MF5 Ceiling Section (max. 450mm centres).

4.4. Framework fixing: British Gypsum Wafer Head Jack-Point Screws 13mm or Gypframe MF9 Connecting Clip.

4.5. Perimeter framing: Gypframe MF6 Perimeter Channel, suitably fixed to background at 600mm centres.

5. Insulation: Not required.

6. Linings: Ceiling board, Layer 1: Gyproc WallBoard 12.5mm. Ceiling board, Layer 2: Gyproc Moisture Resistant 12.5mm.

7. Fasteners: British Gypsum Drywall Screws, 25mm/ 35mm.

8. Joint treatment: Gyproc Joint Tape.

9. Finish: Seamless jointing as clause 670.

220C Proprietary suspended ceiling system Type B4

1. Standard: To BS EN 13964.

2. Evidence of compliance: Submit Declaration of Performance (DoP).

3. Manufacturer: British Gypsum

3.1. Contact details

3.1.1. Address: East Leake
Loughborough
Leicestershire
United Kingdom
LE12 6JU

3.1.2. Telephone: +44 (0)844 800 1991

3.1.3. Web: www.british-gypsum.com

3.1.4. Email: bg.technical@saint-gobain.com

3.2. Product reference: GypCeiling MF C100017 (EN).

4. Suspension system

4.1. Framework: Soffit connection: Gypframe MF12 Soffit Cleat. Suspension type: Gypframe MF8 Strap Hanger. Suspension type (alternative): Gypframe FEA1 Steel Angle. Suspension fixing: Gypframe MF11 Nut and Bolt; British Gypsum Wafer Head Jack-Point Screws 13mm.

4.2. Primary framework: Gypframe MF7 Primary support channel (max. 1200mm centres).

4.3. Secondary framework: Gypframe MF5 Ceiling Section (max. 450mm centres).

4.4. Framework fixing: British Gypsum Wafer Head Jack-Point Screws 13mm or Gypframe MF9 Connecting Clip.

4.5. Perimeter framing: Gypframe MF6 Perimeter Channel, suitably fixed to background at 600mm centres.

5. Insulation: Not required.

6. Linings: Ceiling board, Layer 1: Gyproc Gyproc WallBoard 12.5mm. Ceiling board, Layer 2: Gyproc Gyproc WallBoard 12.5mm.

7. Fasteners: British Gypsum Drywall Screws, 25mm/ 35mm.

8. Joint treatment: Gyproc Joint Tape.
9. Finish: Seamless jointing as clause 670.

General/ preparation

305 Compliance with performance requirements

1. Testing/ Assessment: Submit UKAS accredited laboratory reports for the following: Fire resistance: Partitions (including deflection heads and doorsets) and suspended ceilings (including access units).
2. 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. Partition heads running parallel with, but offset from main structural supports.
   1.2. Fixtures, fittings and service outlets. Mark framing positions clearly and accurately on linings.
   1.3. Board edges and lining perimeters, as recommended by board manufacturer to suit type and performance of lining.

375 New wet laid bases

1. Dpcs: Install under full width of partitions/ freestanding wall linings.
   1.1. Material: Bituminous sheet or plastics.

395 Control samples

1. General: Complete areas of finished work and obtain approval of appearance before proceeding.
2. Type of dry lining: Ceiling K10/220; partition K10/125.
   2.1. Location/ Size: Submit proposals.

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).

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. Sequence: Fix boards to ceilings before installing dry lined walls and partitions.
2. Orientation of boards: Fix with bound edges at right angles to supports and with ends staggered in adjacent rows.
3. Two layer boarding: Stagger joints between layers.

455 Metal framing for partitions/ wall linings

1. Setting out: Accurately aligned and plumb.
   1.1. Frame/ Stud positions: Equal centres to suit specified linings, maintaining sequence across openings.
   1.2. Additional studs: To support vertical edges of boards.
2. Fixing centres at perimeters (maximum): 600 mm.
3. Openings: Form accurately.
   3.1. Doorsets: Use sleeved or boxed metal studs and/ or suitable timber framing to achieve strength grade requirements for framing assembly and adequately support weight of door.
   3.2. Services penetrations: Allow for associated fire-stopping.

465 Staggered stud partitions

1. Horizontal frame members (noggins, bearers, etc.) and boards: Fix between alternate studs and not touching adjacent offset studs.

475 Metal furrings for wall linings

1. Setting out: Accurately aligned and plumb.
   1.1. Vertical furring positions: Equal vertical centres to suit specified linings, maintaining sequence across openings. Position adjacent to angles and openings.
   1.2. Additional vertical furrings: To support vertical edges of boards and at junctions with partitions.
   1.3. Horizontal furring positions: To provide continuous support to edges of boards.
2. Adhesive bedding to furrings
   2.1. Dabs: Length 200 mm (minimum). Located at ends of furrings and thereafter at 450 mm (maximum) centres.
   2.2. Junctions with partitions: Continuous bed with no gaps across cavity.

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.

505 Installing mineral wool insulation

1. Fitting insulation: Closely butted joints and no gaps. Use fasteners to prevent slumping or displacement.
2. Services
   2.1. Electrical cables overlaid by insulation: Sized accordingly.
   2.2. Ceilings: Cut insulation around electrical fittings, etc.

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.

555 Fire-stopping at perimeters of dry lining systems

1. Material: Tightly packed mineral wool or intumescent mastic/ sealant.
2. Application: To perimeter abutments to provide a complete barrier to smoke and flame.

560 Joints between boards

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

565 Vertical joints

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

570 Horizontal joints

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

590 Fixing gypsum board to metal framing/ Furrings

1. Partitions/ Wall linings: Fix securely and firmly at the following centres (maximum):
   1.1. Single layer boarding: To all framing at 300 mm centres. Reduce to 200 mm centres at external angles.
   1.2. Multi-layer boarding: Face layer at 300 mm centres, and previous layers around perimeters at 300 mm centres.

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

595 Deflection heads

1. Fixing boards: Do not fix to head channels.

610 Fixing gypsum board to timber

1. Fixing to timber: Securely at the following centres (maximum):
   1.1. Nails: 150 mm.
   1.2. Screws to partitions/ wall linings: 300 mm. Reduce to 200 mm at external angles.
   1.3. Screws to ceilings: 230 mm.
2. Position of nails/ screws from edges of boards (minimum)
   2.1. Bound edges: 10 mm.
   2.2. Cut/ unbound edges: 13 mm.
3. Position of nails/ screws from edges of timber supports (minimum): 6 mm.

620 Fixing gypsum board with adhesive dabs

1. Setting out boards: Accurately aligned and plumb.
2. Fixing to substrates: Securely using adhesive dabs.
3. Adhesive dab spacings for each board
   3.1. Horizontally: One row along top edge and one continuous dab along bottom edge.
   3.2. Vertically: One row along each edge and thereafter at intermediate spacings to suit size of board:
4. Thickness (mm) Width (mm) Dab centres (mm)
5. 9.5 1200 400
6. 9.5/12.5 900 450
7. 12.5 1200 600
8. Adhesive dab dimensions (width x length): At least 50-75 mm x 250 mm.
   8.1. Position of dabs from edges/ ends of boards (minimum): 25 mm.

Finishing

650 Level of dry lining across joints

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

670 Seamless jointing to gypsum boards

1. Cut edges of boards: Lightly sand to remove paper burrs.

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

680 Skim coat plaster finish

1. Plaster type M20/280.
   1.1. Thickness: 2-3 mm.
2. Joints: Fill and tape except where coincident with metal beads.
3. Finish: Tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks.

692 Rigid beads/stops

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

695 Installing beads/ Stops

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

725 Repairs to existing gypsum board

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

Ω End of Section

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

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

485 Sheathing board

1. Description: To Metsec steel infill walling system.
2. Substrate: Metsec infill walling.
3. Sheathing: Cement-bonded particleboard to BS EN 634-2.
   - 3.1. Manufacturer: Knauf UK
     - 3.1.1. Product reference: AQUAPANEL Cement Board Outdoor.
   - 3.2. Thickness: 12.5mm.
   - 3.3. Fire performance
     - 3.3.1. Reaction to fire: A1 non-combustible.
4. Setting out: Long edges vertical and centred on supports.
5. Fixing to supports
   - 5.1. Fasteners: Screws to manufacturer's recommendations.
   - 5.2. Fixing centres (maximum)
     - 5.2.1. Around board edges: To manufacturer's recommendations.
     - 5.2.2. Along intermediate supports: To manufacturer's recommendations.

815 Plywood pattress

1. Description: To provide reinforcement to wall-mounted fittings on drylining.
2. Substrate: Metal stud partition systems as K10.
   - 2.1. Additional supports: Gypframe Service Support Plates.
3. Plywood: Plywood to BS EN 636.
   - 3.1. Manufacturer/ Supplier: Contractor's choice
   - 3.2. Face veneer species: Contractor's choice; biological durability appropriate for plywood subject to the risk of attack outlined in BS EN 335, use class 3.
   - 3.3. Thickness: 18mm.
4. Fixing to supports
   - 4.1. Fasteners: 50 mm x 8 gauge wood screws into pilot holes.
   - 4.2. Fixing centres (maximum): Around board edges: 150 mm.
   - 4.3. Fixing distance from edges (minimum): 10 mm.

845 Cement-bonded particleboard

1. Description: Sub-floor lining to New Wing stair door.
2. Substrate: Concrete lintels and existing masonry.
3. Cement-bonded particleboard: To BS EN 634-2, Class 1.
   - 3.1. Manufacturer/ Supplier: Knauf UK
     - 3.1.1. Product reference: Knauf Brio gypsum-fibre board, 18mm.
4. Fixing to supports
   - 4.1. Fasteners: To manufacturer's recommendations.

885 Fire protection boards

1. Description: Protection system to structural steel beams and columns. Refer to drawings 2161, 2162, 2163, 2164, 2165, 2166, 2265, 2266, 2267, 6343, 6344.
2. Substrate: Structural steel beams and columns.
3. Board: Vermiculux® - S
   - 3.1. Manufacturer/ Supplier: Promat UK
     - 3.1.1. Contact details
       - 3.1.1.1. Address: Passive Fire Protection
         Gordano House, Marsh Lane
         Easton-in-Gordano
         Bristol
         BS20 0NE
       - 3.1.1.2. Telephone: 0800 145 6033
       - 3.1.1.3. Web: https://www.promat.com/en-gb/construction/
       - 3.1.1.4. Email: technical@promat.co.uk
     - 3.1.2. Product reference: Vermiculux® - S
   - 3.2. Standard: BS 476-21.
   - 3.3. Reaction to fire class: Non-combustible with a reaction to fire Classification of A1 according to BS EN:13501-1.
   - 3.4. Third-party product certification: Certifire CF5757.
   - 3.5. Sheet size: 1200 x 2500 mm.
   - 3.6. Thickness: 30 mm.
   - 3.7. Edges: Square.
   - 3.8. Finish as delivered: Smooth sanded surface on one face with a lightly honeycombed texture on the reverse face.
   - 3.9. Colour: Off-white.
   - 3.10. Nominal dry density: 480 kg/m³.
   - 3.11. Form: Steelwork encasements for structural beams and columns.
   - 3.12. ThermalConductivity: 0.09 W/mK.
   - 3.13. Fire performance: 120 minutes REI.
4. Fixing to supports
   - 4.1. Fasteners: As per manufacturer's recommendations.
   - 4.2. Fixing centres (maximum):
   - 4.3. Around board edges: As per manufacturer's recommendations.
   - 4.4. Along intermediate supports: As per manufacturer's recommendations.
   - 4.5. Fixing distance from edges (minimum): As per manufacturer's recommendations.
5. Joint treatment: As per manufacturer's recommendations.
6. Accessories: As per manufacturer's recommendations.

890 Soffit insulation board

1. Description: Soffit insulation to riser.
2. Board: ROCKWOOL® Soffit Slab
   - 2.1. Manufacturer/ Supplier: ROCKWOOL Ltd
     - 2.1.1. Contact details

2.1.1.1. Address: ROCKWOOL Ltd
Wern Tarw
Pencoed
Bridgend
United Kingdom
CF35 6NY

2.1.1.2. Telephone: +44 (0)1656 862621

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

2.1.1.4. Email: customersupportcentre@rockwool.com

2.1.2. Product reference: ROCKWOOL® Soffit Slab (166 mm-thick high-impact soffit slab)

2.2. General requirements: Insulation products generally.

2.3. Thickness: 166 mm.

2.4. Facing: 6 mm-thick, rigid fibre cement board, off-white.

2.5. Edges: Square.

2.6. Density: Manufacturer's standard.

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

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

2.9. Fire performance: Euroclass fire rating A1.

2.10. Size:: 1200 x 600 mm.

Workmanship

910 Installation generally

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

930 Additional supports

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

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.

Ω End of Section

K13
Rigid sheet fine linings and panelling

Types of lining and panelling

105 Wood-based sheets generally

1. Standard: To BS EN 13986.
    1.1. Evidence of compliance: All sheets to be UKCA/ UKNI/ CE marked. Submit Declaration of Performance (DoP).

120 Wood-veneered panel lining

1. Description: To New Wing access door.
2. Panels
    2.1. Core material: Plywood, bonding quality to BS EN 314-2.
        2.1.1. Thickness: 18 mm.
        2.1.2. Flame-retardant impregnation treatment: To BS EN 13501-1, Class B-s3, d2 or better.
    2.2. Face veneer: Free from decay and holes.
        2.2.1. Supplier: Submit proposals
        2.2.2. Wood species: European oak.
        2.2.3. Cutting: Quarter-cut.
        2.2.4. Arrangement: Random-matched.
    2.3. Backing veneer: As recommended by fabricator.
    2.4. Edge treatment: Solid European oak lipping.
    2.5. Fabrication: As section Z10.
        2.5.1. Adhesive: To BS EN 204; Type: To match durability class of core material.
    2.6. Finish (to match approved sample): Two coats matt finish lacquer, to BS EN 13501-1, Class B-s3, d2 or better.
    2.7. Moisture content at time of fixing: As recommended by fabricator to suit environmental conditions.
3. Installation
    3.1. Method of fixing panels: Framing stiles screwed and pelleted to battens.

170 Acoustic panels

1. Description: To meeting room walls. Refer to drawing 6251.
2. Substrate: Batten installation to blockwork masonry walls.
3. Battens: Softwood free from decay and active insect attack and with no knots wider than half the width of the section.
    3.1. Finished size: Refer to drawings.
    3.2. Method of fixing: Adhered to battens fixed to blockwork masonry walls.
4. Panels
    4.1. Manufacturer: Allsfär
        4.1.1. Product reference: Öra Plain 12 acoustic wall covering.
    4.2. Thickness: 12mm.
    4.3. Finish: Plain.
    4.4. Colour: TBC.
    4.5. Reaction to fire: B, s1, d0 to EN 13501-1:2007+a1:2009

5. Installation
   5.1. Method of fixing panels: Adhered to battens according to manufacturer's recommendations.

General requirements

220 Material samples

1. Representative samples of designated materials: Submit before placing orders.
2. Designated materials: K13/170.

230 Control samples

1. Sample area: Complete as part of the finished work.
   1.1. Clause reference: K13/170.
   1.2. Location: Meeting room.
   1.3. Size (minimum): One entire wall.
2. Approval of appearance: Obtain before proceeding.

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.
5. Trims: Wherever possible, to be in unjointed lengths between angles or ends of runs.
   5.1. Running joints: Where unavoidable, submit proposals for location and method of jointing.
   5.2. Angle joints: Mitred, unless specified otherwise.

360 Open joints (joints without cover strips or similar)

1. General: Within a joint (including in-line continuations across transverse joints) greatest width must not exceed the least width by more than: 1mm in 1 metre. 2mm in 2 metres. 3mm in 3 metres.
2. Variations in width: Evenly distributed with no sudden changes. Joints with bevelled edges to be measured to the face arrises.

Ω End of Section

K21
Wood strip/ board fine flooring/ linings

Types of flooring/ lining

110 Wood flooring

1. Description: Timber flooring to offices.
2. Substrate: Cement:sand levelling screeds as M10/115.
   2.1. Preparation: The subfloor must be sound, dry, free from contamination and flat to British Standard SR1 tolerance: maximum 3mm of level variance under a 2m long straight edge, at any point across the subfloor. The subfloor must be sound with no friable areas, free of laitance and dry. The moisture content of solid sub-floors must be checked in accordance with British Standards Annex A. For screed substrates, the moisture reading must be less than 65% Relative Humidity (RH) for glued down installations.
3. Strips/ Boards
   3.1. Standard: To BS EN 14342.
      3.1.1. Evidence of compliance: Submit.
   3.2. Reaction to fire classification: Cfl-s1 (EN 13501-1).
   3.3. Manufacturer/ Supplier: Havwoods Limited.
   3.4. Product reference: Pallido - plank (HW16112).
   3.5. Wood species: European oak (quercus robur).
   3.6. Backing wood species: Pine (pinus spp.)
   3.7. Responsible certification: FSC® Certified (FSC-C009500).
   3.8. Appearance class/ Grade: Select.
   3.9. Slip rating: 62/51 PTV (BS7976-2).
   3.10. Finished face width: 190mm.
   3.11. Finished thickness: 11mm.
   3.12. Top layer thickness: 4mm.
   3.13. Length: 1700-2000mm (May include up to 25% shorter boards).
   3.14. Edges: Tongue and groove; 2-sided bevelled edge.
4. Method of fixing/ joining: Fully bonded to substrate according to manufacturer's recommendations.
5. Finish: Factory finished matt lacquered.
6. Accessories: Matching trims, beads, cover plates etc. as required.

General/ preparation

210 Workmanship generally

1. Moisture content of timber supports: 12-14%.
2. Methods of fixing and fasteners: As section Z20 where not specified.
3. Protection: Protect from dirt, stains and damage using suitable coverings and boards laid as the work proceeds.

220 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 installing strips/ boards: Maintained at levels approximating to those which will prevail after building is occupied.

230 Heating system

1. Operating mode: Continuous.
2. Room temperatures for which the system has been designed: 20 ± 2°C (winter); 24 ± 2°C (summer).
3. Operation up to Completion: Submit proposals.

240 Air conditioning system

1. Conditions for which the system has been designed: 20 ± 2°C (winter); 24 ± 2°C (summer).
2. Operation up to Completion: Submit proposals.

250 Fixtures

1. Fixtures around which strip flooring is to be fixed: Installed before starting work specified in this section.

260 Dryness of concrete/ screed substrates for flooring

1. Relative humidity above substrate when tested with a hygrometer to BS 8201, Appendix A (maximum): 65%.
   1.1. Test points: All corners, around perimeter, and random points over area being tested.
2. Drying aids: Turned off for not less than four days before testing.

270 Strip/ Board moisture content testing

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

290 Control samples

1. Sample area: Complete as part of the finished work.
   1.1. Clause reference: K21/110.
   1.2. Location: L04 & 05 offices.
   1.3. Size (minimum): Submit proposals.
   1.4. Included features: Edge conditions.
2. Approval of appearance: Obtain before proceeding.

Fixing/ finishing

340 Access panels

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

350 Fixing strips/ boards

1. Strips/ Boards: Fixed securely to each support with flat, true surfaces free from undulations, splits, hammer marks, scratches and protruding fastenings.
2. Movement of timber: Allowed for when positioning strips/ boards and fastenings to prevent cupping, springing, opening of joints or other defects.
3. Heading joints (where permitted): End matched, butted and, where applicable, positioned centrally over supports and distributed across the flooring to achieve a random effect.
4. Surface fixing: Not required.

360 Expansion provision

1. Expansion gaps
   1.1. Edges of flooring: Parallel to lie of strips/ boards and 1.5-3.0 mm wide.
   1.2. Ends of flooring: 10 mm wide.
2. Spacer blocks and debris: Removed before fixing skirtings/ cover fillets.
3. Intermediate expansion/ movement joints: Formed as recommended by flooring manufacturer/ supplier.

370 Finish to flooring

1. Exposed fastener heads: Punched or set below surface and filled with stopping to match wood.
2. Strips/ Boards: Sanded to give a clean, smooth and flush surface free from score marks.
3. Finish: To match flooring.

Ω End of Section

K32
Panel cubicles/ duct and wall linings/ screens

To be read with preliminaries/ general conditions.

120 Panel cubicles

1. Description: To WC cubicles and shower cubicles.
2. Manufacturer: Thrislington Cubicles.
   2.1. Product reference: Flow Compact.
3. Panels
   3.1. Description: 12mm compact grade laminate panels, polished to visible edges. Suspended 8mm from the floor. Divider height can be different to the cubicle front and the floor gap variable to suit.
   3.2. Height (overall): 2500mm.
   3.3. Floor clearance: 8mm.
   3.4. Core material: Compact grade laminate core.
      3.4.1. Thickness: 12mm finished panel.
   3.5. Facings: Decorative high-pressure laminate (HPL) to BS EN 438-7.
      3.5.1. Colour/ Pattern/ Species: Abet Laminati, Sei laminate, colour TBC from standard range.
   3.6. Edge treatment: Visible edges polished.
   3.7. Wall support: Extruded full aluminium framework.
4. Pilasters
   4.1. Description: 59mm finished thickness, consisting of two 12mm compact grade laminate panels, polished to all edges, fixed to the front and rear of the aluminium framework. The aluminium lock receiver is integral to the aluminium framework.
   4.2. Facings: Decorative high-pressure laminate (HPL) to BS EN 438-7.
      4.2.1. Colour/ Pattern/ Species: Abet Laminati, Sei laminate, colour TBC from standard range.
   4.3. Edge treatment: Visible edges polished.
5. Doors
   5.1. Description: 18mm finished panel consisting of a compact grade laminate core with a decorative finish. Leading edge of door is rebated to ensure full privacy, all edges are polished. Stainless steel pivot blocks are affixed into factory installed inserts bonded within the door and are suspended from a structural aluminium headrail and located onto a floor fixed pivot bracket. Door falls closed by means of a hydraulic door closer designed specifically for the purpose, concealed within the aluminium headrail.
   5.2. Height: 2500mm.
   5.3. Core material: Compact grade laminate core.
      5.3.1. Thickness: 18mm finished thickness.
   5.4. Facings: Decorative high-pressure laminate (HPL) to BS EN 438-7.
      5.4.1. Colour/ Pattern/ Species: Abet Laminati, Sei laminate, colour TBC from standard range.
   5.5. Edge treatment: Visible edges polished.
   5.6. Ironmongery: 303 grade brushed stainless steel lock. Sacrificial hard nylon shear tip to the lock finger, which locates into aluminium receiver, within the cubicle framework. Emergency release facility and retracting lock finger. Divider fixed to back wall and front fascia using visible black anodised aluminium U-shaped brackets, fastened with matching through-fixings. Stainless steel coat hook.
      5.6.1. Colour: Brushed stainless steel.

6. Fittings
   6.1. Framework: Extruded full aluminium framework (not visible from the front elevation), finished with black anodising as a standard, to complement the edges of the compact grade laminate. Headrail finished with high pressure laminate to the front face, to match the finish of the cubicle front.
   6.2. Headrails: Precision engineered 303 grade brushed stainless steel lock, hand-turned in UK and able to be opened using a closed fist, is fixed through the door to the faceplate for added strength. Sacrificial hard nylon shear tip to the lock finger, which locates into aluminium receiver, within the cubicle framework. Complete with emergency release facility and unique retracting lock finger. Divider fixed to back wall and front fascia using visible black anodised aluminium U-shaped brackets, fastened with matching through-fixings. Stainless steel coat hook. Components tested over a cycle of 300,000 operations, equating to a 15 year period in a medium use washroom.
7. Accessories: Coat hook, 1 no. per cubicle.
8. Other requirements: Contractor to provide adequate pattressing to support fixtures.

