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Neptune Mill
Chapeltown St, Manchester

Materials & Workmanship Specification

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Contents

C	**Existing site/buildings/services**
C20	Alterations
F	**Masonry**
F10	Brick/block walling
F30	Accessories/sundry items for brick/block walling
G	**Structural/Carcassing metal/timber**
G20	Carpentry/ timber framing/ first fixing
H	**Cladding/Covering**
H10	Patent Glazing
H62	Natural Slating
H71	Lead sheet coverings/flashings
J	**Waterproofing**
J42	Single layer polymeric roof coverings
K	**Linings/Sheathing/Dry partitioning**
K10	Plasterboard dry linings/ partitions/ ceilings
K11	Rigid sheet flooring/ sheathing/ decking/ sarking/ linings/ casings
K13	Rigid sheet fine linings/panelling
L	**Windows/Doors/Stairs**
L10	Windows/ Rooflights/ Screens/ Louvres
L20	Doors/ shutters/ hatches
L30	Stairs/ ladders/ walkways/ handrails/ balustrades
L40	General glazing
M	**Surface finishes**
M40	Stone/ concrete/ quarry/ ceramic tiling/ mosaic
M50	Rubber/plastic/cork/lino tiling/sheeting
M60	Painting/ clear finishing
N	**Furniture/Equipment**
N11	Domestic Kitchen Fittings, appliances and equipment
N13	Sanitary appliances and fittings
P	**Building fabric sundries**
P10	Sundry insulation / proofing work
P20	Unframed isolated trims/ skirtings/ sundry items
R	**Disposal systems**
R10	Rainwater drainage systems
Z	**Building fabric reference specification**
Z10	Purpose made joinery
Z11	Purpose made metalwork
Z12	Preservative/ fire retardant treatment
Z20	Fixings and adhesives
Z21	Mortars
Z22	Sealants
Z31	Powder coatings

C20 Alterations

To be read with Preliminaries/ General conditions.

GENERAL REQUIREMENTS

110 DESK STUDY/ SURVEY
- Scope: Before starting alteration work, examine available information, carry out a survey of the structures site and surrounding area.
- Report and method statements: Submit, describing:
- Form, condition and details of the structures, site and surrounding area.
- Form, location and removal methods of flammable, toxic or hazardous materials.
- Form, location and removal methods of materials for reuse or recycling.
- Type and location of adjoining or surrounding premises which may be adversely affected by noise, vibration, dust or removal of structure.
- Identification and location of services above and below ground, including those required for the Contractor's own use. Arrangements for disconnection and removal of services.
- Type and location of features of historical, archaeological, geological or ecological importance.
- Sequence and method of alteration including details of specific pre-weakening.
- Arrangements for protection of personnel and the public including exclusion of unauthorized persons.
- Arrangements for control of site transport and traffic.
- Proposed programme of work.

120 EXTENT OF ALTERATIONS
- General: Except where specified otherwise demolish structures down to underside of slabs and/or ground

130 GROUNDWORKS
- General:
- Old foundations, slabs and the like: Break out where and to the extent stated.
- Contaminated material: Remove and carry out remediation required by the Enforcing Authority.

140 BENCH MARKS
- Unrecorded bench marks and other survey information: Give notice when found.
- Do not remove or destroy.

150 FEATURES TO BE RETAINED
- General: Keep in place and protect the following: As identified on drawings

SERVICES AFFECTED BY ALTERATION

210 SERVICES REGULATIONS
- Work carried out to or which affects new or existing services: Carry out in accordance with the Byelaws or Regulations of the relevant Statutory Authority.

220 LOCATION OF SERVICES
- Services affected by the Works: Locate and mark positions.
- Mains services: Arrange with the appropriate authorities for location and marking of positions.
  Standard: In accordance with National Joint Utilities Group (NJUG) 'Guidelines on the positioning and colour coding of underground utilities' apparatus'.

232 DISCONNECTION - ARRANGED BY EMPLOYER AND CONTRACTOR
- Responsibility: The Employer will arrange with the appropriate authorities for disconnection of services and removal of fittings and equipment prior to alteration as follows: Kitchen, Wash area and bar equipment
- Disconnection of remaining services: Arrange with the appropriate authorities. Remove equipment.
- Timing: Do not start alteration until disconnections are completed.

240 DISCONNECTION OF DRAINS
- General: Locate disconnect and seal disused drain connections.
- Sealing: Within the site and permanent.

250 DRAINS IN USE
- General: Protect drains, manholes, inspection chambers, gullies, vent pipes and fittings still in use and ensure that they are kept free of debris.
- Damage: Make good damage arising from alteration work. Leave clean and in working order at completion.