140 Duct/ wall linings – panels only

1. Description: To rear of WC cubicles.
2. Manufacturer: Thrislington Cubicles.
   2.1. Product reference: Flow Compact.
3. Panels
   3.1. Type: Precut for WC pan/ cistern access, full height.
      3.1.1. Width (coordinating): Refer to drawings.
   3.2. Core material: Compact laminate.
      3.2.1. Thickness: 18mm.
   3.3. Facings: Decorative high-pressure laminate (HPL) to BS EN 438-7.
      3.3.1. Colour/ Pattern/ Species: Abet Laminati, Sei laminate, colour TBC from standard range.
   3.4. Edge treatment: Visible edges polished.
4. Fasteners: Concealed fixings.
5. Framing/ Support
   5.1. Duct panels: To contractor's design.
   5.2. Wall panels: To contractor's design.
6. Flashgap panels: To contractor's design. Decorative high pressure laminate (HPL); colour to match panels.
7. Skirting: Coved - see section M50.
8. Other requirements: Contractor to provide softwood framing to support panels and adequate pattressing to support fixtures.

180 Duct panel support framing– site-fabricated softwood

1. Description: To form framing for WC frames.
2. Framing: Softwood, free from decay and active insect attack and with no knots wider than half the width of the section.
   2.1. Finished size: Refer to drawings.
   2.2. Moisture content at time of fixing (maximum): 18%.

210 Samples

1. General: Before placing orders submit representative samples of the following: K32/120.
2. Delivered materials/ products: To match samples.

250 Installation

1. Programming: Do not install cubicles or duct/ wall panels before building is weathertight, wet trades have finished their work, wall and floor finishes are complete, and the building is well dried out.
2. Accuracy: Set out to ensure frames and/ or panels and doors are plumb, level and accurately aligned.
3. Modifications: Do not cut, plane or sand prefinished components except where shown on drawings.
4. Fixing: Secure components using methods and fasteners recommended by the cubicle/ panel manufacturer. Prevent pulling away, bowing or other distortions to frames, panels and doors.
5. Moisture and thermal movement: Make adequate allowance for future movement.

Ω End of Section

K40
Demountable suspended ceilings

Types of ceiling system

115A Modular suspended ceiling systems B3

1. Description: Demountable ceilings to give access to MVHR units in changing rooms.
2. Ceiling system manufacturer: Saint-Gobain Ecophon
   2.1. Contact details
      2.1.1. Address: Old Brick Kiln
      Ramsdell
      Tadley
      Hampshire
      RG26 5PP
      2.1.2. Telephone: +44 (0)1256 855208
      2.1.3. Web: www.ecophon.com/uk
      2.1.4. Email: technical@ecophon.co.uk
   2.2. Product reference: Focus Ds acoustic ceiling system
3. Ceiling support: Connect T24 Main runner PL.
4. Support fasteners: Adjustable hangers/ wire.
5. Ceiling units: High-density glass wool tiles.
6. System accessories: Connect™ Bridging Profile and Clip for integrated services. Matching perimeter trims as required.
7. Size (l x w): 1200 x 600 mm.
8. Colour/ Finish: White Frost.
9. Grid colour: White 01.
10. Trim: Connect™ Angle Trim.
11. Lighting: Recessed downlights. Refer to Architect's RCPs and MEP Engineer's information.
12. Weight: 3–4 kg/m².
13. Demounting depth (minimum): 30 mm.
14. Indoor climate: Recommended by the Swedish Asthma and Allergy Association. Certified as A+ by French VOC. Emission classification of building materials: M1.
15. Moisture resistance: Class C, relative humidity 95% and 30°C, according to EN 13964:2014.
16. Fire safety: To BS EN 13501-1, Class A2-s1, d0.
17. Sound absorption: 200 mm-deep system: in accordance with EN ISO 11654, Class A.
18. Cleaning: The ceiling system can withstand daily dusting and vacuum cleaning, and weekly wet-wiping.

115B Suspended ceiling raft system C1

1. Ceiling system manufacturer: SAS International Ltd
   1.1. Contact details
      1.1.1. Address: Unit 28 Suttons Business Park
      London Road
      Earley
      Reading
      Berkshire
      RG6 1AZ
      1.1.2. Telephone: +44 (0)118 929 0900

1.1.3. Web: www.sasintgroup.com

1.1.4. Email: enquiries@sasintgroup.com

1.2. Product reference: System 600

2. Ceiling support: Threaded rod with suspension channel.
3. Ceiling type: Perforated metal raft.
4. Finish as delivered: Polyester powder-coating smooth.
5. Colour: RAL Classic, colour TBC.
6. System accessories: Services trough with integrated lighting, smoke detection, PIR sensors. Refer to Architect's drawings and MEP Engineer's information.
7. Acoustic insulation: Acoustic mineral wool pad with black tissue face, foil back and sides.
8. Module size: Refer to drawings.
9. Shape: Flat.
10. Perforations: S1003.

General/ performance - Not Used

Components

240 Samples

1. General: Submit representative samples of the following: panels for ceiling systems K40/115A and K40/115B .

245 Standards

1. Steel panels: To BS EN 10346.
2. Aluminium sheet, strip and plate: To BS EN 485-1 and -2.
3. Aluminium bars, tubes and sections: To relevant parts of BS EN 515, BS EN 573, BS EN 755 and BS EN 12020.

Execution

302 Control samples

1. General: Complete areas as part of the finished work in the following locations: first bay of ceiling types K40/115A and K40/115B.
2. Approval: Obtain before completing areas of similar work.

305 Setting out

1. General: Completed ceiling should present, over the whole of its surface exposed to the room below, a continuous and even surface, jointed (where applicable) at regular intervals.
2. Infill and access units, integrated services: Fitted correctly and aligned.
3. Edge/ perimeter infill units size (minimum): Half standard width or length.
4. Corner infill units size (minimum): Half standard width and length.
5. Grid: Position to suit infill unit sizes. Allow for permitted deviations from nominal sizes of infill unit.
6. Infill joints and exposed suspension members: Straight, aligned and parallel to walls, unless specified otherwise.
7. Suitability of construction: Give notice where building elements and features to which the ceiling systems relate are not square, straight or level.

310 Bracing

1. General: Secure, with additional bracing and stiffening to give a stable ceiling system resistant to design loads and pressures.

315 Protection

1. Loading: Do not apply loads for which the suspension system is not designed.
2. Ceiling materials: When necessary, remove and replace correctly using special tools and clean gloves, etc. as appropriate.

320 Top fixing

1. Building structure: Verify suitability.
2. Structural soffit: Composite steel and concrete slab.
   2.1. Suitability to receive specified fixings: Evaluate and confirm.
3. Fixing generally: In accordance with BS EN 13964.
4. Fixing to
   4.1. Concrete: Drill and insert suitable expanding anchors.
   4.2. Structural steel: Drill, or use suitable proprietary clips/ adaptors.

325 Installing hangers

1. Wire hangers: Straighten and tension before use.
2. Installation: Install vertical or near vertical, without bends or kinks. Do not allow hangers to press against fittings, services, or insulation covering ducts/ pipes.
3. Obstructions: Where obstructions prevent vertical installation, either brace diagonal hangers against lateral movement, or hang ceiling system on an appropriate rigid sub-grid bridging across obstructions and supported to prevent lateral movement.
4. Extra hangers: Provide as necessary to carry additional loads.
5. Fixing
   5.1. Wire hangers: Tie securely at top with tight bends to loops to prevent vertical movement.
   5.2. Angle/ strap hangers: Do not use rivets for top fixing.
6. Spacings: Refer to manufacturer's recommendations.

335 Perimeter trims

1. Jointing: Neat and accurate, without lipping or twisting.
   1.1. External and internal corners: Mitre joints generally. Overlap joints at internal corners are acceptable.
   1.2. Intermediate butt joints: Minimize. Use longest available lengths of trim. Align adjacent lengths.
2. Fixing: Fix firmly to perimeter wall, edge battens or other building structure.
   2.1. Fasteners: According to manufacturer's recommendations.
   2.2. Fixing centres: According to manufacturer's recommendations.

345 Concealed grids

1. Grid fixings: According to manufacturer's recommendations.
2. Primary support channels: Install level. Do not kink or bend hangers.
   2.1. Wire hangers wrapped around primary channels: Twice wrapped. Loops tightly formed.
   2.2. Angle/ Strap hangers: Do not use rivets for bottom fixing.

3. Splines: Locate between infill units to assist levelling of adjacent units and to resist air movement at joints.
4. Spring-tee grids: Do not omit primary channel.

355 Installing infill units

1. General
   1.1. Perimeter infill units: Trimmed, as necessary, to fully fill space between last grid member and perimeter trim. Prevent subsequent movement.
   1.2. Deeply textured infill units: Minimize variations in apparent texture and colour. In particular, avoid patchiness.
2. Concealed grids: Install infill units uniformly, straight and aligned. Avoid dimension creep.
   2.1. Infill units around recessed luminaires and similar openings: Prevent movement and displacement.

365 Installing metal infill units

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

375 Board ceiling systems

1. Cut boards: Neat and accurate.
2. Fixing to grid
   2.1. Board edges: Fully support. Screw to grid members. Set heads of screws below surface of boards and fill flush with surface.
   2.2. Boards applied in two or more layers: Stagger joints.
3. Movement joints: Provide as appropriate for the area of ceiling system and/ or to coincide with movement joints in surrounding structure.

385 Upstands and bulkheads

1. Vertical ceiling systems: Support and brace to provide alignment and stability.
2. High upstands: Provide support at base of upstand.

390 Openings in ceiling materials

1. General: Neat and accurate. To suit sizes and edge details of fittings. Do not distort ceiling system.

395 Integrated services

1. General: Position services accurately, support adequately. Align and level in relation to the ceiling and suspension system. Do not diminish performance of ceiling system.
2. Small fittings: Support with rigid backing boards or other suitable means. Do not damage or distort the ceiling.
   2.1. Reaction to fire of additional supporting material: Not less than ceiling material.
3. Services outlets
   3.1. Supported by ceiling system: Provide additional hangers.
   3.2. Independently supported: Provide flanges to support ceiling system.

401 Ceiling-mounted LED luminaires

1. Support:

1.1. Independently supported luminaires: Suspension adjusted to line and level of ceiling.

1.2. Ceiling supported luminaires: Modifications and/ or extra support required: To each luminaire.

2. Surface mounted luminaires: Units installed so that in event of a fire the designed grid expansion provision is not affected.
3. Modular fluorescent recessed luminaires: Compatible with ceiling module. Extension boxes must not foul ceiling system.
4. Recessed rows of luminaires: Provide flanges for support of grid and infill units, unless mounted above grid flanges. Retain in position with lateral restraint.
5. Fire-protecting/ resisting ceiling systems: Luminaires must not diminish protection integrity of ceiling system.
6. Access: Provide access for maintenance of luminaires.

411 Mechanical services

1. Fan coil units
   1.1. Inlet/ Outlet grilles: Trim ceiling grid and infill units to suit.
   1.2. Space beneath: Sufficient for ceiling system components.
   1.3. Suspension and connections: Permit accurate setting out and levelling of fan coil units.
2. Air grilles and diffusers
   2.1. Setting out: Accurate and level.
   2.2. Linear air diffusers: Retain in place with lateral restraint. Provide flanges for support of grid and infill units.
   2.3. Grille/ Diffuser ceiling joints: Provide smudge rings and edge seals.
3. Smoke detectors and PA speakers
   3.1. Ceiling infill units: Scribe and trim to suit.
   3.2. Independent suspension: Required.
   3.3. Flexible connections: Required.
4. Sprinkler heads: Carefully set out and level.

415 Installing insulation

1. Fitting: Fit accurately and firmly with butted joints and no gaps.
2. Insulation within individual infill units: Fit closely. Secure to prevent displacement when infill units are installed or subsequently lifted.
   2.1. Dustproof sleeving: Reseal, if cut.
3. Width: Lay insulation in the widest practical widths to suit grid member spacings.
4. Services: Do not cover electrical cables that have not been sized accordingly. Cut insulation carefully around electrical fittings, etc. Do not lay insulation over luminaires.
5. Sloping and vertical areas of ceiling system: Fasten insulation, to prevent displacement.

Completion

505 Tools

1. Access tools: At Completion, supply one set of the following: tools required for the demounting of ceiling panels, according to manufacturer's recommendations .

520 User instructions

1. Contents: Include the following:
   1.1. Correct methods for removing and replacing infill units and other components.

1.2. Cleaning methods and materials.

1.3. Recommendations for redecoration.

1.4. Ceiling systems intended for fire protection: Limitations placed on subsequent alterations and maintenance procedures, to ensure that their fire performance is not impaired.

1.5. Maximum number, position and value of point loads that can be applied to ceiling system after installation.

Ω End of Section

K41
Raised access floors

Types of raised access floor

130A Raised access deck

1. Description: To SWEC rooftop plant enclosure.
2. Manufacturer: Lionweld Kennedy Group
   2.1. Contact details
      2.1.1. Address: Marsh Road
      Middlesbrough
      Cleveland
      TS1 5JS
      2.1.2. Telephone: +44 (0)1642 245151
      2.1.3. Web: www.lk-uk.com
      2.1.4. Email: sales@lk-uk.com
   2.2. Product reference: Utility Grating
3. Material: Steel.
4. Finish: Galvanized.
5. Accessories: Deep saddle clip with self-tapping bolt.
6. Bearing bar depth: 30 mm.
7. Surface: Serrated.
8. LoadBearingCapacity: 7.5 kN/m².
9. Subfloor: Pedestals installed on concrete pavers as J31/370.
10. Floor panels: As clause 315A.
    10.1. Accessibility: Full.
11. Pedestal fixing: As per manufacturer's recommendations.
12. Accessories: Pedestals as K41/320.

130B Hollow floor systems

1. Description: Floors to new services trenches in basements.
2. Manufacturer: Lindner Group
   2.1. Contact details
      2.1.1. Address: Lindner House, 317-325 Putney Bridge Road
      London
      United Kingdom
      SW15 2PG
      2.1.2. Telephone: 020 8246 6333
      2.1.3. Web: https://www.lindner-group.com/en_GB/
      2.1.4. Email: stefania.balanean@Lindner-Group.com
   2.2. Product reference: FLOOR and more® power dry hollow floor for heavy-duty areas
3. System reference: Hollow Floor System - FLOOR and more® power.
4. Standards: To BS EN 13213.
5. Certification: Cradle to Cradle Certified® Silver, verified EPD in accordance with ISO 14025 and EN 15804, IBR test seal, FSC® certified.
6. Structure: Steel support beams.

7. Pedestal: Adhesives.
8. Calculated weighted sound reduction index (Rw): 64 dB.
9. Load class: 6 kN - 20 kN.
10. Panel Thickness: 40 mm.
11. Weight: 50 kg/m².
12. Fire resistance: To BS EN 13501-2, REI 30.
13. Fire performance: To BS EN 13501, A1 (fully non-combustible).
14. Floor panels: As clause 315B.
    14.1. Accessibility: Partial; individual access hatches as P31/370.
15. Floor covering: Cementitious wearing screed system as M10/160.

General/ performance

219 Installation

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

Components

315A Floor panels (roof access deck)

1. Description: Galvanised utility grating.
2. Panel size: 1000 x 1000mm.
3. Core material: Galvanised steel bars.
4. Perimeter edging material: Galvanised steel.
5. Weight of removable panels: 29.88 kg/m2.
6. Floor panel fixing: Proprietary locators fixed to pedestals.
7. Floor panel location method: Positive.
8. Labelling
    8.1. Nonstandard panels: Identify for relocation purposes.
    8.2. 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 carpet finish if any.

315B Floor panels (hollow floor system)

1. Description: Fibre-reinforced calcium sulphate floor panels to basement services trenches.
2. Panel size: 600 x 600mm.
3. Core material: Fibre-reinforced calcium sulphate.
4. Weight of removable panels: 62 - 83 kg/m².
5. Floor panel fixing: Glued tongue and groove edges.
6. Labelling
    6.1. 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 carpet finish if any.

320 Pedestals (raised access deck)

1. Manufacturer: Buzon UK Ltd
2. Contact details
    2.1. Address: Unit 6
    Teddington Business Park

Station Road
Teddington
Middlesex
TW11 9BQ

2.2. Telephone: +44 (0)20 8614 0874

2.3. Web: www.buzonuk.com

2.4. Email: info@buzonuk.com

3. Product reference: BC-FR fire rated pedestals (BC-9-FR)
4. Pedestal type: Adjustable.
5. Material: Copolymer of polypropylene and fire-retardant material.
6. Adjustment: 450—695 mm.
7. Accessories: Slope correctors.
8. Execution: Installing decking and paving pedestals.
9. Fire classification (EN 13501-1): Bfl s1.
10. Head: 145 mm.
11. Base: 200 mm.
12. Coupler: 3 x BC-C3-FR Coupler.

322 Pedestal adhesive

1. Adhesive: Compatible with subfloor surface finish. Refer to manufacturer's installation recommendations.

325 Stringers

1. Description: Structural stringers to support hollow floor tiles.
2. Type: Refer to Structural Engineer's drawings and specification. Design to be completed in coordination with specialist subcontractor.

Installation

410 Control samples

1. General: Complete areas of finished work in the following locations: first area of hollow floor system as K41/130B .

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: Refer to Structural Engineer's information.

425 Environmental conditions

1. General: For internal hollow floor system: 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. Extent of sealing: Concrete and masonry surfaces within raised access floor void.
3. Sealer: Recommended by raised access floor manufacturer. Compatible with materials used to pack and/ or fix pedestals.
   3.1. Colour: Tinted; different tint for each coat.
   3.2. First coat: Apply before pedestals are erected.
   3.3. Second coat: Apply after completion of services and other associated work.

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, non-combustible.
   2.2. Filling: Before fixing skirtings and cover strips.

455 Level changes

1. Performance
   1.1. Ramps and steps: Comparable with performance of associated raised access floor.
   1.2. Balustrades: Structural and safety requirements in accordance with BS 6180.

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 replacing integral floor panel coverings.

1.7. Method for adjusting and locking pedestals.

1.8. Recommended maintenance methods and frequency.

1.8.1. Minimum maintenance-free life of raised access floor system.

1.8.2. Minimum maintenance-free life of replaceable parts where this differs from that of the whole system.

1.8.3. Minimum period during which replaceable components will be available.

1.9. Installation instructions, including COSHH Assessment.

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 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 samples

1. Procedure
   1.1. Finalize component details.
   1.2. Fabricate one of each of the following designated items as part of the quantity required for the project.
   1.3. Obtain approval of appearance and quality before proceeding with manufacturer of the remaining quantity.
2. Designated items: L10/310, L10/550, L10/650. To be included in sample panel. Refer to drawing 4325.

Products

310 Steel windows

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: https://www.schueco.com/uk/
      1.1.4. Email: mkinfobox@schueco.com
   1.2. Product reference: Steel Heritage Window System - Janisol Arte 2.0 (Janisol Arte 2.0 Side Hung Opening Outwards)
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. Air permeability: To EN 12207, Class 4.
      4.1.2. Watertightness: To EN 12208, 9A.

4.1.3. 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 window U-value: To EN ISO 10077-2, 1.5 W/m²·K.

5. Frame

5.1. Material: Steel.

5.2. Finish as delivered

5.2.1. Coating: Polyester powder-coated.

5.2.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.

5.3. Ventilator: 1000 x 2400 mm.

6. Operation: Manual.
7. Execution: Fixing of steel frames.
8. Glazing/ 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. Glazing details: As L40/655A (clear glazing) or L40/655B (obscure glazing). Refer to External Windows Schedule.

490 Smoke and heat exhaust ventilators

1. Manufacturer: Surespan

1.1. Contact details

1.1.1. Address: Leamore Close
Leamore Enterprise Park
Walsall
West Midlands
WS2 7NL

1.1.2. Telephone: +44 (0)1922 711185

1.1.3. Web: www.surespancovers.com

1.1.4. Email: sales@surespancovers.com

1.2. Product reference: Bespoke AOV Smoke Vents SHEV

2. Controls

2.1. Control panel: Smoke detector.

3. Type: Glazed top smoke vent.
4. Insulation: Non-combustible mineral wool.
5. Curb: 300 mm height.
6. Performance: All of the standard 140° AOV ventilators are manufactured to meet the requirements of Building Regulations, Approved Document B, BS 9999 and EN 12101-2 and are supplied CE marked.
7. Free area requirement: To achieve at least 0.7m² aerodynamic free area/ 1m² geometric free area.
8. Standard: CE Marked to EN 12101-2 and compliant to Approved Document B, BS 9999.
9. Enclosure material: Aluminium with thermally broken lid, frame and upstand.

10. Controls: Refer to MEP Engineer's information and Fire Engineer's report for automatic actuation and fire alarm linking requirements.
11. Materials: Frame: Aluminium. Glazing: 28 mm insulating glass unit.
    11.1. Finish as delivered: Principal components polyester powder-coated.
    11.2. Colour:: RAL Classic, colour TBC.
12. Glazing details: As L40/655C (laminated)
13. Typical U-value: 1.5 W/m^{2}K (maximum).
14. Fixing: Manufacturer's standard.

550A Glazed metal screens L02 plant rooms

1. Description: Partially glazed, partially louvred screens to L02 plant rooms.
2. Manufacturer: Schueco UK Ltd
3. Contact details
    3.1. Address: Whitehall Avenue
    Kingston
    Milton Keynes
    Buckinghamshire
    MK10 0AL
    3.2. Telephone: +44 (0)1908 282111
    3.3. Web: https://www.schueco.com/uk/
    3.4. Email: mkinfobox@schueco.com
4. Product reference: Steel Heritage Window System - Janisol Arte 2.0 (Janisol Arte 2.0 Fixed Light)
5. Standard: Non-fire- and/ or smoke-rated windows to BS EN 14351-1.
6. Dimensions and configurations: Fixed glazing to central panel, fixed louvres to side panels. Refer to drawings and schedules.
7. Product performance
    7.1. Weather performance
        7.1.1. Watertightness: To EN 12208, 9A.
        7.1.2. Resistance to wind load: To EN 12210, C5.
    7.2. Environmental
        7.2.1. Acoustic performance rating: Not applicable.
    7.3. Thermal
        7.3.1. Whole window U-value: Not applicable.
8. Frame
    8.1. Material: Steel.
    8.2. Secondary framework: To specialist subcontractor's design.
    8.3. Finish as delivered
        8.3.1. Coating: Polyester powder-coated.
        8.3.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
9. Execution: Fixing of steel frames.
10. Glazing/ infill thickness: 20–47 mm.
11. Weight: 150 kg.
12. Mechanical strength: To EN 14024, Class 4.
13. Operating forces: To EN 13115, Class 1.
14. Durability: To EN 12400, Class 4.
15. Impact resistance: To EN 13049, Class 4.

16. Materials and workmanship: As section Z11.
    16.1. Panels: Glazed-in louvres to side panels.
        16.1.1. Product reference: Gilberts WG38 aluminium louvre.
        16.1.2. Finish: Louvres polyester powder-coated to match frames.
17. Jointing: Welded.
18. Glazing details: As L40/655A (clear).
19. Special features/ other requirements: Glazed-in louvres, refer to detail drawings. Insect mesh to louvres.
20. Fixing: Manufacturer's standard.

550B Louvred metal screens L03 plant rooms

1. Description: Louvred screens to L03 plant room.
2. Manufacturer: Schueco UK Ltd
3. Contact details
    3.1. Address: Whitehall Avenue
    Kingston
    Milton Keynes
    Buckinghamshire
    MK10 0AL
    3.2. Telephone: +44 (0)1908 282111
    3.3. Web: https://www.schueco.com/uk/
    3.4. Email: mkinfobox@schueco.com
4. Product reference: Steel Heritage Window System - Janisol Arte 2.0.
5. Standard: Non-fire- and/ or smoke-rated windows to BS EN 14351-1.
6. Dimensions and configurations: Fixed louvres to central and side panels. Refer to drawings and schedules.
7. Product performance
    7.1. Weather performance
        7.1.1. Watertightness: To EN 12208, 9A.
        7.1.2. Resistance to wind load: To EN 12210, C5.
    7.2. Environmental
        7.2.1. Acoustic performance rating: Not applicable.
    7.3. Thermal
        7.3.1. Whole window U-value: Not applicable.
8. Frame
    8.1. Material: Steel.
    8.2. Secondary framework: To specialist subcontractor's design.
    8.3. Finish as delivered
        8.3.1. Coating: Polyester powder-coated.
        8.3.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
9. Execution: Fixing of steel frames.
10. Glazing/ infill thickness: 20–47 mm.
11. Weight: 150 kg.
12. Mechanical strength: To EN 14024, Class 4.
13. Operating forces: To EN 13115, Class 1.
14. Durability: To EN 12400, Class 4.

15. Impact resistance: To EN 13049, Class 4.
16. Materials and workmanship: As section Z11.
    16.1. Panels: Glazed-in louvres to central and side panels.
        16.1.1. Finish: Louvres polyester powder-coated to match frames.
17. Jointing: Welded.
18. Special features/ other requirements: Glazed-in louvres, refer to detail drawings. Insect mesh to louvres.
19. Fixing: Manufacturer's standard.

650A Metal louvres Generator room

1. Description: To generator room.
2. Manufacturer: Sunray Engineering Limited.
    2.1. Address: Kingsnorth Industrial Estate
    Wotton Road
    Ashford, Kent
    TN23 6LL
    2.2. Telephone: 01233 639039
    2.3. Web: https://sunraydoors.co.uk/
    2.4. Email: sales@sunraydoors.co.uk
    2.5. Product reference: Fixed louvres.
3. Material: Steel.
    3.1. Finish as delivered: Polyester powder-coated.
    3.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
4. Fire performance: Not applicable.
5. Number of louvre banks: Refer to drawings.
6. Louvre blade pitch and angle: Pitch: 50 mm.
7. Accessories/ other requirements: Insect mesh to louvres.
8. Fixing: Manufacturer's standard.

650B Metal louvres Roof

1. Description: Bespoke galvanised steel framed louvres with Orsogril decorative panels.
2. Manufacturer: Lang+Fulton
    2.1. Contact details
        2.1.1. Address: Head Office & Technical Centre
        Unit 2b
        Newbridge Industrial Estate
        Edinburgh
        United Kingdom
        EH28 8PJ
        2.1.2. Telephone: +44 (0)131 441 1255
        2.1.3. Web: www.langandfulton.co.uk
        2.1.4. Email: sales@langandfulton.co.uk
    2.2. Product reference: Stereo-4 grating.
3. Material: Galvanised steel.
    3.1. Finish as delivered: Polyester powder-coated.
    3.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
4. Secondary framework: To specialist subcontractor's design.

5. Number of louvre banks: Refer to drawings.
6. Accessories/ other requirements: Bespoke polyester powder-coated galvanised steel framing, sills and flashings as shown on drawings.
7. Fixing: Manufacturer's standard.

650C Acoustic louvres

1. Description: Double-banked acoustic louvres to L03 water-source heat pump plant room and to roof level air-source heat pump external plant enclosure.
2. Manufacturer: Allaway Acoustics Ltd
   2.1. Contact details
      2.1.1. Address: The Old Poice Station
      1 Queens Road
      Hertford
      Hertfordshire
      United Kingdom
      SG14 1EN
      2.1.2. Telephone: +44 (0)1992 550825
      2.1.3. Web: www.allawayacoustics.co.uk
      2.1.4. Email: enquiries@allawayacoustics.co.uk
   2.2. Product reference: Acoustic Louvre Model AL3015D, 600 mm deep Double Bank Chevron Blades (Galvanized steel construction, polyester powder-coated)
3. Size (l x w x d): Refer to drawings.
4. Material: Steel.
5. Finish: Pre-galvanized with polyester powder coating.
6. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
7. Calculated weighted sound reduction index (Rw)
   7.1. Standard: To BS EN ISO 10140-2.
   7.2. Frequency range: 63–8000 Hz (7–30 dB).
8. Louvre configuration
   8.1. Number of banks: Two.
   8.2. Blade orientation: Horizontal.
   8.3. Blade pitch: 150 mm.
   8.4. Blade angle: Fixed.
9. Weight: 104 kg/m².
10. Material: Galvanised steel.
    10.1. Finish as delivered: Polyester powder-coated.
    10.2. Colour: RAL TBC.
11. Number of louvre banks: Refer to drawings.
12. Accessories/ other requirements: Bespoke polyester powder-coated framing, sills and flashings as shown on drawings.
13. Fixing: Manufacturer's standard.

650E Weather louvres

1. Manufacturer: Gilberts (Blackpool) Ltd.
   1.1. Contact details
      1.1.1. Address: Clifton Road
      Blackpool

Lancashire
FY4 4QT

1.1.2. Telephone: 01253 766 911

1.1.3. Web: https://gilbertsblackpool.com/

1.1.4. Email: info@gilbertsblackpool.com

1.2. Product reference: WGF-38 (flanged frame).

2. Size (l x w x d): Refer to drawings.
3. Material: Aluminium.
4. Finish: Polyester powder coating.
5. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
6. Louvre configuration
   6.1. Blade orientation: Horizontal.
   6.2. Blade pitch: 38 mm.
   6.3. Blade angle: Fixed.
7. Accessories/ other requirements: Insect mesh to louvres.
8. Fixing: Manufacturer's standard.

650F Louvre enclosure

1. Description: Louvred air intake enclosure to Lycian building.
2. Manufacturer: Gilberts (Blackpool) Ltd.
   2.1. Contact details
      2.1.1. Address: Clifton Road
      Blackpool
      Lancashire
      FY4 4QT

      2.1.2. Telephone: 01253 766 911

      2.1.3. Web: https://gilbertsblackpool.com/

      2.1.4. Email: info@gilbertsblackpool.com

   2.2. Product reference: WGF-38 (flanged frame).
3. Size (l x w x d): Refer to drawings.
4. Material: Aluminium.
5. Finish: Polyester powder coating.
6. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
7. Secondary framing: To specialist subcontractor's design.
8. Louvre configuration
   8.1. Blade orientation: Horizontal.
   8.2. Blade pitch: 38 mm.
   8.3. Blade angle: Fixed.
9. Accessories/ other requirements: Bespoke polyester powder-coated framing, sills, flashings and canopy as shown on drawings. Insect mesh to louvres.
10. Fixing: Manufacturer's standard.

Execution

710 Protection of components

1. General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry floored and covered storage.

2. Stored components: Stack vertical or near vertical on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

730 Priming/ sealing

1. Wood surfaces inaccessible after installation: Prime or seal as specified before fixing components.

750 Building in

1. General: Not permitted unless indicated on drawings.
   1.1. Brace and protect components to prevent distortion and damage during construction of adjacent structure.

765 Window installation generally

1. Installation: Into prepared openings.
2. Gap between frame edge and surrounding construction
   2.1. Minimum: In accordance with manufacturer's recommendations.
   2.2. Maximum: In accordance with manufacturer's recommendations.
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.

781 Fixing of steel frames

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

800 Backfilling of steel-frame sections

1. Windows fixed direct into openings: After fixing, fill back of steel frame with waterproof cement fillet.

810 Sealant joints

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. 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

General

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. 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.
4. Verification: 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.

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

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

150 Site dimensions

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

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: Finishes and frames.

Products

410A Wood doorsets (NFR/ FD 30 S)

1. Description: Non-fire rated and FD 30 S fire rated internal doorsets.
2. Manufacturer: Forza Doors Limited
   2.1. Contact details
      2.1.1. Address: Unit 24a-24c
      Star Road
      Partridge Green, Horsham
      RH13 8RA
      2.1.2. Telephone: +44 (0)1403 711126
      2.1.3. Web: www.forza-doors.com
      2.1.4. Email: info@forza-doors.com
3. Door leaf: Manufacturer's standard.
4. Core: Manufacturer's standard.
5. Thickness: 44 mm.
6. Facings: Quarter cut European oak veneer, random matched.
7. Lippings: Concealed lippings to long edges to match facings.
8. Finish as delivered: Full factory finish, matt lacquer.
9. Frame and architraves
   9.1. Type: Square profile.
10. Wood species: Quarter cut European oak veneer, random matched.
11. Finish as delivered: Full factory finish, matt lacquer.
12. Glazing/ infill details: Clear fire-resisting glazing.
    12.1. Manifestation: Not required.
13. Beading: Square flush, solid European oak to match facings.
14. Ironmongery: As ironmongery schedule.
15. Perimeter seals: Fire and smoke seal to suit fire and smoke rating.
16. Fire performance
    16.1. Fire resistance: FD 30 S to BS 476-22.
    16.2. Smoke leakage: S_a to BS EN 1634-3.
    16.3. Reaction to fire: Not required.
17. Moisture content: 9-13%.
18. Fixing: Plugged and screwed according to manufacturer's recommendations.
19. Verification: Contractor’s design certification accreditation by independent third party.

410B Wood doorsets (FD 60 S)

1. Description: FD 60 S fire rated internal doorsets.
2. Manufacturer: Forza Doors Limited
   2.1. Contact details
      2.1.1. Address: Unit 24a-24c
      Star Road
      Partridge Green, Horsham
      RH13 8RA
      2.1.2. Telephone: +44 (0)1403 711126
      2.1.3. Web: www.forza-doors.com
      2.1.4. Email: info@forza-doors.com
3. Door leaf: Manufacturer's standard.
4. Core: Manufacturer's standard.
5. Thickness: 54 mm.
6. Facings: Quarter cut European oak veneer, random matched.
7. Lippings: Concealed lippings to long edges to match facings.
8. Finish as delivered: Full factory finish, matt lacquer.
9. Frame and architraves
   9.1. Type: Square profile.
10. Wood species: Quarter cut European oak veneer, random matched.
11. Finish as delivered: Full factory finish, matt lacquer.
12. Glazing/ infill details: Clear fire-resisting glazing.
    12.1. Manifestation: Not required.
13. Beading: Square flush, solid European oak to match facings.
14. Ironmongery: As ironmongery schedule.
15. Perimeter seals: Fire and smoke seal.
16. Fire performance
    16.1. Fire resistance: FD 60 S to BS 476-22.
    16.2. Smoke leakage: S_a to BS EN 1634-3.
    16.3. Reaction to fire: Not required.
17. Moisture content: 9-13%.
18. Fixing: Plugged and screwed according to manufacturer's recommendations.
19. Verification: Contractor’s design certification accreditation by independent third party.

410C Wood doorsets (FD 120 S)

1. Description: FD 120 S fire rated internal doorsets.
2. Manufacturer: Forza Doors Limited
   2.1. Contact details
      2.1.1. Address: Unit 24a-24c
      Star Road
      Partridge Green, Horsham
      RH13 8RA
      2.1.2. Telephone: +44 (0)1403 711126
      2.1.3. Web: www.forza-doors.com
      2.1.4. Email: info@forza-doors.com
3. Door leaf: Manufacturer's standard.

4. Core: Manufacturer's standard.
5. Thickness: 59 mm.
6. Facings: Quarter cut European oak veneer, random matched.
7. Lippings: Concealed lippings to long edges to match facings.
8. Finish as delivered: Full factory finish, matt lacquer.
9. Frame and architraves
   9.1. Type: Square profile.
10. Wood species: Quarter cut European oak veneer, random matched.
11. Finish as delivered: Full factory finish, matt lacquer.
12. Glazing/ infill details: Clear fire-resisting glazing.
    12.1. Manifestation: Not required.
13. Beading: Square flush, solid European oak to match facings.
14. Ironmongery: As ironmongery schedule.
15. Perimeter seals: Fire and smoke seal.
16. Fire performance
    16.1. Fire resistance: FD 120 S to BS 476-22.
    16.2. Smoke leakage: S_a to BS EN 1634-3.
    16.3. Reaction to fire: Not required.
17. Moisture content: 9-13%.
18. Fixing: Plugged and screwed to manufacturer's recommendations.
19. Verification: Contractor’s design certification accreditation by independent third party.

410D Wood riser doorsets (FD 60 S)

1. Description: FD 60 S fire rated internal riser doorsets.
2. Manufacturer: Forza Doors Limited
   2.1. Contact details
      2.1.1. Address: Unit 24a-24c
      Star Road
      Partridge Green, Horsham
      RH13 8RA
      2.1.2. Telephone: +44 (0)1403 711126
      2.1.3. Web: www.forza-doors.com
      2.1.4. Email: info@forza-doors.com
3. Door leaf: Manufacturer's standard.
4. Core: Manufacturer's standard.
5. Thickness: 54mm.
6. Facings: MDF board, prepared and primed.
7. Lippings: Concealed lippings to long edges.
8. Finish as delivered: Prepared and primed, as section M60.
9. Finish: Painted as M60/150.
10. Frame and architraves
    10.1. Type: Square profile.
11. Glazing/ infill details: Not applicable.
12. Ironmongery: As ironmongery schedule.
13. Perimeter seals: Fire and smoke seal.

14. Fire performance
    14.1. Fire resistance: FD 60 S to BS 476-22.
    14.2. Smoke leakage: S_a to BS EN 1634-3.
    14.3. Reaction to fire: Not required.
15. Moisture content: 9-13%.
16. Fixing: Plugged and screwed to manufacturer's recommendations.
17. Verification: Contractor’s design certification accreditation by independent third party.

480A Steel external double doorsets

1. Description: Door C_01_176_D1394. To main entrance.
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: https://www.schueco.com/uk/
        2.1.4. Email: mkinfobox@schueco.com
    2.2. Product reference: Jansen Janisol anti-finger trap steel double doorset.
3. Door leaf:

    Steel frame with double glazing.
    3.1. Finish as delivered: Polyester powder-coated.
    3.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
4. Frame and architraves: Steel frame.
    4.1. Finish as delivered: Polyester powder-coated.
    4.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
5. Glazing/ infill details: Clear double glazing.
    5.1. Manifestation: Required to comply with Approved Document K, design TBC. As L40/630.
    5.2. Beading: Internal. Colour to match frame.
    5.3. Sealant: Colour to match frame.
6. Ironmongery: As ironmongery schedule.
7. Perimeter seals: EPDM weatherseal.
8. Fire performance
    8.1. Fire resistance: Not required.
    8.2. Smoke leakage: Not required.
    8.3. Reaction to fire: Not required.
9. Thermal performance (U-value maximum): 1.5 W/m²K
10. Other requirements: Panic push bar on secondary leaf. Mains wired CEM type lock, connected to BM Security Room. Swing door operator to comply with Approved Document M requirements.
11. Fixing: In accordance with manufacturer's recommendations.
12. Verification: Contractor’s design certification accreditation by independent third party.

480B Steel solid and louvred external double doorset

1. Description: To bulky goods store.
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: https://www.schueco.com/uk/
     - 2.1.4. Email: mkinfobox@schueco.com
   - 2.2. Product reference: Jansen Janisol steel doorset.
3. Door leaf: Solid insulated leaf with decorative louvres to external side.
   - 3.1. Finish as delivered: Polyester powder-coated.
   - 3.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
4. Frame and architraves: Steel frame.
   - 4.1. Finish as delivered: Polyester powder-coated.
   - 4.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
5. Ironmongery: As ironmongery schedule.
6. Perimeter seals: EPDM weatherseal.
7. Fire performance
   - 7.1. Fire resistance: Not required.
   - 7.2. Smoke leakage: Not required.
   - 7.3. Reaction to fire: Not required.
8. Thermal performance (U-value maximum): 1.5 W/m²K
9. Fixing: In accordance with manufacturer's recommendations.
10. Verification: Contractor’s design certification accreditation by independent third party.

480C UKPN steel louvred external double doorset

1. Description: To transformer rooms.
2. Manufacturer: Sunray Engineering Limited.
   - 2.1. Address: Kingsnorth Industrial Estate
     Wotton Road
     Ashford, Kent
     TN23 6LL
   - 2.2. Telephone: 01233 639039
   - 2.3. Web: https://sunraydoors.co.uk/
   - 2.4. Email: sales@sunraydoors.co.uk
   - 2.5. Product reference: Louvred doorset.
3. Door leaf: Steel louvres.
   - 3.1. Finish as delivered: Polyester powder-coated.
   - 3.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
4. Frame and architraves: Steel.
   - 4.1. Finish as delivered: Polyester powder-coated.
   - 4.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.

5. Ironmongery: As ironmongery schedule.
6. Perimeter seals: Not required.
7. Fire performance
   7.1. Fire resistance: Not required.
   7.2. Smoke leakage: Not required.
   7.3. Reaction to fire: Not required.
8. Fixing: In accordance with manufacturer's recommendations.
9. Verification: Contractor's design certification accreditation by independent third party.

480D Steel external doorset (FD 30 S)

1. Description: Solid panel external doors.
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: https://www.schueco.com/uk/
      2.1.4. Email: mkinfobox@schueco.com
   2.2. Product reference: Jansen Janisol steel doorset.
3. Door leaf: Insulated steel-faced panel.
   3.1. Finish as delivered: Polyester powder-coated.
   3.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
4. Frame and architraves: Steel.
   4.1. Finish as delivered: Polyester powder-coated.
   4.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
5. Ironmongery: As ironmongery schedule.
6. Perimeter seals: Fire and smoke seal. EPDM weatherseal.
7. Fire performance
   7.1. Fire resistance: FD 30 S to BS 476-22.
   7.2. Smoke leakage: S_a to BS EN 1634-3.
   7.3. Reaction to fire: Not required.
8. Thermal performance (U-value maximum): 1.5 W/m²K
9. Fixing: In accordance with manufacturer's recommendations.
10. Verification: Contractor's design certification accreditation by independent third party.

480E Steel external riser doorset (FD 60 S)

1. Description: External door to riser 3.
2. Manufacturer: ASSA ABLOY Opening Solutions UK & Ireland
   2.1. Contact details
      2.1.1. Address: ASSA ABLOY UK Ltd
      School Street
      Willenhall
      West Midlands
      WV13 3PW

2.1.2. Telephone: 0845 223 2124
2.1.3. Web: www.assaabloy.co.uk
2.1.4. Email: nbs@assaabloy.com
2.2. Product reference: Powershield Fire Doorset
3. Type: Single action door.
4. Configuration: Double leaf.
5. Fire integrity: 60 minutes.
6. Material
6.1. Type: Galvatite ZF Galvanneal.
6.2. Finish: Polyester powder coated.
6.3. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
7. Leaf core: Honeycomb.
8. Profile: Single rebate.
9. Door leaf: Insulated steel-faced panel.
9.1. Finish as delivered: Polyester powder-coated.
9.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
10. Frame and architraves: Steel.
10.1. Finish as delivered: Polyester powder-coated.
10.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
11. Ironmongery: As ironmongery schedule.
12. Perimeter seals: Fire and smoke seal. EPDM weatherseal.
13. Fire performance
13.1. Fire resistance: FD 60 S to BS 476-22.
13.2. Smoke leakage: S_a to BS EN 1634-3.
13.3. Reaction to fire: Not required.
14. Thermal performance (U-value maximum): 1.5 W/m²K
15. Fixing: In accordance with manufacturer's recommendations.
16. Verification: Contractor’s design certification accreditation by independent third party.

480F Steel external doorset (FD 120 S)

1. Description: Solid panel fire-rated external doors.
2. Manufacturer: Sunray Engineering Limited.
2.1. Address: Kingsnorth Industrial Estate
Wotton Road
Ashford, Kent
TN23 6LL
2.2. Telephone: 01233 639039
2.3. W: https://sunraydoors.co.uk/
2.4. Product reference: SaverDoor® FR.
3. Door leaf: Steel.
3.1. Finish as delivered: Polyester powder-coated.
3.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
4. Frame and architraves: Steel.
4.1. Finish as delivered: Polyester powder-coated.
4.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.

5. Glazing/ infill details: Not applicable.
   5.1. Manifestation: Not applicable.
   5.2. Beading: Not required.
6. Ironmongery: As ironmongery schedule.
7. Perimeter seals: Fire and smoke seal. EPDM weatherseal.
8. Fire performance
   8.1. Fire resistance: FD 120 S to BS 476-22.
   8.2. Smoke leakage: S_a to BS EN 1634-3.
   8.3. Reaction to fire: Not required.
9. Thermal performance (U-value maximum): 1.5 W/m²K
10. Fixing: In accordance with manufacturer's recommendations.
11. Verification: Contractor's design certification accreditation by independent third party.

480G Steel internal glazed doorset (NFR)

1. Description: To meeting rooms.
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: https://www.schueco.com/uk/
      2.1.4. Email: mkinfobox@schueco.com
   2.2. Product reference: Steel Heritage Window System - Arte 15
3. Frame
   3.1. Material: Steel.
4. Operation: Manual.
5. Fixing features: Wet glazing or putty, locks and handles for the window doors, floor seals, curved units.
6. Execution: Fixing of steel frames.
7. Glass thickness: 6–24 mm.
8. Meeting stiles: 66 mm.
9. Door leaf: 43 mm.
10. Frame and architraves: Steel.
    10.1. Finish as delivered: Polyester powder-coated.
    10.2. Colour: RAL Classic, colour TBC.
11. Glazing/ infill details: Clear acoustic glazing to achieve acoustic performance below.
    11.1. Manifestation: Required to comply with Approved Document K, design TBC. As L40/630.
    11.2. Beading: Internal.
12. Ironmongery: As ironmongery schedule.
13. Perimeter seals: Acoustic seal.
14. Fire performance
    14.1. Fire resistance: Not required.
    14.2. Smoke leakage: Not required.

14.3. Reaction to fire: Not required.

15. Acoustic performance: 38 dB Rw.
16. Fixing: In accordance with manufacturer's recommendations.
17. Verification: Contractor's design certification accreditation by independent third party.