260 BYPASS CONNECTIONS
- General: Provide as necessary to maintain continuity of services to occupied areas of the same and adjoining properties.

270 SERVICES WHICH ARE TO REMAIN
- Damage: Give notice and notify service authority or owner of damage arising from the works.
- Repairs: Complete as directed, and to the satisfaction of the service authority or owner.

ALTERATION WORK

310 WORKMANSHIP
- Standard: Demolish structures in accordance with BS 6187.
- Operatives:
- Appropriately skilled and experienced for the type of work.
- Holding or in training to obtain relevant CITB Certificates of Competence.
- Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of alteration to be used.

320 GAS OR VAPOUR RISKS
- Precautions: Prevent fire or explosion caused by gas or vapour.

330 DUST CONTROL
- General: Reduce airborne dust by periodically spraying alteration works with an appropriate wetting agent. Keep public roadways and footpaths clear of mud and debris.
- Lead dust: Submit method statement for control, containment and clean-up regimes.

340 HEALTH HAZARDS
- 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
- Temporary support and protection: Provide. Maintain and alter as necessary as work progresses.
- Damage: Minimize. Promptly repair.
- Leave no unnecessary or unstable projections.
- Make good to ensure safety, stability, weather protection and security.
- Support to foundations: Do not disturb.
- Defects: Report when exposed or becoming apparent.

360 STRUCTURES TO BE RETAINED
- Parts which are to be kept in place: Protect.
- Extent of work: Cut away and strip out with care to reduce the amount of making good to a minimum.

370 PARTLY DEMOLISHED STRUCTURES
- General: Leave in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Keep safe outside working hours.
- Temporary works: Prevent debris from overloading.
- Unauthorised persons: Prevent access.

380 DANGEROUS OPENINGS
- General: Illuminate and protect. Keep safe outside working hours.

390 ASBESTOS CONTAINING MATERIALS
- Refer to specialist survey information
- Discovery: Give notice immediately of suspected asbestos containing materials discovered during alteration work. Avoid disturbing such materials.

410 UNFORESEEN HAZARDS
- Unrecorded voids, tanks, chemicals, etc. discovered during alteration: Give notice.
- Methods for safe removal, filling, etc: Submit details.

MATERIALS ARISING

511 EMPLOYER'S PROPERTY
- All components and materials are to remain the property of the Employer in the first instance. Retain until these are removed by the Employer, reused in the Works or otherwise advised by the Employer.

F10 Brick/ block walling

To be read with Preliminaries/ General conditions.

TYPES OF WALLING

120 CONCRETE COMMON BLOCKWORK TO INFILLS & REFUSE STORE WALLS
- Blocks: To BS EN 771-3.
- Manufacturer: Tarmac or equivalent
  Product reference: Toplite 7
- Compressive strength: Mean value: 7.3kN/m
- Work sizes (length x width x height): 440 x 140 x 215mm (100mm thick to infills)
- Mortar: As section Z21.
- Mix: 1:1:6
- Bond: Stretcher half lap

140 RECLAIMED CLAY FACING BRICKWORK TO EXISTING BUILDING
- Bricks: Existing bricks to be reclaimed from alterations as identified on drawings
- Work sizes (length x width x height): 225 x 110 x 73mm generally
- Special shapes:
- Mortar: As section Z21.
- Mix: 1:1:6
- Additional requirements:
- Bond: To match existing adjacent brickwork
- Joints: To match existing adjacent brickwork

385 ENGINEERING BRICKWORK TO NEW GROUND FLOOR OPENING PIERS
- Bricks: To BS EN 771-1. Class B
- Manufacturer: To be proposed by contractor
- Mean compressive strength: 50N/mm2
- Freeze/Thaw category: F2.
- Active soluble salts content category: S2.
- Mortar: As section Z21.
- Standard: M4
- Mix: 1:1:6
- Additional requirements: Pier to be faced in reclaimed brickwork
- Bond: Half lap stretcher
- Joints: Flush.

WORKMANSHIP GENERALLY

440 CONDITIONING OF CONCRETE BRICKS/ BLOCKS
- Autoclaved concrete bricks/ blocks delivered warm from manufacturing process: Do not use.
- Age of nonautoclaved concrete bricks/ blocks: Do not use until at least four weeks old.
- Avoidance of suction in concrete bricks/ blocks: Do not wet.
- Use of water retaining mortar admixture: Submit details.

500 LAYING GENERALLY
- Mortar joints: Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.
- Bond where not specified: Half lap stretcher.
- Vertical joints in facework: Even widths. Plumb at every fifth cross joint.