535 Sliding folding shutter doors

1. Description: To Calorifier Room 1.
2. Manufacturer: dp Doors & Shutters Ltd
   2.1. Contact details
      2.1.1. Address: 23b Orgreave Crescent
      Dore House Industrial Estate
      Orgreave
      Sheffield
      South Yorkshire
      United Kingdom
      S13 9NQ
      2.1.2. Telephone: +44 (0)114 288 9464
      2.1.3. Web: www.dpdoorsandshutters.co.uk
      2.1.4. Email: sales@dpdoorsandshutters.co.uk
   2.2. Product reference: Sliding Folding Steel Shutter (Concertna)
3. Third-party certification: Building Register Approved.
4. Grade: External.
5. Format: Top-hung.
6. Track system: Ribbed steel leaves, 230 mm wide, with rolled edges hinge in patented pickets which are hung from a horizontal tubular track and guided in a channel set into the floor.
7. Door leaf
   7.1. Construction: Steel.
   7.2. Finish: Galvanized and zinc plated.
8. Operation: Manual.

610 Fire curtains

1. Note: Final selection of fire curtain subject to agreement and acceptance from client. Current available products to market are not certified to both British and European standards. See notes below and refer to Stage 4 Fire Strategy Report for further information.
2. Manufacturer: Thermax Contracting Services Ltd.
   2.1. Contact details
      2.1.1. Address: 18-24 Gleadless Road
      Heeley, Sheffield
      S2 3AB
      2.1.2. Telephone: 0114 281 2281
      2.1.3. Web: https://thermax.co.uk/
      2.1.4. Email: sales@thermax.co.uk
   2.2. Product reference: Hoefnagels Temperature-P EI 120.
3. Standard: To BS EN 16034:2014, BS 8524-1:2013 and BS 8524-22:3013.
4. Performance: EI 120 S (integrity and insulation). With smoke seals.
5. Shutter/ curtain material: Fire-resistant fabric.
6. Frame/ guides: Sendzimir galvanised plated steel.

6.1. Finish as delivered: Polyester powder-coated, Syntha Pulvin, RAL Metallic, colour TBC.

7. Other requirements: To be initiated by an appropriate automatic fire detector; be capable of multi-stage deployment to act initially as a smoke barrier relevant to the risk, where deemed necessary; have emergency retract controls relevant to the risk; have obstruction warning devices or floor markings dependent upon the location; have controls and associated wiring that is appropriate to the risk and type; have deployment speeds ranging between 0.06 m/s and 0.15 m/s; achieve the same standard of fire resistance and smoke separation as the element of structure being replaced; have monitoring of the battery condition; have display panels having visual and audible provision to: indicate any faults; and indicate if the batteries (for emergency retract) need replacing; have key switch operation; have a power pack to prevent curtain closure in the event of a short power interruption.
8. Verification: Contractor's design certification accreditation by independent third party. CE or UKCA mark.

630A Wall access panels

1. Manufacturer: Access 360
   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: https://www.access-360.co.uk/
      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); 90 minutes (sizes up to 750 x 1500 mm); 60 minutes, (sizes up to 750 mm x 1500 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: 450 x 450 mm.
5. Frame: Beaded (BF).
6. Panel
   6.1. Material: Electro-galvanised mild steel.
   6.2. Integral finish: Powder coated matt.
7. Latch or lock type: Security lock (SL).
8. Operation: Pivot hinge.
9. Configuration: Single Door (SD).
10. FireRating: As indicated on access panel schedule (9906).
11. FrameDepth: 44 mm.
12. Sound insulation: To BS EN ISO 140-3: 32 dB.
13. AcousticRating: 32 dB.
14. Air tightness: To BS EN 12207: 2000 and BS EN 1026: 2000, airtight (Part L).

630B Ceiling access panels

1. Manufacturer: Access 360
   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: https://www.access-360.co.uk/

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, refer to access panel schedule (9906).
   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: Ceiling mounted.
4. Size: Refer to access panel schedule (9906).
5. Frame: Beaded (BF).
6. Panel
   6.1. Material: Electro-galvanised mild steel.
   6.2. Integral finish: Powder coated matt.
7. Latch or lock type: Security lock (SL).
8. Operation: Pivot hinge.
9. Configuration: Single Door (SD).
10. FireRating: As indicated on access panel schedule (9906).
11. FrameDepth: 44 mm.
12. Sound insulation: To BS EN ISO 140-3: 32 dB.
13. AcousticRating: 32 dB.
14. Air tightness: To BS EN 12207: 2000 and BS EN 1026: 2000, airtight (Part L).

Execution

710 Protection of components

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

730 Priming and sealing

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

750 Fixing doorsets

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

760 Building in

1. General: Not permitted unless indicated on drawings.

780 Damp-proof courses in prepared openings

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

790 Fixing of wood frames

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

800 Fixing of loose thresholds

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

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

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

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

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

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

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

820 Sealant joints

1. Sealant
    1.1. Manufacturer: Submit proposals
        1.1.1. Product reference: Submit proposals
    1.2. Colour: To match door frame finish.
    1.3. Application: As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.

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 and panic exit devices

1. Standard: Emergency exit devices in accordance with BS EN 179

Ω End of Section

L30
Stairs/ ladders/ walkways/ handrails/ balustrades

Preliminary information/ requirements

105 Contractor's design

1. Design responsibility: Complete the design of secondary steelwork. Determine section sizes and strengths and type, sizes and numbers of fixings.
2. Structural and fire requirements
   - 2.1. Generally: Refer to Structural Engineer's information.
   - 2.2. Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
3. Functional requirements: To Building Regulations (Eng) Approved Documents K and M.

109 Structural design provided

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

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: L30/270, L30/550, L30/570.

Components

270 Stairs

1. Description: To SWEC north and south stairs. Refer to drawings 3310, 3311, 3312, 3313, 3314, 3315, 6520, 6521, 6522, 6523.
2. Component material, grade, finish as delivered
   - 2.1. Treads: 10mm plate mild steel stair tread and riser with levelling and wearing screed infill as M10/195.
     - 2.1.1. Slip resistance value of integral tread - water wet (minimum): PTV of 36 to BS 7976.
     - 2.1.2. Slip resistance value of integral nosing - water wet (minimum): PTV of 36 to BS 7976.
     - 2.1.3. Colour of integral nosing: Polyester powder-coated, RAL to match stair steelwork.
   - 2.2. Risers: 10mm plate mild steel welded to stringer and riser tray.
   - 2.3. Strings: 200 x 75mm mild steel parallel flange channel stringer.
   - 2.4. Guarding: Purpose-made balustrades as L30/550.
   - 2.5. Handrails: Purpose-made handrails as L30/570.
   - 2.6. Finish: Polyester powder-coated.
   - 2.7. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
3. Reaction to fire: To BS EN 13501-1, Class B or better.
4. Workmanship
   - 4.1. Joinery: To section Z10.
   - 4.2. Metalwork: To section Z11.
5. Other requirements: Bespoke mild steel bracketry to connect stair flights and landings to primary structure, to specialist subcontractor's design. Refer to detail drawings.

310 Proprietary stairs

1. Description: To provide roof access on SWEC roof and to Western Range, Lycian Building and New Wing roofs. Refer to drawing 5005.
2. Manufacturer: Safety Fabrications Limited
   - 2.1. Contact details
     - 2.1.1. Address: Safety Fabrications Limited
       Unit 16-17 Nutwood Trading Estate
       Limestone Cottage Lane
       Sheffield
       S6 1NJ
     - 2.1.2. Telephone: +44 (0)1142852203
     - 2.1.3. Web: www.safetyfabrications.co.uk
     - 2.1.4. Email: estimating@safetyfabrications.co.uk
   - 2.2. Product reference: Industrial Stair System.
3. Component material, finish as delivered and light reflectance value contrast where applicable
   - 3.1. Treads: Galvanised steel safety grating.
     - 3.1.1. Slip resistance value of integral tread - water wet (minimum): PTV of 36 to BS 7976.
     - 3.1.2. Slip resistance value of integral nosing - water wet (minimum): PTV of 36 to BS 7976.
     - 3.1.3. Colour of integral nosing: Yellow.
   - 3.2. Risers: Galvanised steel.
   - 3.3. Strings: Galvanised steel.
   - 3.4. Newels: Galvanised steel key clamp.
   - 3.5. Guarding: Galvanised steel key clamp.
   - 3.6. Handrails: Galvanised steel key clamp.
     - 3.6.1. Lower handrail: Galvanised steel key clamp.
4. Other requirements: Galvanised steel safety grating landings as indicated on drawings.

550 Purpose-made balustrades

1. Description: To SWEC north and south stairs. Refer to drawings 3310, 3311, 3312, 3313, 3314, 3315, 6520, 6521, 6522, 6523.
2. Component material, grade and finish as delivered
   - 2.1. Guarding: Orsogril Stereo-4 architectural grating, comprised of galvanised steel rods and flat bars, bolted to framing.
   - 2.2. Framing: Purpose-made balustrade framing including mild steel parallel flange channel posts. Refer to detail drawings.
   - 2.3. Handrails: Purpose-made handrails as L30/570.
     - 2.3.1. Lower handrail: Not required.
3. Finish: Polyester powder-coated.
4. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
5. Workmanship
   - 5.1. Joinery: To section Z10.
   - 5.2. Metalwork: To section Z11.
6. Reaction to fire: To BS EN 13501-1, Class B or better.
7. Other requirements: Polyester powder-coated steel conduit to carry lighting cabling to decorative light fittings mounted to parallel flange channel framing. All fixings to be colour-matched. Refer to detail drawings. Countersunk fixings.

8. Lighting: Decorative lighting as V90/510. Refer to MEP Engineer's information for lighting layouts and specifications.
9. Fixing: Side-fixed to primary steel frame. Refer to detail drawings.

560 Proprietary balustrades

1. Description: Guarding to SWEC roof and lift overrun.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Component material and finish as delivered
   3.1. Guarding: Low-carbon steel - galvanized. Polyester powder-coated, Syntha Pulvin, RAL Metallic, colour TBC.
   3.2. Handrails: Low-carbon steel - galvanized. Polyester powder-coated, Syntha Pulvin, RAL Metallic, colour TBC.
      3.2.1. Lower handrail: Low-carbon steel - galvanized. Polyester powder-coated, Syntha Pulvin, RAL Metallic, colour TBC.
4. Fixing: Anchor-fixed to concrete parapet.
   4.1. Centres: Submit proposals.

570 Purpose-made handrails

1. Description: To SWEC north and south stairs. Refer to drawings 3310, 3311, 3312, 3313, 3314, 3315, 6520, 6521, 6522, 6523.
2. Component material, grade and finish as delivered
   2.1. Handrails: Continuous 50mm diameter circular mild steel handrail with sleeved and flush welded butt joints and closed ends. Welded end plates to close handrail tube finished with pencil round arris. Radius corner joints. Mechanically fixed to wall on brackets. Fixings concealed with cover plates in matching finish. Countersunk fixings.
      2.1.1. Lower handrail: Not required.
   2.2. Brackets: Bespoke fabricated mild steel brackets. Refer to detail drawings.
3. Finish: Polyester powder-coated.
4. Colour: Syntha Pulvin, RAL Metallic, colour TBC.
5. Workmanship
   5.1. Metalwork: To section Z11.
6. Reaction to fire: To BS EN 13501-1, Class B or better.
7. Fixing: Through fixing to timber pattressing.
   7.1. Centres: Refer to detail drawings.

590 Applied stair nosings

1. Description: To SWEC north and south stairs.
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: SN9-55 Stair nosing anti-slip (SN9-55 - Nickel Bronze)
4. Profile: Square.
5. Base section
5.1. Material: Nickel bronze.
5.2. Finish: Beige.
6. Size
6.1. Rise x going: 55 x 55 mm.
6.2. Gauge: 9 mm.
7. Inserts
7.1. Material: Cast metal with silicon carbide granules.
8. Length: To suit stair flights.

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.

Completion

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: 3.
3. Submission: Two weeks prior to date when contractor expects work to be practically complete.

Ω End of Section

L35
Fixed utilitarian access systems

General

130 Ladder system

1. Description: To provide access from main roof to lift overrun roof.
2. Standard: In accordance with BS 5395-3 or BS 4211.
3. Manufacturer: Bilco UK
4. Contact details
   - 4.1. Address: Pavilion 7, Fornham Business Court
     Hall Farm
     Fornham St. Martin
     Bury St Edmunds
     Suffolk
     IP31 1SL
   - 4.2. Telephone: +44 (0)1284 701696
   - 4.3. Web: www.bilcouk.co.uk
   - 4.4. Email: bilcouk@bilco.com
5. Product reference: BL-WG Fixed Ladder with Safety Cage + Guard Rail (BL-A-WG4)
6. Stiles: Alloy Class 1, 73 x 25 mm.
7. Rungs: Class 1 heavy duty square.
8. Safety cage: Cages above 2200–3000 mm; Strap: 50 x 10 mm flat bar, five straps as BS 4211:2005; mill finish dome head bolts.
9. System accessories: None.
10. Brackets: 50 x 10 mm alloy rectangular bar stand-off brackets.
11. OverallWidth: 488 mm.
12. Height: 4400–5200 mm.
13. Weight: 46–51 kg.

System performance

212 Contractor's design

1. Description: For L35/130 and L35/470.
2. Design responsibility: Determine section sizes and strengths and type, sizes and numbers of fixings.
3. Structural requirements: Refer to Structural Engineer's information.
   - 3.1. Design: Complete in accordance with the designated code of practice to satisfy specified performance criteria.
4. Functional requirements: In accordance with BS 5395-3 or BS 4211.
5. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

Products

470 GRP riser floors

1. Manufacturer: GRP Grating Systems.
   - 1.1. Product reference: Standard Industrial Grating.
2. Panels: Perforated - slotted.

2.1. Thickness: 50mm.

2.2. Finish: Topped with anti-slip coating.

3. Solid plates: To BS 4592-5.
4. Open bar gratings: To BS 4592-4.
5. Finish: Self finished.

5.1. Colour: Grey.

6. Fixings: In accordance with manufacturer's recommendations.

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. Hot works: Not permitted on site.

5.1.2. Aluminium alloys: TIG or MIG welding to BS EN 1011-4.

5.1.3. Carbon steel: Metal arc welding to BS EN 1011-1 and -2.

5.1.4. 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): Submit proposals.

Completion

910 Cleaning

1. General: Clean surfaces and wipe down finishes.

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.

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 952-1 and the relevant parts of:
   1.1. BS EN 572-9 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 1863-2 for heat-strengthened soda lime silicate glass.
   1.5. BS EN 12150-2 for thermally toughened soda lime silicate safety glass.
   1.6. BS EN 12337 for chemically strengthened soda lime silicate glass.
   1.7. BS EN 13024-2 for thermally toughened borosilicate safety glass.
   1.8. BS EN 14449 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.

181 Bead-fixing with screws

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

Types of glazing

520 Fire resistance testing

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: All glazing in fire-rated doorsets and windows.

550 Glass mirrors

1. Description: To changing rooms and WCs.
2. Standard: To BS EN 1036-2.
3. Manufacturer: Submit proposals
4. Mirror material: Float glass, silvered to give maximum reflection, free from tarnishing, discoloration, scratches and other defects visible in the designed viewing conditions.
   4.1. Thickness: 6 mm.
   4.2. Backing: Polypropylene safety film.
   4.3. Edge treatment: Polished arris.
5. Fixing method: Double-sided self-adhesive pads at 400 mm centres.
6. Installation: Fixed accurately and securely, to provide a flat surface giving a distortion free reflection.

630 Manifestation

1. Description: To external and internal glazed doors.
2. Manufacturer: Submit proposals
3. Design: To be confirmed.
4. Technique: Applied film.

655A Insulated glass units (IGUs) – clear

1. Description: To external doors and windows as indicated on drawings and schedules.
2. Manufacturer: Guardian Industries UK Ltd.
   2.1. Product reference: Double Glazed Butyl ('Hot Melt') sealed units.
3. Standard: BS 5713.
4. Thermal performance (centre pane): 1.0 W/m²K.
5. Light transmission: 73.9%
6. Solar factor (G value): 0.40
7. Estimated acoustic attenuation: 35 dB Rw.
8. Construction
   8.1. Inner pane: 8mm Toughened and heat soak tested Guardian ExtraClear reduced iron float glass.
   8.2. Cavity: 16mm 90% Argon filled with black warm edge spacer complying with gas fill & edge seal standard EN1279-3.
   8.3. Outer pane: 8mm Toughened and heat soak tested Guardian ExtraClear reduced iron float glass with SunGuard SN 75 HT on surface #2.
9. Unit thickness: 32mm.

655B Insulated glass units (IGUs) – obscure

1. Description: To external doors and windows as indicated on drawings and schedules.
2. Manufacturer: Guardian Industries UK Ltd.
   2.1. Product reference: Double Glazed Butyl ('Hot Melt') sealed units.
3. Standard: BS 5713.
4. Thermal performance (centre pane): 1.0 W/m²K.
5. Light transmission: 71.6%
6. Solar factor (G value): 0.40
7. Estimated acoustic attenuation: 35 dB Rw.
8. Construction
   8.1. Inner pane: 8mm Toughened and heat soak tested Guardian ExtraClear reduced iron Satin Deco acid etched glass.
   8.2. Cavity: 16mm 90% Argon filled with black warm edge spacer complying with gas fill & edge seal standard EN1279-3.
   8.3. Outer pane: 8mm Toughened and heat soak tested Guardian ExtraClear reduced iron float glass with SunGuard SN 75 HT on surface #2.
9. Unit thickness: 32mm.

655C Insulated glass units (IGUs) – roof AOV

1. Description: To automatic opening vent.
2. Manufacturer: Guardian Industries UK Ltd.
   2.1. Product reference: Double Glazed Butyl ('Hot Melt') sealed units.
3. Standard: BS 5713.
4. Thermal performance (centre pane): 1.5 W/m²K.
5. Light transmission: 73.5%
6. Solar factor (G value): 0.40
7. Estimated acoustic attenuation: 41 dB Rw.
8. Construction
   8.1. Inner pane: 11.5mm Annealed PVB laminate Guardian ExtraClear reduced iron float glass.
   8.2. Cavity: 20mm 90% Argon filled with black warm edge spacer complying with gas fill & edge seal standard EN1279-3.
   8.3. Outer pane: 8mm Toughened and heat soak tested Guardian ExtraClear reduced iron float glass with SunGuard SN 75 HT on surface #2.
9. Unit thickness: 39.5mm.

Ω End of Section

M10
Cement based levelling/ wearing screeds

Types of screed

115 Cement:sand levelling screeds

1. Description: To ground floor and levels 4 and 5.
2. Substrate: Composite concrete slab.
3. Screed construction: Unbonded, as clause 280.
4. Manufacturer: Flowcrete
5. Product reference: Heavy Duty Isocrete K-Screed or similar approved with bonding agent to manufacturer's recommendations.
6. Thickness
   - 6.1. Nominal: 75 mm
   - 6.2. Minimum: 15 mm
7. Mix
   - 7.1. Proportions (cement:sand): 1:3-4.5
8. In situ crushing resistance (ISCR) category: A (3 mm maximum indentation)
   - 8.1. Mass of test weight: 4 kg
9. Flatness/ Surface regularity class: SR1.
10. Finish: Smooth floated, as clause 530.
    - 10.1. To receive: Varies, as drawings 6140 and 6141.
11. Other requirements: Movement joints as required.

160 Cementitious wearing screed systems

1. Description: Bonded wearing screed to basement corridor floors.
2. Substrate: Fibre-reinforced calcium sulphate hollow floor panels, or existing concrete screed, or new precast concrete planks.
3. Screed manufacturer: Ardex UK Ltd
   - 3.1. Contact details
     - 3.1.1. Address: Homefield Road
       Haverhill
       Suffolk
       United Kingdom
       CB9 8QP
     - 3.1.2. Telephone: +44 (0)1440 714939
     - 3.1.3. Web: ardex.co.uk
     - 3.1.4. Email: info@ardex.co.uk
   - 3.2. Product reference: PANDOMO® Studio
4. Colour: Grey, to be selected from standard range.
5. Application thickness: 5—10 mm.
6. Primer: Ardex R 3 E Two Component Epoxy Resin Primer and Bonding Agent.
7. Reinforcing mesh: Ardex SK Mesh.
8. Levelling compound: Ardex K 40 HB Rapid Drying, High Build, Fibre Reinforced Levelling and Smoothing Compound (where required).
9. Sealant: PANDOMO® SP-PS silk matt sealant.

10. Slip resistance: PTV of 36 to BS 7976.
11. Flatness/ Surface regularity class: SR1.
12. Other requirements: Movement joints as required. Area not to exceed 100m^2. No side to exceed 10m in length.

192 Proprietary self smoothing wearing screeds

1. Description: To plant rooms.
2. Substrate: Composite concrete slab.
3. Screed manufacturer: Ardex UK Ltd
   - 3.1. Contact details
     - 3.1.1. Address: Homefield Road
       Haverhill
       Suffolk
       United Kingdom
       CB9 8QP
     - 3.1.2. Telephone: +44 (0)1440 714939
     - 3.1.3. Web: https://ardex.co.uk
     - 3.1.4. Email: info@ardex.co.uk
   - 3.2. Product reference: ARDEX K 71 Rapid Drying Industrial Topping and Wearing Surface
4. Standard: To BS EN 13813.
5. Binder type: Cementitious.
6. Compressive strength: C30.
7. Flexural strength: F7.
8. Wear resistance: AR0.5.
9. Reaction to fire: A1.
10. Density: Approx. 1.4 kg/litre.
11. Application thickness: 3–30 mm neat; up to 50 mm incorporating aggregate.
12. Slip resistance: PTV of 36 to BS 7976.

195 Ready-mixed levelling and wearing screeds

1. Description: To north and south stair floors, treads and landings.
2. Substrate: In situ concrete slab; steel stair or landing trays.
3. Screed manufacturer: Ardex UK Ltd
   - 3.1. Contact details
     - 3.1.1. Address: Homefield Road
       Haverhill
       Suffolk
       United Kingdom
       CB9 8QP
     - 3.1.2. Telephone: +44 (0)1440 714939
     - 3.1.3. Web: https://ardex.co.uk
     - 3.1.4. Email: info@ardex.co.uk
   - 3.2. Product reference: ARDEX PC-T 4 Polished Concrete Topping
4. Compressive strength: 30 N/mm².
5. Coverage: Up to 1.3 m² at 10 mm thickness.
6. Working time: 15 minutes.
7. Application thickness: Up to 130 mm.

8. Colour: Concrete grey.
9. TensileStrength: 7 N/mm².
10. Abrasion resistance: AR1.
11. Slip resistance: PTV of 36 to BS 7976.

Generally/ preparation

205 Design life of screeds

1. Duration: 70 years.
   1.1. Subject to reasonable wear and tear.
2. Location: Floors generally.
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.

220 Proprietary levelling/wearing screeds

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

230 Control samples

1. General: Complete areas of finished work and obtain approval of appearance before proceeding.
2. Screed type: All types.

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.

280 Unbonded construction

1. Separation: Lay screed over a suitable sheet dpm or a separating layer.
   1.1. Type: Polyethylene sheet, minimum 125 micrometres thick (500 gauge).
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 construction (PIR insulation)

1. Insulation
   1.1. Type: 150 mm Unilin ECO360 MA PIR insulation.
   1.2. Installation: Lay with tight butt joints. Continue up at perimeter abutments for full depth of screed.
2. Separating layer
   2.1. Type: Polyethylene sheet minimum 125 micrometres thick (500 gauge).
   2.2. Installation: Lay over insulation and turn up at perimeter abutments. Lap 100 mm at joints.

291 Floating construction (mineral wool insulation)

1. Description: Floor insulation within riser 6 at level 4.
2. Insulation
   2.1. Type: 100mm Rockwool Thermal RockFloor.
   2.2. Installation: Lay with tight butt joints. Continue up at perimeter abutments for full depth of screed.
3. Separating layer
   3.1. Type: Polyethylene sheet minimum 125 micrometres thick (500 gauge).
   3.2. 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.

306 Proprietary polymer modified screeds

1. Cement types: In accordance with BS 8204-3.
2. Sand: To BS EN 13139:
   2.1. Grading limits: 0/4 mm (MP) category 1.
3. Aggregates: In accordance with BS 8204-3.

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) ±5 mm from datum.

350 Screeding to falls

1. Minimum screed cover: Maintain at the lowest point.
2. Falls: Gradual and consistent.
   2.1. Gradient (minimum): 1:80 to gully position in shower wet rooms.

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.

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.

382 Stair screeds

1. Construction: Fully bonded to treads and landings.
2. Risers: Form using fine finish formwork.
3. Wearing screed surfaces: Make good with compatible cement:sand mix. Wood float. When hardened remove laitance.

386 Coved in situ skirtings

1. Background: Drylining as K10/165B.
2. Mix: In accordance with BS 8204-3, Table 2. Aggregate size adjusted as necessary to suit skirting thickness.
3. Construction joint: Form at base.
4. Rendering: Apply bonding agent. Render skirting while bonding agent is still wet. Achieve a good bond. Allow each coat to set before applying subsequent coats. Render to true lines with a fine finish and an even consistent appearance.
5. Dimensions
    - 5.1. Thickness of each coat (maximum): 10 mm.
    - 5.2. Height: 100 mm.
    - 5.3. Cove radius: 30 mm.
    - 5.4. Top edge: Square.

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): 20 m².
    - 2.2. Length (maximum): 6 m.
3. Location of bay joints: Coordinate with those required for substrate slab and floor covering.

435 Formed joints in wearing screeds

1. Temporary forms: Square edged with a steel top surface and in good condition.
2. Placing screed: Compact thoroughly at edges to give level, closely abutted joints with no lipping.

460 Strip movement joints

1. Manufacturer: Submit proposals
    - 1.1. Product reference: Submit proposals
2. Installation: Set securely into screed to exact finished level of floor. Extend joints through to substrate.
    - 2.1. Secure fixing to substrate: To manufacturer's recommendation.

Finishing/curing

510 Finishing generally

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

520 Wood floated finish

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

530 Smooth floated finish

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

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.

550 Trowelled finish to wearing screeds

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

560 Dewatered trowelled finish to wearing screeds

1. Dewatering: Immediately after compaction of wearing screeds, remove water using a vacuum process.
2. Floating: Without delay, power float to an even texture with no ridges or steps.
3. Trowelling: Successively trowel at intervals, applying sufficient pressure to close surface and give a uniform smooth finish free from trowel marks and other blemishes.

600 Power ground finish to wearing screeds

1. Floating: To an even surface with no ridges or steps. Immediately commence curing.
2. Grinding: When concrete is sufficiently hard for sand particles not to be torn from surface, remove 1 - 2 mm from surface to give an even glass-paper texture, free from blemishes and trowel marks.
3. Cleaning: Remove dust and wash down. Resume curing without delay.

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: Ardex UK Ltd

1.1. Contact details

1.1.1. Address: Homefield Road
Haverhill
Suffolk
United Kingdom
CB9 8QP

1.1.2. Telephone: +44 (0)1440 714939

1.1.3. Web: https://ardex.co.uk

1.1.4. Email: info@ardex.co.uk

1.2. Product reference: PANDOMO® SP-PS silk matt sealant.

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

M20
Plastered/ rendered/ roughcast coatings

Types of coating

220 Clay plaster

1. Components: Lime putty and crushed marble.
2. Colour: From standard range, TBC.
3. Sealer: Unsealed.
4. Reaction to fire: To EN 13501-1:2007+A1:2009, A2 - s1, d0.
5. Fire rating: To ASTM E84: Flame Spread Index: 5, Smoke Development Index: 0, Classification: A.
6. VOC content: BREEAM International v2.0 (2016): Exemplary, Indoor Air Comfort: PASS, French VOC Label: A+, ASTM D2369: <1, LEED v4 + v4.1 BETA: PASS.
7. Preparatory reinforcing skimcoat: Armourcoat anti-crack.
8. Location: As drawing.
9. Hardness: Shore D Hardness test - 68.
10. Recycled content (minimum): 52%.
11. Weight: 0.8–1.14 kg/m².
12. Description: To SWEC north and south stair walls.
13. Manufacturer: Armourcoat Ltd
14. Contact details
    - 14.1. Address: Morewood Close
      Sevenoaks
      Kent
      United Kingdom
      TN13 2HU
    - 14.2. Telephone: +44 (0)1732 460668
    - 14.3. Web: www.armourcoat.com
    - 14.4. Email: specsales@armourcoat.co.uk
15. Undercoats
    - 15.1. Product reference: Armourcoat® Polished Plaster Istria
16. Final coat
    - 16.1. Finish: Smooth.

240 One coat proprietary plaster (blockwork)

1. Description: Internal plaster finish to blockwork.
2. Substrate: Concrete blockwork as section F10.
    - 2.1. Preparation: Bonding agent recommended by plaster manufacturer as required.
3. Manufacturer: British Gypsum (Saint-Gobain Construction Products UK Limited).
    - 3.1. Product reference: British Gypsum Thistle Universal OneCoat.
4. Thickness (excluding dubbing out and keys): 13 mm.
5. Finish: Smooth.
6. Accessories: Beads and stops.

280 Gypsum plaster skim coat on plasterboard

1. Plasterboard: As section K10.
   1.1. Preparation: Bonding agent recommended by plaster manufacturer as required.
2. Plaster: Board finish/ finish plaster to BS EN 13279-1.
   2.1. Manufacturer: British Gypsum (Saint-Gobain Construction Products UK Limited).
      2.1.1. Product reference: British Gypsum Thistle BoardFinish.
   2.2. Thickness: 2 mm.
   2.3. Finish: Smooth.
3. Accessories: Beads and stops.

290 Parge coat

1. Description: To form airtight layer to external walls.
2. Substrate: Concrete blockwork as section F10.
   2.1. Preparation: Bonding agent recommended by plaster manufacturer as required.
3. Render
   3.1. Manufacturer: British Gypsum (Saint-Gobain Construction Products UK Limited).
   3.2. Product reference: Gyproc SoundCoat Plus.
   3.3. Thickness: 6 mm.
   3.4. Finish: Smooth.

General

413 Samples

1. General: Provide representative samples of the following: M20/220.

418 Control samples

1. Complete sample areas, being part of the finished work, in locations as follows: Clay plaster as M20/220 to stair.

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.

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.

630 Beads/ stops for internal use

1. Standard: In accordance with BS EN 13914-2, Table 2.
2. Material: Stainless steel to BS EN 13658-1.

636 Beads/ stops for external use

1. Standard: In accordance with BS EN 13914-1, Table 4.
2. Material: Stainless steel to BS EN 13658-2.

640 Beads/ stops generally

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

646 Crack control at junctions between dissimilar solid substrates

1. Locations: Where defined movement joints are not required. Where dissimilar solid substrate materials are in same plane and rigidly bonded or tied together.
2. Crack control materials
   2.1. Isolating layer: Building paper to BS 1521.
   2.2. Metal lathing: Externally: Stainless steel ribbed expanded metal. Internally: Galvanized steel plain expanded metal with spacers
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.

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.

782 Textured/ patterned finishes

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

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.

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

M22
Sprayed monolithic coatings

Types of coating

120 Sprayed acoustic plaster

1. Description: Acoustic plaster to ceiling K10/220A in changing rooms and WCs. Refer to drawings 6341 and 6342.
2. Preparation: As recommended by coating manufacturer.
3. Barrier/ Bonding coat: As recommended by coating manufacturer.
4. Coating material
   - 4.1. Manufacturer: Saint-Gobain Ecophon
     - 4.1.1. Contact details
       - 4.1.1.1. Address: Old Brick Kiln
Ramsdell
Tadley
Hampshire
RG26 5PP
       - 4.1.1.2. Telephone: +44 (0)1256 855208
       - 4.1.1.3. Web: www.ecophon.com/uk
       - 4.1.1.4. Email: technical@ecophon.co.uk
     - 4.1.2. Product reference: Ecophon Fade™.
   - 4.2. Colour: White.
   - 4.3. Surface finish: Finely textured.
5. Substrate: As K10/220A.
6. Installer: BSI registered, BUFCA member or approved in accordance with the British Board of Agrément Surveillance Scheme.

Performance requirements

180 Acoustic performance

1. Standard: To BS EN ISO 354.
2. Location: Acoustic plaster to ceiling K10/220A in changing rooms and WCs.
3. Sound absorption class (minimum): Class C.

General requirements

210 Surfaces to be coated

1. Condition: Structurally sound, dry, frost free, free from contamination by dirt, dust, efflorescence or other deleterious substances, and in a suitable condition to receive specified coatings.

220 Environmental conditions

1. General: Do not start work specified in this section before building is weathertight.
2. Surface temperature: Minimum 4°C above the dew point temperature with conditions stable or improving.

240 Sequence of work

1. Hangers, supports, clips, sleeves and other attachments: Securely fixed before application of coating.
2. Sprayed coating and sealer coats: Applied and cured before:
   2.1. Installation of ductwork, piping, conduit and other suspended equipment.
   2.2. Application of finishes to adjacent surfaces.

250 Difficult access areas

1. Requirement: Identify areas where difficulty of access may prejudice achievement of complete integrity of the coating or application of the specified coating thickness and submit proposals for applying coating to these areas. If necessary, seek advice from the coating manufacturer.

260 Protection from overspray

1. Adjacent areas not to be coated: Protect using suitable shielding/ masking materials that will not damage the surface when removed.

270 Health and safety

1. Dust, vapour and fumes: Prevent exposure in excess of occupational limits set in the current Health and Safety Executive (HSE) document EH40.

300 Finished coating appearance

1. Standard: Appropriate to the end use and position within the building.
2. Decorative coatings: Free from surface crazing, unevenness, inconsistency in colour and other defects.

Application of coatings

350 Sprayed coatings generally

1. Standard: In accordance with BS 8202-1.

380 Curing

1. Ventilation: Sufficient and continuous.
2. Newly coated surfaces: Prevent from drying out too rapidly.

430 Completion

1. Remove
   1.1. Masking tape and temporary coverings.
   1.2. Overspray from adjacent exposed surfaces.

Ω End of Section

M40
Stone/ concrete/ quarry/ ceramic tiling/ mosaic

Types of tiling/ mosaic

110 Tiling to wet areas

1. Description: To showers and vanity areas.
2. Tiles: Glazed ceramic tile.
   2.1. Manufacturer/ Supplier: Original Style Ltd.
      2.1.1. Product reference: Artworks.
   2.2. Colour: Vintage White.
   2.3. Finish: Gloss.
   2.4. Size: Large brick, 228 x 75 mm.
   2.5. Thickness: 8 mm.
3. Background/ Base: 12.5 mm Glasroc H TileBacker board.
4. Bedding: Adhesive bed - notched trowel method, as clause 650.
   4.1. Adhesive to BS EN 12004-1: In accordance with manufacturer's recommendations.
5. Joint width: 2 mm.
6. Grout: Mapei Ultracolor Plus.
   6.1. Colour: From standard range, TBC.
7. Movement joints: At internal corners.

111 Tiling to kitchen splashbacks

1. Description: To kitchen splashbacks.
2. Tiles: Glazed ceramic tile.
   2.1. Manufacturer/ Supplier: Original Style Ltd.
      2.1.1. Product reference: Artworks.
   2.2. Colour: Vintage White.
   2.3. Finish: Gloss.
   2.4. Size: Large brick, 228 x 75 mm.
   2.5. Thickness: 8 mm.
3. Background/ Base: 12.5 mm Glasroc H TileBacker board.
4. Bedding: Adhesive bed - notched trowel method, as clause 650.
   4.1. Adhesive to BS EN 12004-1: In accordance with manufacturer's recommendations.
5. Joint width: 2 mm.
6. Grout: Mapei Ultracolor Plus.
   6.1. Colour: From standard range, TBC.
7. Movement joints: At internal corners.

112 Concrete flag paving

1. Description: To north basement floor where reclaimed Yorkstone flags are not able to be relaid.
2. Tiles: Concrete flag pavers.
   2.1. Manufacturer/ Supplier: 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: https://www.marshalls.co.uk

2.1.1.4. Email: specification.support@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: 900 x 600 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.

3. Bedding: Cement:sand mortar bedding as clause 720.

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.

215 Falls in the bases

1. General: Give notice if falls are inadequate.

250 Samples

1. General: Submit representative samples of the following: M40/110 and M40/111.

260 Control samples

1. General: Complete sample areas, being part of finished work, in locations as follows: wet areas.

1.1. Approval of appearance: Obtain before proceeding.

Preparation

310 Existing backgrounds/ bases generally

1. Efflorescence, laitance, dirt and other loose material: Remove.
2. Deposits of oil, grease and other materials incompatible with the bedding: Remove.
3. Tile, paint and other nonporous surfaces: Clean.
4. Wet backgrounds: Dry before tiling.

320 Existing concrete/ screeds

1. Loose or hollow portions: Cut out.

360 Existing paint

1. Paint with unsatisfactory adhesion: Remove so as not to impair bedding adhesion.

380 New plaster

1. Plaster: Dry, solidly bedded, free from dust and friable matter.
2. Plaster primer: Apply if recommended by adhesive manufacturer.

390 Plasterboard backgrounds

1. Boards: Dry, securely fixed and rigid with no protruding fixings and face to receive decorative finish exposed.

400 Backgrounds

1. Boards: Dry, securely fixed and rigid with no protruding fixings.
2. Surfaces to be tiled: Seal or prime if recommended by adhesive manufacturer.

460 Smoothing underlayment

1. Type: Recommended by adhesive manufacturer.
2. Condition: Allow to dry before tiling.

Fixing

510 Fixing generally

1. Colour/ shade: Unintended variations within tiles for use in each area/ room are not permitted.
   1.1. Variegated tiles: Mix thoroughly.
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.

1.2. Joints in floors: Parallel to the main axis of the space or specified features.

2. Cut tiles: Minimize number, maximize size and locate unobtrusively.
3. Joints in adjoining floors and walls: Align.
4. Joints in adjoining floors and skirtings: Align.
5. Movement joints: Where locations are not indicated, submit proposals.
6. Setting out of M40/110 and M40/111 : Drawing references: 3300 series.
7. Setting out of M40/112 : Submit proposals.

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.

570 Mortar bedding

1. Bedding mix

1.1. Cement: Portland to BS EN 197-1, type CEM I/42.5.

1.2. Sand for walls: Fine aggregate to BS EN 13139.

1.2.1. Grading designation: 0/2 (CP or MP) category 2 fines.

1.3. Sand for floors: Fine aggregate to BS EN 13139.

1.3.1. Grading designation: 0/4 (MP) category 1 fines and between 20%-66% passing a 0.5 sieve.

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.

3. Mixing: Mix materials thoroughly to uniform consistence. Use a suitable forced action mechanical mixer. Do not use a free fall type mixer.
4. Application: At normal temperatures use within two hours. Do not use after initial set. Do not retemper.

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.

720 Cement:sand mortar bedding (floors)

1. Mortar bedding mix: 1:3-4 cement:sand.

1.1. Consistency: Stiff plastic.

2. Laying: Lay suitably small working areas of screeded bed. Compact thoroughly to level.

2.1. Finished bed thickness

2.1.1. For tiles up to 10 mm thick: 10-15 mm.

2.1.2. For tiles greater than 10 mm thick: 15-20 mm.

3. Tiling: Within two hours and before bedding sets, evenly coat backs of tiles with adhesive. Press tiles firmly into position.
4. Finished adhesive thickness: Within range recommended by manufacturer.

Movement joints/ grouting/ completion

805 Sealant movement joints with metal edgings

1. Description: To floor tiling.
2. Edging material: Brass angle.
   2.1. Bedding: Bed in 1:3 cement:sand.
3. Installation: Centre over joints in base. Set to exact finished level of floor.

815 Sealant movement joints

1. Description: In tiling to walls.
2. Joints: Extend through tiles and bedding to base/ background. Centre over joints in base/ background.
3. Sealant: Mapei Mapesil AC.
   3.1. Colour: To match tile grout.
   3.2. Preparation and application: As section Z22.

825 Strip movement joints

1. Description: To floor tiling.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
   2.2. Colour: To match floor paving slabs.
3. Joint width: 6-12 mm.
4. Joints: Extend through tiles and bedding to base.

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: Slightly concave
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

150 Linoleum sheet flooring

1. Location: As indicated on drawings 6140 and 6141.
2. Base: Cement:sand screed M10/115.
3. Flooring roll
   - 3.1. Manufacturer: Forbo Flooring Systems
     - 3.1.1. Contact details
       - 3.1.1.1. Address: PO Box 1
         High Holborn Road
         Ripley
         Derbyshire
         DE5 3NT
       - 3.1.1.2. Telephone: +44 (0)800 093 5258
       - 3.1.1.3. Web: www.forbo-flooring.co.uk
       - 3.1.1.4. Email: info.flooring.uk@forbo.com
     - 3.1.2. Product reference: Marmoleum Solid Walton
   - 3.2. Standard: To BS EN ISO 24011.
   - 3.3. Use class: Class 23 / 34 / 43.
   - 3.4. Slip potential
     - 3.4.1. Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum): DIN 51130 = R9, PVT Dry: ≥50, EN 13898: μ ≥0.30.
   - 3.5. Recycled content: 43%.
   - 3.6. Width: 2000 mm.
   - 3.7. Thickness: 2.5 mm.
   - 3.8. Colour and pattern: 3352 Berlin red.
   - 3.9. Residual indentation (to EN-ISO 24343-1): ≤0.08 mm.
   - 3.10. Castor chair continuous use (to ISO 4918/EN 425): Suitable for office chairs with castors.
   - 3.11. Light fastness to EN-ISO 105-B02: Method 3: blue scale minimum 6.
   - 3.12. Flexibility (to BS EN ISO 24344): 40 mm.
   - 3.13. Reaction to fire (to EN 13501-1): Cfl-s1.
   - 3.14. Body voltage (to EN 1815): ≤2 kV.
   - 3.15. Thermal conductivity (to EN 12524): 0.17 W/m·K.
   - 3.16. Indoor Air Emissions (to EN ISO 16000-9): TVOC at 28 days: <0.050 mg/m³.
   - 3.17. Adhesive: Eurocol 611 Eurostar Lino Plus.
   - 3.18. Total weight:: 2900 g/m².
   - 3.19. Acoustical impact sound reduction (to EN-ISO 717-2): ≤5 dB.
   - 3.20. Edging: As required.
   - 3.21. Skirtings: As P20/200.
4. Seam welding: Hot welding with complimentary coloured rod.
5. Accessories: Edging trim for thresholds.

155 Non-slip sheet flooring

1. Location: As indicated on drawings 6140 and 6141.
2. Base: Cement:sand screed M10/115.
3. Flooring roll: PVC to BS EN 14041 and BS EN 13553.
   - 3.1. Manufacturer: Tarkett
     - 3.1.1. Contact details
       - 3.1.1.1. Address: 4th Floor - Connect 38
         1 Dover Place
         Ashford
         Kent
         United Kingdom
         TN23 1FB
       - 3.1.1.2. Telephone: +44 (0)1233 746020
       - 3.1.1.3. Web: www.tarkett.co.uk
       - 3.1.1.4. Email: uksales@tarkett.com
     - 3.1.2. Product reference: Granit Safe.T
   - 3.2. Standard: To BS EN 14041 and BS EN 13845.
   - 3.3. Use class: To BS EN ISO 10874, class 34/ 43.
   - 3.4. Slip potential
     - 3.4.1. Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum): ≥36.
   - 3.5. Recycled content: 25.5%.
   - 3.6. Width: 2000 mm.
   - 3.7. Thickness: 2.0 mm.
   - 3.8. Colour and pattern: 0633 Soft Brick.
   - 3.9. Wear layer thickness: 2.0 mm.
   - 3.10. Total weight (to EN ISO 23997): 2950 g/m².
   - 3.11. Roll length: 25 m.
   - 3.12. Reaction to fire (to BS EN 11925-2 and BS EN 13501-1): Pass, Bfl-s1.
   - 3.13. Electrostatic charge (to EN 1815): <2 kV.
   - 3.14. Light fastness (to BS EN ISO 105 B02): ≥6.
   - 3.15. Chemical resistance (to EN-ISO 26987): Good.
   - 3.16. Bacteria resistance (to EN846): Does not favour growth.
   - 3.17. Ramp slip resistance (to DIN 51130): R10.
   - 3.18. Slip resistance (to EN 13893): μ ≥ 0.3.
   - 3.19. Thermal resistance to EN 12667: 0.01 m²K/W.
   - 3.20. (to DIN 51097): Class B (18º).
   - 3.21. Seam Welding: Average value: ≥240 N/50mm; Individual values: ≥180 N/50mm.
   - 3.22. Surface treatment: Safe.T Clean XP™.
   - 3.23. VOC emissions (to ISO 16000-9): ≤10 µg/m³.
   - 3.24. Castor chair continuous use (to ISO 4918): Suitable.
   - 3.25. Accessories: Tarkett ReStart recycling service.
4. Seam welding: Hot welding with complimentary coloured rod.
5. Accessories: Continuous coved skirting. Edging trim for thresholds.

170 Carpeting

1. Location: As indicated on drawings 6140 and 6141.
2. Base: Cement:sand screed M10/115.
3. Carpet underlay to BS 5808 and BS EN 14499
   - 3.1. Manufacturer: Ege Carpets Limited
     - 3.1.1. Contact details
       - 3.1.1.1. Address: 13-16 BRITTON STREET
         LONDON
         EC1M 5SX
       - 3.1.1.2. Telephone: +44 (0) 20 7336 0992
       - 3.1.1.3. Web: www.egecarpets.com
       - 3.1.1.4. Email: london.showroom@egecarpets.com
     - 3.1.2. Product reference: Eco Pro wall to wall.
   - 3.2. Standard: To BS EN 1307.
   - 3.3. Style: Woven loop pile.
   - 3.4. Classification
     - 3.4.1. Standard: To BS EN 1307.
     - 3.4.2. Third-party certification: Cradle to Cradle Certified® Bronze. Indoor Air Comfort Gold. Green Label Plus Approved. CE marked.
     - 3.4.3. Luxury rating class: Manufacturer's standard.
   - 3.5. Level of use class: To EN 1307, class 33.
   - 3.6. Material: 100% regenerated polyamide PA6.
   - 3.7. Recycled content: ISO 14021, approx. 24% For LEED, approx. 18%. Backing: 100%.
   - 3.8. Width: 4000 mm.
   - 3.9. Colour and pattern: Eco Pro, colour TBC.
   - 3.10. Total weight: 1850 g/m².
   - 3.11. Total carpet thickness: 3 mm.
   - 3.12. Pile yarn weight: 450 g/m².
   - 3.13. Colour fastness: To light, ISO 105-B02: >5. To rubbing wet, ISO 105-X12: >3. To rubbing dry, ISO 105-X12: >3–4. To water plain, ISO 105-E01: >3–4.
   - 3.14. Backing: Ecotrust 350.
   - 3.15. Reaction to fire: To EN 13501-1, Euroclass Bfl-s1.
   - 3.16. Suitability for castor chairs: To EN 985, intensive use.
   - 3.17. Stair suitability: To EN 1963, Yes.
   - 3.18. Acoustic insulation: To ISO 717-2, 15 dB.
   - 3.19. Sound absorption: To ISO 354, 0.15 αW.
   - 3.20. Thermal insulation: 0.06 m²K/W.
4. Accessories: Edging strip at thresholds.

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 representative sample of each type.

250 Layout – roll materials

1. Setting out of seams: Agree setting out for sheeting types M50/ 150 and M50/155 .

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.

460 Smoothing/ levelling underlayment compound

1. Type: As recommended by covering manufacturer.

2. Manufacturer: Submit proposals

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. Patterns: Matched.
2. 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.

690 Seam bonding carpet

1. Carpet types: M50/ 170 .
2. Seaming adhesive application: Continuous bead to edges.
3. Joints: Securely bonded, free of air bubbles.

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: Metal or plastics, colour to match finishes as closely as possible.
3. Fixing: Secure with edge of covering gripped. Use matching fasteners where exposed to view

780 Trafficking after laying

1. Traffic free period: Until adhesive is set.

Completion

820 Finishing

1. Description: Linoleum sheet flooring and non-slip sheet flooring.
2. Cleaning operations
   2.1. Wash floor with water containing neutral (pH 6-9) detergent. If necessary, lightly scrub heavily soiled areas.
   2.2. Rinse with clean water, removing surplus to prevent damage to adhesive. Allow to dry.

3. Emulsion polish: Two coats of a type recommended by covering manufacturer.

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 Emulsion paint

1. Description: To plastered walls and ceilings.
2. Manufacturer: Dulux Trade, brand of AkzoNobel
   2.1. Contact details
      2.1.1. Address: AkzoNobel Decorative Paints
      Wexham Road
      Slough
      Berkshire
      SL2 5DS
      2.1.2. Telephone: +44 (0)333 222 7070
      2.1.3. Web: www.duluxtradepaintexpert.co.uk
      2.1.4. Email: project.support@akzonobel.com
   2.2. Product reference: Dulux Trade Diamond Matt
3. Composition: Lightfast pigments (pigment), acrylic copolymer emulsion (binder), water (solvent).
4. Sheen: Matt.
5. Colour: RAL Classic, colour TBC.
6. Form: Liquid.
7. Certification: BREEAM, LEED, IAC Gold, EPD, Fire Testing report.
8. Coverage: 16 m²/L.
9. Drying time: Touch dry: dependent on temperature and humidity. Recoat: 4–6 hours.
10. Thinning: Sealing new or bare surfaces: add up to one part clean water to ten parts paint. Normal use (not to be exceeded): thinning is not usually required. Airless spray application: thinning is not usually required but can be thinned by adding up to one part clean water to ten parts paint.
11. Volume solids: White: 49% (nominal). Other colours will vary.
12. Chemical resistance: Not suitable.
13. Water resistance: Resistant to the levels of atmospheric humidity present in normal interior environments and will withstand repeated washing.
14. Application method: Manufacturer's standard (restricted).
15. VOC: Ready mixed: maximum 1 g/L VOC. Tinted colour: maximum 1 g/L VOC.
16. VOC emissions: Considered to have "Trace" elements for emissions.
17. Storage: Do not use or store in extremes of temperature and protect from frost.
18. Surface preparation: Ensure surfaces to be painted are sound, clean and dry.

150 Eggshell paint

1. Description: To internal woodwork.
2. Manufacturer: Dulux Trade, brand of AkzoNobel
   2.1. Contact details
      2.1.1. Address: AkzoNobel Decorative Paints
      Wexham Road
      Slough
      Berkshire
      SL2 5DS

2.1.2. Telephone: +44 (0)333 222 7070
2.1.3. Web: www.duluxtradepaintexpert.co.uk
2.1.4. Email: project.support@akzonobel.com
2.2. Product reference: Dulux Trade Diamond Eggshell
3. Composition: Acrylic copolymer.
4. Sheen: Eggshell.
5. Colour: RAL Classic, colour TBC.
6. Form: Liquid.
7. Surfaces: Uncoated or preprimed and sealed.
7.1. Preparation: Ensure surfaces are clean and dry.
8. Undercoats: Dulux Trade Quick Dry Primer Undercoat.
8.1. Number of coats: As recommended by manufacturer.
9. Finishing coats: As recommended by manufacturer.
9.1. Number of coats: As recommended by manufacturer.

151 Metal paint

1. Description: To exposed metal soffits and high level mechanical, electrical and plumbing services on levels 4 and 5.
2. Manufacturer: Dulux Trade, brand of AkzoNobel
2.1. Contact details
2.1.1. Address: AkzoNobel Decorative Paints
Wexham Road
Slough
Berkshire
SL2 5DS
2.1.2. Telephone: +44 (0)333 222 7070
2.1.3. Web: https://www.duluxtradepaintexpert.co.uk/en
2.1.4. Email: project.support@akzonobel.com
2.2. Product reference: Dulux Trade Diamond Satinwood
3. Composition: Acrylic copolymer.
4. Sheen: Satin.
5. Colour: RAL Classic, colour TBC.
6. Form: Liquid.
7. Surfaces: Uncoated or preprimed and sealed.
7.1. Preparation: Ensure surfaces are clean and dry.
8. Application: Airless spray.
9. Undercoats: Dulux Trade Metalshield Quick Dry Metal Primer.
9.1. Number of coats: As recommended by manufacturer.
10. Finishing coats: As recommended by manufacturer.
10.1. Number of coats: As recommended by manufacturer.

170 Masonry dust sealant coating

1. Description: To exposed internal blockwork walls.
2. Manufacturer: Watco UK Ltd
2.1. Contact details

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

2.1.2. Telephone: +44 (0)1483 418418

2.1.3. Web: www.watco.co.uk

2.1.4. Email: sales@watco.co.uk

2.2. Product reference: Watco Wallseal.

3. Colour: Clear.

4. Surfaces: Exposed internal blockwork walls.

4.1. Preparation: Ensure surfaces are clean and dry.

5. Undercoats: As recommended by manufacturer.

5.1. Number of coats: As recommended by manufacturer.

6. Finishing coats: As recommended by manufacturer.

6.1. 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.

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, light fittings and other surface mounted fixtures.
2. Replacement: Refurbish as necessary, refit when coating is dry.

425 Ironmongery

1. Removal: Before commencing work: Remove ironmongery from surfaces to be coated.
2. Replacement: Refurbishment as necessary; refit when coating is dry.

471 Preprimed wood

1. Areas of defective primer: Take back to bare wood and reprime.

481 Uncoated wood

1. General: Provide smooth, even finish with arrises and moulding edges lightly rounded or eased.
2. Heads of fasteners: Countersink sufficient to hold stoppers/fillers.
3. Resinous areas and knots: Apply two coats of knotting.

500 Preprimed steel

1. Areas of defective primer, corrosion and loose scale: Take back to bare metal. Reprime as soon as possible.

511 Galvanized, sherardized and electroplated steel

1. White rust: Remove.
2. Pretreatment: Apply one of the following:
    2.1. Mordant solution to blacken whole surface.
    2.2. Etching primer recommended by coating system manufacturer.

521 Uncoated steel – manual cleaning

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

560 Uncoated concrete

1. Release agents: Remove.

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.

720 Priming joinery

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

Ω End of Section

M61
Intumescent coatings for fire protection of steelwork

Protective coating systems

150 Off-site coating to unprimed steel

1. Description: To steel structural members.
2. Use/ location: Exposed faces of columns and beams.
3. Fire performance: As clause 202.
4. Preparation: Blast clean as clause 315.
5. Intumescent coating system
   - 5.1. Manufacturer: Hempel A/S
     - 5.1.1. Contact details
       - 5.1.1.1. Address: Berwyn House
         The Pavilions
         Llantarnam Park
         Cwmbran
         Torfaen
         United Kingdom
         NP44 3FD
       - 5.1.1.2. Telephone: +447827 448651
       - 5.1.1.3. Web: https://www.hempel.co.uk
       - 5.1.1.4. Email: iam@hempel.com
     - 5.1.2. Product reference: Intumescent Fire Protection Coating Systems (C1–C4) (Primer + Intumescent + Topcoat) (C4 Solvent Based; 90-120 minute Intumescent Fire Protection System; Internal and External)
   - 5.2. Preparation: Remove oil, grease and other contaminants by suitable detergent cleaning. Remove salts, detergents and other contaminants by high pressure fresh water cleaning. Remove dust, blast media and loose materials.
   - 5.3. Initial coats: Hempadur Speed-Dry ZP 600.
   - 5.4. Undercoats: Hempafire Pro 400 FD.
   - 5.5. Finishing coats: Hempathane Fast Dry 55613 (Semi-gloss).
   - 5.6. Dry film thickness: Initial coat/ primer: 100 microns. Undercoat: Contact Hempel for intumescent material take-off. Finishing coat/ topcoat: 100 microns (C3-C4).
   - 5.7. Colour: Multi-Tint® Hempathane 55613. RAL TBC.
   - 5.8. Finish: Manufacturer's standard.
   - 5.9. Standards: To ISO 12944.
   - 5.10. Usage: Can be exposed during build phase.
   - 5.11. Suitable environment: C4; Internal or External; On-Site and Off-Site Application.
   - 5.12. Fire protection: 120 minutes.
   - 5.13. Composition: Solvent-based intumescent.
   - 5.14. Intumescent coat
     - 5.14.1. Finish: Visible areas: normal decorative. Concealed areas: basic.
6. Bolt head/ nut protection: As main steelwork.

Performance and general requirements

202 Fire performance

1. Reaction to fire: To BS EN 13501-1, A2- s1, d0 or A1.
2. Fire resistance to BS EN 13501-2: To BS EN 13501-2, R 120.

204 Exposure and durability

1. Environmental exposure: C4.
2. Durability classification: W/Z1.

205 Validation of materials

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

210 Working procedures

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

215 Working conditions

1. General: Maintain manufacturer's recommended temperature, humidity and air quality conditions during application and drying.
2. Surface condition: Clean and dry at time of application.

220 Applicator's personnel

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

250 Sprayed coating application on site

1. Standard: In accordance with BS EN 16623.
2. Spray drift: Minimize.
3. Masking: Protect designated adjacent surfaces.

255 Sprayed coating application off site

1. Standard: In accordance with BS EN 16623.

260 Control samples

1. General: Carry out sample areas of finished work as follows: One column and two adjoining beams to normal decorative finish.
2. Approval of appearance: Obtain before commencement of general application.

270 Inspection

1. Permit intumescent manufacturer to
   1.1. Inspect work in progress.
   1.2. Inspect quality control records.

1.3. Take dry film thickness and other measurements.

1.4. Take samples of products.

2. Intumescent manufacturer's inspection reports: Submit without delay.

280 Off-site-coated steel

1. Handling and erection: Use methods and devices designed to minimize damage to intumescent coatings.
2. Damaged areas of coating: Reinstate in accordance with coating manufacturer's recommendations.

Preparation of surfaces

315 New steel – blast-cleaning

1. Preparation: Remove oil, grease and contaminants.
2. Blast-cleaning
   2.1. Atmospheric condition: Dry.
   2.2. Abrasive: Suitable type and size, free from fines, moisture and oil.
   2.3. Finish: To BS EN ISO 8501-1, preparation grade SA2½, with an average profile of approximately 75 micrometres.
   2.4. Abrasive residues and moisture: Remove.
3. Primer: Apply as soon as possible after cleaning and before gingering or blackening appears.

Application of castings - Not Used

Application of coatings

410 Intumescent coating dry film thickness (dft)

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

420 Measurement of intumescent dft

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

440 Basic finish

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

450 Normal decorative finish

1. Definition: Good standard of cosmetic finish generally, when viewed from a distance of 5 m or more. Minor orange peel or other texture is acceptable.

460 High decorative finish

1. Definition: High standard of evenness, smoothness and gloss when viewed from a minimum distance of 2 m.

490 Top sealer coat

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

520 Completion of off-site-coated steel

1. Uncovered areas, including fixings: Following erection of steelwork, apply intumescent coating locally.
2. Unscheduled additional connections to erected steelwork: Remove and reinstate intumescent coating locally.

Completion

530 Records of intumescent application

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

Ω End of Section

N10
General fixtures/ furnishings/ equipment

Products

170 Benches

1. Manufacturer: Helmsman
   1.1. Contact details
      1.1.1. Address: 1 Northern Way
      Bury St Edmunds
      Suffolk
      IP32 6NH
      1.1.2. Telephone: +44 (0)1284 530427
      1.1.3. Web: www.helmsman.co.uk
      1.1.4. Email: specifications@helmsman.co.uk
   1.2. Product reference: Bench Seating (Wall/floor bench seating)
2. Dimensions: As indicated on room layout drawings.
3. Seats and backs
   3.1. Material: Ash hardwood.
   3.2. Colour: Natural.
4. Frames
   4.1. Material: Bright zinc plated steel.
   4.2. Finish: Epoxy powder-coated.
   4.3. Colour: RAL TBC.
5. Height: 450 mm.
6. Length: As indicated on room layout drawings.
7. Type: Wall/floor bench seating.
8. Seat slats: Solid ash hardwood.

220 Lockers

1. Description: Changing room lockers.
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: https://www.helmsman.co.uk/
      2.1.4. Email: specifications@helmsman.co.uk
   2.2. Product reference: Z Lockers - Wet Area
3. Locker type: Z-shaped locker with two compartments.
4. Dimensions: 1800 x 300 x 450 mm.
5. Material: Solid grade laminate door and stainless steel frame.
6. Finish: Abet Laminati, Sei laminate.
7. Colour: TBC from standard range.

8. Locking: Ten-disc tumbler cam lock supplied with master keys.
9. Accessories: Numbering, recessed oval laminated number plate. Stands with seats and without adjustable feet. Bulkhead panels above lockers.
10. Hinges: Sprung.
11. Hooks: Nylon.

240 Blinds

1. Description: To offices.
2. Standard: To BS EN 13120.
3. Manufacturer: Silent Gliss Ltd
   3.1. Contact details
      3.1.1. Address: Pyramid Business Park
      Poorhole Lane
      Broadstairs
      Kent
      CT10 2PT
      3.1.2. Telephone: +44 (0)1843 863571
      3.1.3. Web: www.silentgliss.co.uk
      3.1.4. Email: info@silentgliss.co.uk
   3.2. Product reference: Silent Gliss Chain Operated Heavy Duty Roller Blind SG 4840.
4. Type: Vertical roller.
5. Dimensions: Refer to drawings.
6. Material: Stainless steel brackets, RAL 9016 powder-coated finish. Fabric.
   6.1. Finish/ Colour: Aluscreen Futura, colour TBC from standard range.
7. Operation: Manual, stainless steel ball chain.
8. Accessories/ Other requirements: Ball-chain safety connector.

300 Entrance mats

1. Manufacturer: Gradus
   1.1. Contact details
      1.1.1. Address: Chapel Mill
      Park Green
      Macclesfield
      Cheshire
      SK11 7LZ
      1.1.2. Telephone: +44 (0)1625 428922
      1.1.3. Web: www.gradus.com
      1.1.4. Email: imail@gradus.com
   1.2. Product reference: Esplanade 5000 Primary Barrier Matting (Carpet wipers)
2. Dimensions: 12 mm gauge.
3. Integral accessories: Aluminium matwell frame.
4. Construction: Closed.
5. Flammability: Class Cfl-s1.
6. Colour: Corncrake.

Execution

710 Moisture content of wood and wood-based boards

1. Standard: To BS EN 942.
2. Moisture content on delivery: 6-10%.
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. 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 L04 & 05 mess kitchens.
2. Standard: To BS EN 14749.
3. Manufacturer: Howden Joinery Ltd.
   3.1. Product reference: Clerkenwell Super Matt.
4. Dimensions: To BS EN 1116.
5. Surface finishes: To BS 6222-3.
6. Doors and drawer fronts
   6.1. Material: MDF with plastics laminate finish.
   6.2. Finish and colour: White, matt.
   6.3. Edges: Doors - 0.8mm ABS edging on sides, Drawer Fronts - 0.8mm ABS edging on sides, 1.5mm ABS edging on bottom.
   6.4. Other requirements: Concealed soft close hinges and drawer runners. Slab integrated handle profile.
7. Side panels, plinths and shelves
   7.1. Material: MDF with plastics laminate finish.
   7.2. Finish and colour: White, matt.
   7.3. Edges: Doors - 0.8mm ABS edging on sides, Drawer Fronts - 0.8mm ABS edging on sides, 1.5mm ABS edging on bottom.
   7.4. Other requirements: Plinths to be removable to allow for pest management inspections.
8. Accessories: End panels as indicated on drawings to enclose freestanding appliances. Tall units as indicated on drawings. Pull-out bin unit with bins.

320 Fitted wall units

1. Description: To L04 & 05 mess kitchens.
2. Standard: To BS EN 14749.
3. Manufacturer: Howden Joinery Ltd.
   3.1. Product reference: Clerkenwell Super Matt.
4. Dimensions: To BS EN 1116.
5. Surface finishes: To BS 6222-3.
6. Doors and drawer fronts
   6.1. Material: MDF with plastics laminate finish.
   6.2. Finish and colour: White, matt.
   6.3. Edges: Doors - 0.8mm ABS edging on sides, Drawer Fronts - 0.8mm ABS edging on sides, 1.5mm ABS edging on bottom.
   6.4. Other requirements: Concealed soft close hinges. Slab integrated handle profile. Integrated linear LED lighting fitted to underside of wall units. Refer to MEP Engineer's information.
7. Side panels and shelves
   7.1. Material: MDF with plastics laminate finish.
   7.2. Finish and colour: White, matt.

7.3. Edges: Doors - 0.8mm ABS edging on sides, Drawer Fronts - 0.8mm ABS edging on sides, 1.5mm ABS edging on bottom.

8. Accessories: End panels and bulkhead panels as indicated on drawings. Internal shelves.

340 Worktops

1. Description: To L04 & 05 mess kitchens.
2. Manufacturer: LX Hausys.
   2.1. Product reference: HIMACS Solids.
   2.2. Colour: Ivory White S029.
3. Material: Solid surface.
4. Dimensions: Refer to drawings.
5. Exposed edges: Solid surface, polished. Square edge profile.
6. Other requirements: Polished cut-outs for under-mounted sinks. Cut-outs and holes for tap and hot water tap.

350 Sinks, taps, traps and wastes

1. Description: To L04 & 05 mess kitchens.
2. Sinks
   2.1. Standard: To BS EN 13310.
   2.2. Manufacturer: Franke UK Ltd.
      2.2.1. Product reference: Maris BOX BXX 110 40.
   2.3. Configuration: Single sink, undermounted.
   2.4. Overall size: 400 x 410 mm.
   2.5. Material: Stainless steel.
      2.5.1. Colour and finish: Brushed steel.
3. Tap/ chainstay/ overflow holes: Overflow hole.
4. Taps: Mixer.
   4.1. Manufacturer: Franke UK Ltd.
      4.1.1. Product reference: Hestia J-Spout SilkSteel.
   4.2. Operation: Dual lever.
   4.3. Material: Decor steel finish.
5. Wastes: Basket Strainer Waste and Hygienic Overflow.
   5.1. Standard: To BS EN 274-1, -2 and -3.
   5.2. Manufacturer: Franke UK Ltd.
   5.3. Size: To fit sink.
   5.4. Material: Stainless steel.
6. Traps: Tubular, P-type.
   6.1. Standard: To BS EN 274-1, -2 and -3.
   6.2. Size: To fit waste.
   6.3. Material: Plastic.
   6.4. Depth of seal (minimum): 75 mm.

360A Appliances Fridge

1. Item: Freestanding fridge.
2. Manufacturer: Bosch Home Appliances

2.1. Contact details

2.1.1. Address: Grand Union House
Old Wolverton Road
Milton Keynes
United Kingdom
MK12 5PT

2.1.2. Telephone: 0344 8929021

2.1.3. Web: https://www.bosch-home.co.uk/

2.1.4. Email: mks-contracts-division@bshg.com

2.2. Product reference: Series 4 Free-standing fridge 186 x 60 cm KSV36VWEPG.

3. Colour and finish: White.
4. Service connections: Mains electricity.

360B Appliances Microwave oven

1. Item: Freestanding microwave oven.
2. Manufacturer: Bosch Home Appliances

2.1. Contact details

2.1.1. Address: Grand Union House
Old Wolverton Road
Milton Keynes
United Kingdom
MK12 5PT

2.1.2. Telephone: 0344 8929021

2.1.3. Web: https://www.bosch-home.co.uk/

2.1.4. Email: mks-contracts-division@bshg.com

2.2. Product reference: Series 2 Freestanding microwave 44 x 26 cm FFL023MW0B.

3. Colour and finish: White.
4. Service connections: Mains electricity.

360C Appliances Dishwasher

1. Item: Freestanding dishwasher.
2. Manufacturer: Bosch Home Appliances

2.1. Contact details

2.1.1. Address: Grand Union House
Old Wolverton Road
Milton Keynes
United Kingdom
MK12 5PT

2.1.2. Telephone: 0344 8929021

2.1.3. Web: https://www.bosch-home.co.uk/

2.1.4. Email: mks-contracts-division@bshg.com

2.2. Product reference: Series 4 Free-standing dishwasher 60 cm SMS4EKW06G.

3. Colour and finish: White.
4. Service connections: Mains electricity, cold water.

360D Appliances Hot and cold water tap

1. Item: Hot and cold water tap.
2. Manufacturer: Marco Beverage Systems Limited

2.1. Contact details

2.1.1. Web: https://marcobeveragesystems.com/

2.2. Product reference: FRIIA HC Plus hot and cold water tap. 1000866.

3. Colour and finish: Stainless steel.
4. Accessories: 2B Font (1000868). Under counter chiller (1000860). Mix boiler UC8 (1000887).
5. Service connections: Mains electricity, cold water.

390 Sealant

1. Type: One-part silicone.

1.1. Manufacturer: Submit proposals

1.1.1. Product reference: Submit proposals

2. Colour: White.

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 underside 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.

311 Unisex accessible WC equipment packages (Document M)

1. Description: Refer to Sanitaryware Schedule.

312 Unisex accessible shower room equipment packages (Document M)

1. Description: Refer to Sanitaryware Schedule.

331 Cleaners' sinks

1. Description: Refer to Sanitaryware Schedule.

335 Washbasins

1. Description: Refer to Sanitaryware Schedule.

346 Washing troughs

1. Description: Refer to Sanitaryware Schedule.

362 Bib taps

1. Description: Refer to Sanitaryware Schedule.

375 Shower units

1. Description: Refer to Sanitaryware Schedule.

429 Clothes hooks

1. Description: Refer to Sanitaryware Schedule.

438 Mirrors

1. Description: To changing rooms and accessible WCs/ shower rooms.
2. Manufacturer: Submit proposals
3. Type: 6 mm clear float glass.
4. Size: Refer to drawings.
5. Edge treatment: Polished arris.
6. Protective backing: Polypropylene safety film.

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.

472 Hand dryers

1. Description: Refer to Sanitaryware Schedule.
2. Standard: To BS EN 60335-2-23.

474 Waste bins

1. Description: Refer to Sanitaryware Schedule.

500 Pre-plumbed WC frame system

1. Description: Refer to Sanitaryware Schedule.

580 Sealant for pointing

1. Type: Silicone.
2. Manufacturer: Mapei UK Ltd.
   2.1. Product reference: Mapesil AC.
3. Colour: White.

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. 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.

725 Installing hand dryers

1. Fused connection units
    1.1. Type: Switched.
    1.2. Engraving: With 'HAND DRYER'.
    1.3. Location: Within mirror unit.
2. Final connection: Concealed.

755 Sealant bedding and pointing

1. Pointing: Joints between appliances and walls.

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: Assa Abloy UK.
   2.1. System reference: Satin stainless steel door signs.
3. Locations and layout: Refer to door types drawings and ironmongery schedules and specifications.
   3.1. Language: English.
4. Material: Stainless steel plate.
   4.1. Other properties: Fixing holes.

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.
6. Water safety: In accordance with BS EN ISO 7010.

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 Schedules.
2. Manufacturer: Assa Abloy UK.
   2.1. Product reference: Satin stainless steel door signs.
3. Base material: Stainless steel, Grade 1.4301 (304) to BS EN 10088-2.
4. Finish: Satin stainless steel.
5. Perimeters: Manufacturer's standard.
6. 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: Fire extinguisher stand.
2. Supplier: Safe Fire Direct.
3. Product reference: Jewel Double Rotationally Moulded Extinguisher Stand.
4. Material: Plastic.
5. Colour: Red.

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.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals

320 Dry powder portable extinguishers

1. Standard: To BS EN 3.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals

330 Foam portable extinguishers

1. Standard: To BS EN 3.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals

340 Water portable extinguishers

1. Standard: To BS EN 3.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals

350 Wet chemical portable extinguishers

1. Standard: To BS EN 3.
2. Manufacturer: Submit proposals

2.1. Product reference: Submit proposals

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

P10
Sundry insulation/ proofing work

Types of insulation

310 Airtightness tape

1. Description: To joints between steel frame and external walls.
2. Manufacturer: Pro Clima
   2.1. Contact details
      2.1.1. Address: Cardewlees
      Carlisle
      Cumbria
      United Kingdom
      CA5 6LF
      2.1.2. Telephone: +44 (0)1228 711511
      2.1.3. Web: https://www.ecologicalbuildingsystems.com/shop-by-brand/pro-clima
      2.1.4. Email: info@ecologicalbuildingsystems.com
   2.2. Product reference: Pro Clima Tescon Vana Tape
3. Material: Backing special PP fleece. Adhesive water-resistant SOLID adhesive. Release film siliconized paper.
4. Fire performance
   4.1. Fire resistance: NPD (No Performance Determined).
   4.2. Reaction to fire: NPD (No Performance Determined).
5. Air permeability: Passivhaus A certified component.
6. Size: 100 mm wide.
7. Colour: Dark blue.
8. Primer: As required to substrates.
9. Material: 1000 gauge virgin polyethylene
10. Minimum vapour resistance: 250 MN s/g
11. Installation requirements

320 Breather membrane

1. Manufacturer: DuPont™ Tyvek®
   1.1. Contact details
      1.1.1. Address: HERE
      470 Bath Road,
      Arno's Vale,
      Bristol
      Avon
      United Kingdom
      BS4 3AP
      1.1.2. Telephone: +44 (0) 117 452 9050
      1.1.3. Web: www.construction.tyvek.co.uk
      1.1.4. Email: tyvek.construction@dupont.com
   1.2. Product reference: Tyvek® FireCurb®
2. Standard: To BS EN 13859-2.
3. Performance characteristics: Fire resistant.

4. Class (minimum): W1.
5. Material: High Density Poly Ethylene (HDPE).
6. Form: Flash-spun-bonded.
7. Third-party certification: British Board of Agrément (BBA) Certificate.
8. Weight (minimum): 68 g/m².
9. Thickness (minimum): 0.175 mm.
10. Accessories: Tyvek® Double Sided Tape.
11. Reaction to fire (EN 13501-1): B-s1, d0.
12. Temperature resistance: -40°C to +100°C.
13. Water vapour transmission: 0.014 m.
14. Installation requirements
    - 14.1. Setting out: Joints minimized. Membrane to form a continuous barrier to prevent water, snow and wind blown dust reaching the substrate.
    - 14.2. Joints: Lapped 100 mm minimum horizontally and 150 mm minimum vertically.
    - 14.3. Openings: Membrane fixed to reveals.
    - 14.4. Bottom edges: Membrane lapped over flashings, sills, etc. to allow free drainage to the exterior.
15. Penetrations: Sealed.

432 Cavity barriers

1. Manufacturer: ROCKWOOL Ltd
    - 1.1. Contact details
        - 1.1.1. Address: ROCKWOOL Ltd
          Wern Tarw
          Pencoed
          Bridgend
          United Kingdom
          CF35 6NY
        - 1.1.2. Telephone: +44 (0)1656 862621
        - 1.1.3. Web: https://www.rockwool.com/uk/
        - 1.1.4. Email: customersupportcentre@rockwool.com
    - 1.2. Product reference: FirePro® SP FireStop EN (SP FireStop EN 120)
2. Material
    - 2.1. Standard: To BS EN 1366-4:2021.
    - 2.2. Type: Rigid.
    - 2.3. Facing: Metal foil laminate.
3. Fire performance: Fire resistance: EI 120 to BS EN 13501-2.
4. Recycled content: 20—20%.
5. Reaction to fire: Euroclass A1 non-combustible.
6. Thickness: 90 mm.
7. Width: 1200 mm.
8. Length: 1000 mm.
9. Colour: Black.
10. Accessories: SP FireStop Fixing Bracket SP/L - Cavity size: 400 mm (maximum).

Ω End of Section

P12
Fire-stopping systems

General

140A Fire-stopping system to multiple services penetrations Ablative batts

1. Description: To services penetrations through 60 minutes fire-resisting walls.
2. Fire resistance: At least 60 minutes integrity and insulation.
3. Board barrier
   - 3.1. Material: Mineral wool ablative coated rigid batts, as clause 360A.
     - 3.1.1. Thickness: 50 mm.
     - 3.1.2. Number of layers: Two.
   - 3.2. Framing: Not required.
   - 3.3. Finish: Not applicable.
4. Capping sealant: Intumescent mastic, as clause 338.

140B Fire-stopping system to multiple services penetrations High strength compound

1. Description: To services penetrations through 240 minute fire-resisting walls.
2. Fire resistance: At least 240 minutes integrity and insulation.
3. Board barrier
   - 3.1. Material: Fire-resisting mortar, as clause 342.
     - 3.1.1. Thickness: At least 150 mm.
   - 3.2. Framing: Not required.
4. Capping sealant: Intumescent mastic, as clause 338.

160 Linear gap sealing

1. Description: Tops of internal blockwork masonry compartment walls.
2. Fire resistance: To match the fire resistance of the wall (up to 120 minutes integrity and insulation).
3. Gap width or height (nominal): 50 mm.
4. Gap filler: Mineral wool, as clause 360B.
5. Capping sealant: Intumescent mastic, as clause 338.

System performance

210 Design

1. Design: Complete the design of the fire-stopping system.
2. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

240 Fire performance

1. Description: Refer to fire performance drawings for requirements.
2. Resistance to fire: To BS EN 13501-2, up to EI 120 or better.

Products

305 Product certification

1. Certification: For products specified generically, submit evidence of compliance with the specification.
2. Acceptable evidence: Third-party certification.

338 Intumescent mastic

1. Manufacturer: ROCKWOOL Ltd
   1.1. Contact details
      1.1.1. Address: ROCKWOOL Ltd
      Wern Tarw
      Pencoed
      Bridgend
      United Kingdom
      CF35 6NY
      1.1.2. Telephone: +44 (0)1656 862621
      1.1.3. Web: https://www.rockwool.com/uk/
      1.1.4. Email: customersupportcentre@rockwool.com
   1.2. Product reference: FirePro® Acoustic Intumescent Sealant
2. Sealant type: Water based acrylic intumescent.
3. Colour: White.
4. Fire performance: Up to four hours.
5. Backing material: As P12/385.
6. Execution: Applying joint sealants.
7. Type: Acoustic intumescent.

342 Fire-resisting 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: customersupportcentre@rockwool.com
   1.2. Product reference: FirePro® High Strength Compound
2. Material: Gypsum based.
3. Fire resistance: To EN 1366-3, up to four hours/ EI120.
4. Density: 1750–1900 kg/m³.
5. LoadBearing: false
6. Acoustic performance: Rw 57 dB.
7. Maximum unsupported span: 1800 mm.
8. ThermalConductivity: 0.45 W/mK.
9. Setting expansion: 0.1%.

10. Typical yield: ±6 bags/m² at 100 mm depth.
11. Weight: 20 kg.

360A Mineral wool rigid batts

1. Manufacturer: ROCKWOOL Ltd
   1.1. Contact details
      1.1.1. Address: ROCKWOOL Ltd
      Wern Tarw
      Pencoed
      Bridgend
      United Kingdom
      CF35 6NY
      1.1.2. Telephone: +44 (0)1656 862621
      1.1.3. Web: https://www.rockwool.com/uk/
      1.1.4. Email: customersupportcentre@rockwool.com
   1.2. Product reference: FirePro® Ablative Coated Batt
2. General requirements: Insulation products generally.
3. Thickness: 50 mm.
4. Facing: Ablative coated.
5. Density: 160 kg/m³.
6. Fire performance: Euroclass fire rating A1.
7. Width: 600 mm.
8. Accessories: ROCKWOOL Acoustic Intumescent Sealant as clause 338.
9. Air leakage: 0.8 m³/h/m².

360B Mineral wool linear fire-stopping

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

370 Pipe collar

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

United Kingdom
CF35 6NY

1.1.2. Telephone: +44 (0)1656 862621

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

1.1.4. Email: customersupportcentre@rockwool.com

1.2. Product reference: RockLap H&V Pipe Supports

2. Sizes: To suit pipe sizes.
3. Fire performance: Non-combustible stone wool.
4. Form: Pipe support for services pipework.
5. Specific heat: 0.84 KJ/KgK.
6. Water vapour resistance: >10 000 (μ).

385 Sealant backing material

1. Manufacturer: Sika Limited
   1.1. Contact details
      1.1.1. Address: Watchmead
      Welwyn Garden City
      Hertfordshire
      AL7 1BQ
      1.1.2. Telephone: +44 (0)1707 394444
      1.1.3. Web: https://www.sika.co.uk
      1.1.4. Email: enquiries@uk.sika.com
   1.2. Product reference: Sika® Backer Rod Fire
2. Fire performance
   2.1. Fire resistance: To EN 13501-2, up to class EI 240; To EN 1366-4, up to 4 hours.
   2.2. Reaction to fire: To EN 13501-1, Class A1.
3. Material: Mineral fibre wool wrapped with glass fibre yarn.
4. Size
   4.1. Thickness: 15 mm diameter.
5. Density: ~250 kg/m³.

Execution

610 Third-party-certified installer

1. Certification: For the technical competency of the installer of the evidence of compliance with a third-party installation certification scheme.
2. Acceptable evidence: UKAS Accreditation Certificate.

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.

640 Installing boarding

1. Position of boarding: Within opening.
2. Framing: Not required.
3. Bedding: Bed boarding on one-part fire-resisting acrylic.

4. Multiple board layers: Stagger joints between layers.
   4.1. Joints: Seal with board adhesive.
5. Fixing: In accordance with manufacturer's recommendations.

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: In accordance with manufacturer's recommendations.
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: Flush with the surface of wall, floor or soffit.
3. Joints between batts: Butt joints, seal with acoustic intumescent sealant.
4. Gaps between services and barrier: Seal with fire-resisting sealant.

730 Fixing pipe collars

1. Collar fixing: In accordance with manufacturer's recommendations.
2. Gap around collar: Seal with gap filler and sealant.

745 Applying sealants generally

1. Application: As section Z22.

750 Applying capping sealant

1. Preparation: De-grease using cleaner recommended by sealant manufacturer.
2. Priming: Primer recommended by sealant manufacturer.
3. Depth of sealant: 15 mm.
4. Temperature: Do not apply water-based sealants when they could be damaged by frost.

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

120A Hardwood architraves

1. Description: Architraves to interior doors.
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. Reaction to fire rating: Not applicable.
5. Profile: Square.
   5.1. Finished size: 18 x 45mm.
6. Finish as delivered: Clear matt lacquer.
7. Fixing: Plugged, screwed and pelleted.

120B Hardwood sills

1. Description: Interior sills to windows.
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. Reaction to fire rating: Not applicable.
5. Profile: Square.
   5.1. Finished size: 18mm thickness.
6. Finish as delivered: Clear matt lacquered.
7. Fixing: Plugged, screwed and pelleted.

170 Preformed column casings

1. Description: Column encasement to ground floor external corridor.
2. Manufacturer: Dales Fabrications Ltd - Aluminium Eaves Products
   2.1. Contact details
      2.1.1. Address: Crompton Road Industrial Estate
      Ilkeston
      Derbyshire
      DE7 4BG
      2.1.2. Telephone: +44 (0)115 9301521
      2.1.3. Web: www.dales-eaves.co.uk
      2.1.4. Email: techinfo@dales-eaves.co.uk
   2.2. Product reference: Aluminium Fascia - Sigma Fascia Profile (Alloy 1050 (Powder Coating or Mill Finish))
3. Material: Aluminium sheet to BS EN 485/515/573.
4. Finish
   4.1. Coating: Powder coated.
   4.2. Colour: Syntha Pulvin, RAL Metallic, colour TBC.

5. Material: Aluminium.
6. Profile: Square.
7. Size: 250 x 250 mm.
8. Water resistance: Weathered Column Casing.
9. Fixing: Concealed fixings.

200 MDF skirtings

1. Description: Skirting boards.
2. Manufacturer: James Latham
   2.1. Contact details
      2.1.1. Address: Unit 3 Swallow Park
      Finway Road
      Hemel Hempstead
      HP2 7QU
      2.1.2. Telephone: +44 (0) 207 288 6417
      2.1.3. Web: www.lathamtimber.co.uk
      2.1.4. Email: specificationteam@lathams.co.uk
3. Standard: To BS EN 622-5.
   3.1. Type: MDF.
   3.2. Formaldehyde class: To BS EN 622-1, class E1.
4. Reaction to fire rating: To BS EN 13501-1, Class B-s3, d2.
5. Thickness: 18 mm.
6. Edges: Square.
7. Finish: Prepared and primed, eggshell as M60/150A.
8. Support/ Fixing: Concealed.

450 Precast concrete skirtings

1. Description: Skirting to SWEC north and south stairs, ground floor.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Type/ Size: Refer to drawing 6144.
4. Finish/Colour: To match floor screed as M10/195.

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

122 Ironmongery from listed proprietary ranges

1. Source: One only of the following manufacturers/ suppliers and ranges: Assa Abloy, Salto .
2. Notification: Submit details of selected range, manufacturer and/ or supplier.
3. Principal material/ finish: Satin stainless steel, grade 1.4301 (304).
4. Items unavailable within selected range: Submit proposals.

130 Approved suppliers

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

141 Sample boards

1. General: Before placing orders with suppliers submit a sample board, containing labelled samples of ironmongery and showing methods of fixing.
2. Range: Include all ironmongery items .
   2.1. Conformity: Retain board on site in an approved location 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 Ironmongery Specifications.

Window hanging devices

370 Window hinges

1. Description: Refer to Ironmongery Specifications.

380 Sliding friction stay hinges

1. Description: Refer to Ironmongery Specifications.

Door operating devices

410 Overhead door closers

1. Description: Refer to Ironmongery Specifications.
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. Unlatched doors: Hold shut under normal working conditions.
   - 3.4. Closing against smoke seals of fire doors: Positive. No gaps.

471 Electromagnetic hold open/ swing free devices

1. Description: Refer to Ironmongery Specifications.
2. Standard: To BS EN 1155.
3. Means of release: Alarm system and/ or failure of power supply.
4. Test switch: Located in a convenient position adjacent to door.
5. Operational adjustment of integral closer
   - 5.1. Variable power: Matched to size, weight and location of doors.
   - 5.2. Latched doors: Override latches and/ or door seals when fitted.
   - 5.3. Unlatched doors: Hold shut under normal working conditions.

Door securing devices

515 Door locks

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

540 Door latches

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

582 Door bolts

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

586 Privacy indicator bolts

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

Window securing devices - Not Used

Door furniture

610 Lever handles

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

670 Push plates

1. Description: Refer to Ironmongery Specifications.

690 Kick plates

1. Description: Refer to Ironmongery Specifications.

710 Escutcheons

1. Description: Refer to Ironmongery Specifications.

720 Door stops

1. Manufacturer: Refer to Ironmongery Specifications.

Window furniture

900 Casement handles

1. Description: Window casement handles.
2. Manufacturer: Schueco UK Ltd.
   2.1. Product reference: Window handle (557.204)
3. Material/ finish: Matt brushed stainless steel.

930 Friction restrictor casement stays

1. Description: To all side-hung outward opening lights.
2. Manufacturer: Schueco UK Ltd.
   2.1. Product reference: From manufacturer's standard range.

935 Remote window openers

1. Description: To all top-hung opening lights.
2. Manufacturer: Schueco UK Ltd.
   2.1. Product reference: Motorised top light opener.
3. Features: Electronic controls, wall-mounted adjacent to window.

Ω End of Section

P31
Holes, chases, covers and supports for services

Products

370A Access covers (internal)

1. Description: Service trench access covers to internal areas.
2. Manufacturer: ACO Technologies plc.
   2.1. Product reference: UniFace™ SS
3. Standard: To BS EN 124
   3.1. Classification group: Group 3
   3.2. Loading grade: Grade C
4. Covers/ Gratings: Stainless steel grade 304 recessed floor access covers with a frame depth of 83mm.
   4.1. Sizes: 600 x 600 mm.
5. Frame/ Support/ Fixing: Steel frame supported on framing to Structural Engineer's design and specification.
6. Accessories: Gas spring assisted. All covers fitted with EPDM liquid and odour seals as standard with either two or four point stainless steel locking.

370B Access covers (internal multiple)

1. Description: Multiple service trench access covers to internal areas.
2. Manufacturer: ACO Technologies plc.
   2.1. Product reference: UniFace™ SS Multi
3. Standard: To BS EN 124
   3.1. Classification group: Group 3
   3.2. Loading grade: Grade C
4. Covers/ Gratings: Stainless steel grade 304 multipart recessed floor access covers with a frame depth of 83mm.
   4.1. Sizes: As drawings.
5. Frame/ Support/ Fixing: Steel frame supported on framing to Structural Engineer's design and specification.
6. Accessories: Gas spring assisted. All covers fitted with EPDM liquid and odour seals as standard with either two or four point stainless steel locking.

370C Access covers (external)

1. Description: Service trench access covers to external areas.
2. Manufacturer: ACO Technologies plc.
   2.1. Product reference: Secant
3. Standard: To BS EN 124
   3.1. Classification group: Group 4
   3.2. Loading grade: Grade D
4. Covers/ Gratings: Frame of cast iron, BEGU® covers of cast iron with concrete. Bearing and side surfaces of frame and covers machined.
   4.1. Sizes: As drawings.
5. Frame/ Support/ Fixing: Profiled edge to concrete trenches (no frame).

6. Accessories: Gas springs as opening aid. Secondary inner waterproofing plates to electrical trenches.

Execution

730 Installing access covers/ gratings and frames

1. Bedding and haunching of frames: Continuously.
   1.1. Top of haunching: 30 mm below surrounding surfaces.
2. Horizontal positioning of frames
   2.1. Centred over openings.
   2.2. Install square with joints in surrounding surfaces: Wherever practicable.
3. Vertical positioning of frames: Flush with levels of surrounding surfaces.
4. Permissible deviation in level of external covers and frames: +0 to -6 mm.

Ω End of Section

Q10
Kerbs/ edgings/ channels/ paving accessories

Types of kerbs/edgings and channels

120 Stone kerb

1. Supplier: 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: https://www.marshalls.co.uk
   - 2.4. Email: specification.support@marshalls.co.uk
3. Product reference: Carina Granite (Blasted Finish)
4. Standard: To BS EN 1341.
5. Stone denomination
   - 5.1. Petrological family: Granite.
   - 5.2. Colour: Light to medium grey.
   - 5.3. Origin: Portugal.
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: Refer to drawings.
   - 6.3. Finish: Blasted.
7. Performance requirements
   - 7.1. Slip resistance: To BS 14231, 91 (dry), 71 (Wet).
   - 7.2. Breaking load: To EN 12372, 24.7 MPa.
   - 7.3. Water absorption (maximum): To EN 13755, 0.2%
8. Abrasion resistance: To EN 14157, 15 mm.
9. Durability: To EN 12371, 24.7/ 25.8 MPa.
10. Material density: To EN 1936, 2740 k.g./m³.
11. Porosity: To EN 1936, 0.5%.
12. CompressiveStrength: To EN 1926, 180 MPa.
13. Light reflectance: 32.38.

180 Drainage channel systems with gratings Road

1. Description: Surface water channel drain to West Road.
2. Manufacturer: ACO Technologies.
   - 2.1. Product reference: ACO MultiDrain M100D; 0.0 depth (23000) / 10.0 depth (23100); M100D Universal Sump (23410).
3. Size: Nominal internal dims: 100 mm W x 500/1000mm L x 130 / 180mm D.

4. Type of fall: Level invert or constant depth.
5. Finish: Galvanised railed channels; ductile iron, D400 gratings.
6. Colour: Ductile iron gratings with black, water-based coating.
7. Accessories: Sump outlet units with galvanised rails and ductile iron, D400 gratings
8. Bedding: Minimum C20/25 strength (to BS EN 206-2013) 200mm concrete bedding and surround required to achieve D400 load class as per ACO standard details.
9. Joints generally: Submit proposals.
10. Cover gratings: Ductile iron, slotted (23408).
    10.1. Fixings: Not required.
    10.2. Loading grade to BS EN 124-1: D400.
    10.3. Finish/ Colour: Black.

181 Drainage channel systems with gratings Roof

1. Description: Rainwater channel drain to SWEC roof access door.
2. Manufacturer: ACO Technologies.
    2.1. Product reference: ACO FreeDeck Level Access Flat Roof Drainage System.
3. Size: Nominal internal dims: 130 mm W x 500/1000mm L x 50 mm D.
4. Type of fall: Level invert or constant depth.
5. Finish: Grade 304 stainless steel.
6. Accessories: End plates.
7. Installation: Laid directly onto roof insulation.
8. Drainage: Drainage through perforated channel sidewalls, to percolate through inverted roof build-up to local rainwater outlets.
9. Cover gratings: Slotted grating (00272).
    9.1. Fixings: Securely fastened to channel using lock screws.
    9.2. Finish/ Colour: Grade 304 stainless steel.

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: To transformer room trenches.
2. Manufacturer: Lionweld Kennedy Group
    2.1. Contact details
        2.1.1. Address: Marsh Road
        Middlesbrough
        Cleveland
        TS1 5JS
        2.1.2. Telephone: +44 (0)1642 245151
        2.1.3. Web: www.lk-uk.com
        2.1.4. Email: sales@lk-uk.com
    2.2. Product reference: GRP Flowgrate
3. Colour: Dark grey.

4. Size
   4.1. Length x width: 3660 x 1220 mm.
   4.2. Depth: 50 mm.
5. Type: Isophthalic Polyester.
6. LoadBearingCapacity: 7.5 kN/m².
7. Fire performance: To ASTM E84: Class 1 (when <25 mm).
8. Material: Glass Reinforced Plastic (GRP)
9. Finish: Anti-slip
10. Mesh size: 50 x 50 mm.

395 Road marking (thermoplastic)

1. Standard: Road Safety Markings Association standard specification document for road marking and road studs (StanSpec).
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Colour: Yellow.
4. Retroreflectivity to BS EN 1436: Class R2.

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.

547 Bedding/ Backing of units on fresh concrete races

1. Standard: To BS 7533-6.

550 Kerb dowels

1. Dowels: Steel bar to BS 4482.
   1.1. Size: 12 mm diameter, 150 mm long.
2. Installation of dowels: Vertically into foundation while concrete is plastic.
   2.1. Centres: To suit holes in kerbs.
   2.2. Projection: 75 mm.
3. Grouting of holes in kerbs: Filled with 1:3 cement:sand mortar finished flush.

560 Haunching dowels

1. Dowels: Steel bar to BS 4482.
   1.1. Size: 12 mm diameter, 150 mm long.
2. Installation of dowels: Vertically into foundation while concrete is plastic.
   2.1. Centres: 450 mm.
   2.2. Distance from back face of kerb: 50 mm.
   2.3. Projection: 75 mm.
3. Haunching: Rectangular cross section, cast against formwork, fully enclosing and protecting dowels.

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.

590 Drainage channel systems with built in fall

1. Installation: Top of channels level, installed in correct sequence to form an even gradient without ponding or backfall. Commence laying from outlets.
2. Silt and debris: Removed from entire system immediately before handover.
3. Washings and detritus: Safely disposed without discharging into sewers or watercourses.

600 Radius kerbs/ channels

1. Usage: Radii of 15 m or less.

610 Angle kerbs

1. Usage: Internal and external 90° changes of direction.
2. Cutting of mitres: Not permitted.

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.

630 Narrow mortar joints

1. Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled, tightly butted and surplus mortar removed immediately.
   1.1. Joint width: 3 mm.

640 Tooled mortar joints

1. Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled and tooled to a neat flush profile.
   1.1. Joint width: 6 mm.

Ω End of Section

Q22
Asphalt roads/ pavings

Types of paving

140 Hot rolled asphalt paving

1. Description: To West Road and East Road.
2. Standard: To BS EN 13108-4
3. Subgrade improvement layer: Submit proposals
   3.1. Compacted thickness: Submit proposals
4. Granular sub-base: Submit proposals
   4.1. Compacted thickness: Submit proposals
5. Base: Submit proposals
   5.1. Paving grade: Submit proposals
   5.2. Compacted thickness: Submit proposals
6. Binder course: Submit proposals
   6.1. Paving grade: Submit proposals
   6.2. Compacted thickness: Submit proposals
7. Surface course: Submit proposals
   7.1. Compacted thickness: Submit proposals
8. Reclaimed content
   8.1. Standard: To BS EN 13108-8.
   8.2. Value (maximum): Submit proposals
9. Surface treatment: Submit proposals

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.

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 hot applied paving grade bitumen.
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.

340 Flatness/ Surface regularity

1. Deviation of surface: Where appropriate in relation to the geometry of the surface, the variation in gap under a 3 m straightedge placed anywhere on the surface to be not more than:
   - 1.1. Base: Machine laid, 25 mm
   - 1.2. Binder course: Machine laid, 13 mm
   - 1.3. Surface course: Machine laid, 7 mm
   - 1.4. Where a straightedge cannot be used the surface must be of a comparable standard of accuracy when judged by eye.

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 - Not Used

Ω End of Section

Q25
Slab/ brick/ sett/ cobble pavings

General

110 Natural stone slab paving system

1. Description: To south west gate.
2. Subgrade improvement layer: Submit proposals.
   2.1. Compacted thickness: Submit proposals.
3. Granular sub-base: Submit proposals.
   3.1. Compacted thickness: Submit proposals.
4. Base: Submit proposals.
   4.1. Thickness: Submit proposals.
5. Laying course: Submit proposals.
6. Paving units: Natural stone slabs.
7. Jointing: Site-mixed mortar.
   7.1. Bond: To match existing.
8. Accessories: Kerbs, as section Q10. Manhole covers to be recessed and infilled with paving to match adjacent finish and pattern.

140 Natural stone sett paving system

1. Description: To south west gate.
2. Subgrade improvement layer: Submit proposals.
   2.1. Compacted thickness: Submit proposals.
3. Granular sub-base: Submit proposals.
   3.1. Compacted thickness: Submit proposals.
4. Base: Submit proposals.
   4.1. Thickness: Submit proposals.
5. Laying course: Site-mixed fine concrete.
6. Paving units: Natural stone setts.
7. Jointing: Site-mixed fine concrete.
   7.1. Bond: To match existing.
8. Accessories: Kerbs, as section Q10. Manhole covers to be recessed and infilled with paving to match adjacent finish and pattern.

System performance - Not Used

Products

310 Natural stone paving slabs

1. Description: To south west gate.
2. Standard: To BS EN 1341.
3. Supplier: Marshalls plc
   3.1. Contact details
      3.1.1. Address: Landscape House
      Lowfields Business Park
      Elland

West Yorkshire
HX5 9HT

3.1.2. Telephone: +44 (0)330 0574472

3.1.3. Web: https://www.marshalls.co.uk

3.1.4. Email: specification.support@marshalls.co.uk

3.2. Product reference: Scoutmoor Yorkstone.

3.3. Quarry: Appleton Quarry, Yorkshire, Scoutmoor Quarry & Whitworth Quarry, Lancashire.

4. Petrographical description/ stone type: Millstone Grit series, Carboniferous sandstone and Westphalian A, lower coal measure sandstone.
5. Finish: Diamond wire sawn.
6. Sizes: As detailed on drawings, to match existing on site. Thickness 75mm.
7. Arrises: Square.
8. Breaking strength: 20.39 MPa (Mean value to EN 12372:2006) (Lev = 17.49 MPa).
9. Slip resistance: 87 (dry); 86 (wet).
10. Surface treatment: None.

330A Natural granite stone setts

1. Description: To south west gate.
2. Supplier: Marshalls plc
   2.1. Contact details
      2.1.1. Address: Landscape House
      Lowfields Business Park
      Elland
      West Yorkshire
      HX5 9HT
      2.1.2. Telephone: +44 (0)330 0574472
      2.1.3. Web: https://www.marshalls.co.uk
      2.1.4. Email: specification.support@marshalls.co.uk
   2.2. Product reference: Carina Granite (Blasted Finish)
3. Standard: To BS EN 1341.
4. Stone denomination
   4.1. Petrological family: Granite.
   4.2. Colour: Light to medium grey.
   4.3. Origin: Portugal.
5. Physical properties
   5.1. Profile
      5.1.1. Slab type: Regular plan form.
      5.1.2. Arrises: Square.
   5.2. Dimensions and associated tolerances
      5.2.1. Nominal sizes: 110 x 110 x 100mm.
   5.3. Finish: Blasted.
6. Performance requirements
   6.1. Slip resistance: To BS 14231, 91 (dry), 71 (Wet).
   6.2. Breaking load: To EN 12372, 24.7 MPa.
   6.3. Water absorption (maximum): To EN 13755, 0.2%
7. Abrasion resistance: To EN 14157, 15 mm.

8. Durability: To EN 12371, 24.7/ 25.8 MPa.
9. Material density: To EN 1936, 2740 k.g./m³.
10. Porosity: To EN 1936, 0.5%.
11. CompressiveStrength: To EN 1926, 180 MPa.
12. Light reflectance: 32.38.

330B Natural Yorkstone setts

1. Description: To south west gate.
2. Standard: To BS EN 1341.
3. Supplier: Marshalls plc
   3.1. Contact details
      3.1.1. Address: Landscape House
      Lowfields Business Park
      Elland
      West Yorkshire
      HX5 9HT
      3.1.2. Telephone: +44 (0)330 0574472
      3.1.3. Web: https://www.marshalls.co.uk
      3.1.4. Email: specification.support@marshalls.co.uk
   3.2. Product reference: Scoutmoor Yorkstone.
   3.3. Quarry: Appleton Quarry, Yorkshire, Scoutmoor Quarry & Whitworth Quarry, Lancashire.
4. Petrographical description/ stone type: Millstone Grit series, Carboniferous sandstone and Westphalian A, lower coal measure sandstone.
5. Finish: Diamond wire sawn.
6. Sizes: 110 x 110 x 100mm.
7. Arrises: Square.
8. Breaking strength: 20.39 MPa (Mean value to EN 12372:2006) (Lev = 17.49 MPa).
9. Slip resistance: 87 (dry); 86 (wet).
10. Surface treatment: None.

370 Cement for site-mixed mortar

1. Standard: As section Z21.

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.
2. Paving with mortar joints and/ or bedding
   2.1. Protect from frost damage, rapid drying out and saturation until mortar has hardened.

3. Paving laid and jointed in sand/ fine aggregate
   3.1. Stockpiled laying course sand/ fine aggregate: Protect from saturation.
   3.2. Exposed areas of unbound laying course and uncompacted areas of unbound paving: Protect from heavy rainfall.
   3.3. Saturated unbound laying course: Remove and replace, or allow to dry before proceeding.
   3.4. Laying dry sand/ fine aggregate jointed paving in damp conditions: Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

625 Laying pavings – general

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

630 Levels of paving

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

635 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.
   1.2. Precast concrete flags or natural stone slabs: 3 mm.
2. Difference in level between adjacent paving units (maximum): 2 mm.
3. Sudden irregularities: Not permitted.

637 Regularity of paved surfaces

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

640 Colour banding

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

645 Protection

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

650 Cementitious bases and sub-bases

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

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

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

660 Drainage holes in existing bases

1. Location: Impervious layers of existing road/ paving.
2. Drainage: Form regular grid of holes, through base and any additional build up, down to sub-base:
   2.1. Spacing in both directions: 500 mm.
   2.2. Minimum clear opening: 25 mm.
   2.3. Do not weaken or excessively disturb road/ paving.
3. Completion: Remove jagged or protruding edges. Fill voids with Contractor's choice of material Ram down to form flush smooth surface.

665 Planing and repairs to existing bases

1. Existing macadam/ asphalt surfaces: Plane to required levels.
2. Repairs: Cut out depressions, fill to match existing surface and compact.
3. Building up existing surfaces to required levels: Regulate using bituminous material to local highway engineers requirements.

675 Laying geotextile sheet edging strips

1. Location: Immediately below the laying course, abutting features which interrupt the laying course, including:
   1.1. Perimeters/ Edge restraints/ Kerbs.
   1.2. Other types of paving.
   1.3. Drainage fittings, e.g. channels and manholes.
2. Edge detail: Turn sheet up to a height not less than thickness of the laying course to form an upstand fitted neatly against features.
3. Jointing: Lap by 300 mm.

695 Site-mixed mortar

1. Description: Laying course for natural stone slab paving and natural stone sett paving.
2. Mix: 1:3 cement:sand.
3. Consistency: Workable.

700 Site-mixed fine concrete

1. Standard: In accordance with BS 7533-101.

715 Laying flag and slab paving – mortar laying course and jointing

1. Standard generally: In accordance with BS 7533-4.
2. Flag installation and cutting: To Interpave publication Concrete flag paving.
3. Laying course
   3.1. Nominal thickness: 30 mm before laying paving slabs.
4. Joint width (nominal): 5 mm.

730 Laying natural stone sett paving

1. Standard generally: In accordance with BS 7533-101.
2. Laying type: Rigid.
   2.1. Laying and jointing method: Moist bed fine concrete with full depth slurry joint.
3. Laying course
   3.1. Target thickness after compaction: Submit proposals.
4. Joint width (nominal): 5 mm

Completion

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

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

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 F10/110A.
   2.1. Finish: Clay facing brick, as clause F10/110A.
3. 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 F10/110A.
   2.1. Finish: Clay facing brick, as clause F10/110A.
3. 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. Pipework: Aluminium.
3. Below ground drainage: Refer to Civil Engineer's information.
4. Disposal: Refer to Civil Engineer's information.

System performance

210 Design

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

221 Collection and distribution of rainwater

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

230 Design parameters - general

1. Design rate of rainfall: As BS EN 12056-3, National Annex NB.2.
   1.1. Category: 1
2. Design life of building: 75 years

Products

365 Proprietary rainwater 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.

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: https://www.alumascwms.co.uk/
      1.1.4. Email: marketing@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: Syntha Pulvin, RAL Metallic, colour TBC.
   8.3. Film thickness (minimum): 60-80 Microns.
9. Integral accessories: Bends. Branches. Sockets. Shoes. Pipe clips. Hopper Heads.
10. Fire rating (to BS EN 13501): A2 to BS EN 13501: 2018.
11. Type: Spigot jointed system.
12. Materials: Aluminium, LM6 Marine Grade.

Custom made products - Not Used

Execution

600 Preparation

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

605 Installation generally

1. Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
2. Plastics and galvanized steel pipes: Do not bend.
3. Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
4. Protection
   4.1. Fit purpose made temporary caps to prevent ingress of debris.
   4.2. Fit access covers, cleaning eyes and blanking plates as the work proceeds.

630 Installing rainwater outlets

1. Fixing: Secure. Fix before connecting pipework.
   1.1. Method: Grout into preformed holes.
2. Junctions between outlets and pipework: Accommodate movement in structure and pipework.

635 Fixing pipework

1. Pipework: Fix securely, plumb and/ or true to line.
2. Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
3. Externally socketed pipes and fittings: Fix with sockets facing upstream.
4. Additional supports: Provide as necessary to support junctions and changes in direction.
5. Vertical pipes
   5.1. Provide a loadbearing support at least at every storey level.
   5.2. Tighten fixings as work proceeds so that every storey is self supporting.
   5.3. Wedge joints in unsealed metal pipes to prevent rattling.
6. Wall and floor penetrations: Isolate pipework from structure.
   6.1. 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): In accordance with manufacturer's recommendations.

685 Identification of internal rainwater pipework

1. Standard: In accordance with Water Regulations Advisory Scheme (WRAS) Information and guidance note 9-02-05 and BS 8515.

690 Electrical continuity - pipework

1. Joints in metal pipes with flexible couplings: Clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

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.

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): 25 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 as M50/155.
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.
7. Accessories: Strainer.

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

V90
Electrical systems

General - Not Used

System performance - Not Used

Products

510 General-purpose luminaires

1. Description: Decorative luminaires to north and south stairs.
2. Manufacturer: Sammode.
   2.1. Product reference: Mondrian.
3. Standards: To BS EN IEC 60598-1 and BS EN IEC 60598-2-1
4. Third-party certification: Kitemark-certified.
5. Luminaire description: Wall light for diffuse lighting ø40.
6. Photometric performance: To BS EN 13032-1
7. Mounting: Wall surface, fitted to steel parallel flange channel posts forming stair balustrade.
8. Ingress protection (minimum): IP66.
9. Impact protection (minimum): IP66.
10. Lamp: Light-emitting diodes (LEDs).
    10.1. Wattage: 10.5 W
    10.2. Luminous flux: 1000 lm
    10.3. Temperature: 3000 K
11. Length: 994 mm

Execution

610 Electrical installation generally

1. Standard: In accordance with BS 7671, as amended

Completion - Not Used

Ω End of Section

X12
Vertical lifting platform and homelift systems

General - Not Used

System performance - Not Used

Products

350 Evacuation lift

1. Description: SWEC passenger and evacuation lift. Refer to MEP Engineer's drawings and specification.
2. Manufacturer: Otis Ltd.
   2.1. Product reference: GEN2® STREAM.
3. Standard: To BS EN 81-41.
4. Carrier
   4.1. Frame material: Vinyl coated steel.
   4.2. Frame finish: Brushed metal.
   4.3. Ceiling finish: White vinyl coated steel.
   4.4. Car operating panel finish: Brushed stainless steel.
5. Doors
   5.1. Arrangement: Single.
   5.2. Type: Solid, sliding, two-panel, side-opening.
   5.3. Fire classification: FD 60.
   5.4. Clear opening width: 1300 mm.
   5.5. Frame material: Stainless steel.
   5.6. Frame finish: Brushed.
6. Carrier floor
   6.1. Dimensions
      6.1.1. Width (minimum): 1500 mm.
      6.1.2. Depth (minimum): 2700 mm.
   6.2. Material: Rubber.
   6.3. Colour: TBC from manufacturer's standard range.
7. Accessories: Handrails (brushed chrome finish); LED lighting (TBC from manufacturer's standard range); mirror (full width, rear wall); kickplates.

395 Landing controls

1. Manufacturer: Otis Ltd.
   1.1. Product reference: GEN2® STREAM.

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.

935 Equipment labelling

1. Switches, controls, enclosures and terminations: Clearly and indelibly label describing their purpose. Identify the off position.

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.

527 Welding

1. Preparation
   1.1. Joint preparation: Clean thoroughly.
   1.2. Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.
2. Jointing
   2.1. Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
   2.2. Strength requirements: Welds to achieve design loads.
   2.3. Heat straightening: Submit proposals.
   2.4. Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds.
   2.5. Tack welds: Use only for temporary attachment.
   2.6. Jigs: Provide to support and restrain members during welding.
   2.7. Filler plates: Submit proposals.
   2.8. Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater.
   2.9. Weld terminations: Clean and sound.

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.

Finishing

710 Finishing welded and brazed joints visible in complete work

1. Standard: To BS EN ISO 8501-3.
   1.1. Preparation grade: P2.
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.

760 Zinc and cadmium plating of iron and steel surfaces

1. Zinc plating: To BS EN ISO 2081.
2. Cadmium plating: To BS EN ISO 2082.

770 Chromium plating

1. Standard: To BS EN ISO 1456.

780 Galvanizing

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

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.

330 Nailed timber fasteners

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

340 Masonry fixings

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

350 Plugs

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

360 Anchors

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

370 Wood screws

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

380 Miscellaneous screws

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

390 Adhesives

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

410 Powder actuated fixing systems

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

Execution

610 Fixing generally

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

620 Fixing through finishes

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

630 Fixing packings

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

640 Fixing cramps

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

650 Nailed timber fixing

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

660 Screw fixing

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

670 Pelleted countersunk screw fixing

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

680 Plugged countersunk screw fixing

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

690 Using powder actuated fixing systems

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

700 Applying adhesives

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

Ω End of Section

Z21
Mortars

Cement gauged mortars

110 Cement gauged mortar mixes

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

120 Sand for site made cement gauged masonry mortars

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

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

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

135 Site made lime:sand for cement gauged masonry mortars

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

160 Cements for mortars

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

7. Masonry cement: To BS EN 413-1 and CE marked.
   7.1. Class: MC 12.5.

180 Admixtures for site made cement gauged mortars

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

190 Retarded ready to use cement gauged mortar

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

200 Storage of cement gauged mortar materials

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

210 Making cement gauged mortars

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

Lime:sand mortars

310 Lime:sand mortar mixes

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

320 Sand for lime:sand masonry mortars

1. Type: Sharp, well graded.
   1.1. Quality, sampling and testing: To BS EN 13139.
   1.2. Grading/ Source: As specified elsewhere in relevant mortar mix items.

330 Ready prepared lime putty

1. Type: Slaked directly from CL 90 quicklime to BS 890, using an excess of water.
   1.1. Maturation: In pits/ containers that allow excess water to drain away.
   1.2. Density of matured lime putty: 1.3 - 1.4 kg/litre.

2. Maturation period before use (minimum): Seek instructions.

335 Ready prepared lime putty

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Maturation period before use (minimum): Seek instructions.

340 Pozzolanic additives for nonhydraulic lime:sand mortars

1. Manufacturer/ Supplier: Submit proposals
   1.1. Product reference: Submit proposals
2. Mixing: Mix thoroughly into mortar during knocking up.

345 Admixtures for hydraulic lime:sand mortars

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

350 Storage of lime:sand mortar materials

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

360 Making lime:sand mortars generally

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

370 Site prepared nonhydraulic lime:sand mortars

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

380 Ready to use nonhydraulic lime:sand mortars

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Materials: Select from:
   2.1. Lime putty slaked directly from quicklime to BS EN 459-1 and mixed thoroughly with sand.
   2.2. Quicklime to BS EN 459-1 slaked directly with sand.
3. Maturation period before use (maximum): Seek instructions.

390 Knocking up nonhydraulic lime:sand mortars

1. Knocking up before and during use: Achieve and maintain a workable consistency by compressing, beating and chopping. Do not add water.

1.1. Equipment: Roller pan mixer or submit proposals.

400 Making hydraulic lime:sand mortars

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

Ω End of Section

Z22
Sealants

Products

310 Joints

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. 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.

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: Submit proposals

210 Working procedures

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

220 Powder coating applicators

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

225 Guarantees

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

230 Control samples

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

240 QUALICOAT quality assurance system

1. Requirement: Powder and coating application to the following designated components is to be tested and approved in accordance with the QUALICOAT standard 'QUALICOAT Specifications 2023 Specifications for a quality label for liquid and powder coatings on aluminium for architectural applications Master version (V02)'.
   1.1. Designated components: All powder-coated elements.

250 Component design

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

310 Pretreatment of aluminium components

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

320 Pretreatment of steel components

1. Condition of components to be pretreated
   1.1. Free from corrosion and damage
   1.2. All welding and jointing completed and finish off as specified
   1.3. Free from impurities including soil, grease and oil
   1.4. Suitable for and compatible with the pretreatment process
2. Conversion coating requirements: To BS EN 13438.
3. Rinsing requirements: Use demineralized water. Drain and dry.

330 Pretreatment for protection in aggressive environments

1. Minimum thickness of 60 micrometres across significant and/ or primary surfaces
2. All cut edges, drilled holes and mitres to be fully sealed
3. Cleaning and maintenance: Carried out once every three to 12 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 EN 13438 performance requirements.

435 Application of powder coatings

1. Surfaces to receive powder coatings: Free from dust or powder deposits.
2. Powder colours: Obtain from one batch of one manufacturer.

3. Commencement of powder coating: To be continuous from pretreatment.
4. Components to be installed on site in order of application.
5. Jig points: Not visible on coated components.
6. Curing: Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
7. Stripping and recoating of components: Only acceptable by prior agreement of powder coating manufacturer. Stripping, pretreatment and powder coating are to be in accordance with manufacturer's requirements.
8. Overcoating of components: Not acceptable.

440 Performance and appearance of powder coatings

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

450 Aluminium alloy fabrications

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

460 Steel fabrications

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

470 Fixings

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

480 Damaged components – repair or replacement

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

510 Protection

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

3.1. Low tack, self adhesive and light in colour

3.2. Applied and removed in accordance with tape and powder coating manufacturers' recommendations. Do not use solvents to remove residues as these are detrimental to the coating

4. Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

520 Protection in hazardous locations

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

535 Documentation

1. Submit the following information for each batch of powder-coated components

1.1. Supplier.

1.2. Trade name.

1.3. Colour.

1.4. Type of powder.

1.5. Method of application.

1.6. Batch and reference number.

1.7. Statutory requirements.

1.8. Test certificates.

1.9. Maintenance instructions.

540 Completion

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

Ω End of Section

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