535 HEIGHT OF LIFTS IN WALLING USING CEMENT GAUGED OR HYDRAULIC LIME MORTAR
- Quoins and advance work: Rack back.
- Lift height (maximum): 1.2 m above any other part of work at any time.
- Daily lift height (maximum): 1.5 m for any one leaf.

545 LEVELLING OF SEPARATE LEAVES USING CEMENT GAUGED OR HYDRAULIC LIME MORTAR
- Locations for equal levelling of cavity wall leaves: As follows:
- Every course containing vertical twist type ties or other rigid ties.
- Every third tie course for double triangle/ butterfly ties.
- Courses in which lintels are to be bedded.

561 COURSING BRICKWORK WITH EXISTING
- Gauge: Line up with existing brick courses.

610 SUPPORT OF EXISTING WORK
- Joint above inserted lintel or masonry: Fully consolidated with semidry mortar to support existing structure.

635 JOINTING
- Profile: Consistent in appearance.

645 ACCESSIBLE JOINTS NOT EXPOSED TO VIEW
- Jointing: Struck flush as work proceeds.

665 POINTING TO EXISTING BRICKWORK
- Joint preparation: Rake out joints to a depth of 12-15 mm as the work proceeds. Subsequently, remove loose debris from the joints using a dry brush, dampen the work prior to pointing.
- Mortar: As section Z21.
- Standard: Class (iv)
- Mix: 1:2:9 Portland cement: Lime: Sand
- Profile: Weatherstruck

690 ADVERSE WEATHER
- General: Do not use frozen materials or lay on frozen surfaces.
- Air temperature requirements: Do not lay bricks/ blocks:
- In cement gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
- In hydraulic lime:sand mortars when at or below 5°C and falling or below 3°C and rising.
- In thin joint mortar glue when outside the limits set by the mortar manufacturer.
- Temperature of walling during curing: Above freezing until hardened.
- Newly erected walling: Protect at all times from:
- Rain and snow.
- Drying out too rapidly in hot conditions and in drying winds.

ADDITIONAL REQUIREMENTS FOR FACEWORK

710 THE TERM FACEWORK
- Definition: Applicable in this specification to all brick/ block walling finished fair.
- Painted facework: The only requirement to be waived is that relating to colour.

740 FINISHED MASONRY WORK REFERENCE PANELS
- General: Before proceeding to construct the following, prepare reference panels as specified. Give notice when panels are dry.
- Panel types:
- Walling type: Repointing as clause 665
  Location: As part of the works
  Size: 1 sq.m - minimum 4 courses of brickwork

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

780 GROUND LEVEL
- Commencement of facework: Not less than 150 mm below finished level of adjoining ground or external works

790 PUTLOG SCAFFOLDING
- Use: Not permitted in facework.

800 TOOTHED BOND
- New and existing facework in same plane: Bond together at every course to achieve continuity.

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

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

To be read with Preliminaries/ General conditions

CAVITIES

120 CLEANLINESS
- Cavity base and faces, ties, insulation and exposed dpcs: Free from mortar and debris.

170 LOUVRED GRILLES IN EXTERNAL WALLING
- Manufacturer: To be proposed by contractor
- Apertures: Supply and extract grilles
- Work sizes: TBC
- Material/ Colour: PPC aluminium
- Other requirements: Minimum 50% free area to be achieved
- Placement: Built in with no gaps at joints

REINFORCING/ FIXING ACCESSORIES

220 WALL TIES
- Manufacturer: To be proposed by contractor
- Type: To be confirmed on inspection of existing construction (Refer to engineers information)
- Material/ finish: stainless steel
- Sizes: To suit width of cavity

225 FIXING TIES IN MASONRY CAVITY WALLS
- Embedment in mortar beds (minimum): 50 mm.
- Placement: Sloping slightly downwards towards outer leaf, without bending. Drip centred in the cavity and pointing downwards.
- Spacing: Staggered in alternate courses - refer to engineer's information.
- Additional ties: Provide within 225 mm of reveals of unbonded openings.

FLEXIBLE DAMP PROOF COURSES/ CAVITY TRAYS

340 INSULATED VERTICAL DAMP PROOF COURSE/CLOSER TO NEW GF OPENINGS
- Manufacturer: Hyload
- Product reference: Hyload Insulated DPC

390 SITE FORMED DPC/ CAVITY TRAY JUNCTIONS/ STOP ENDS
- Three dimensional changes in shape: Form to provide a free draining and watertight installation. Seal laps.
- Alternative use of preformed junction cloaks/ stop ends: Submit proposals.

INSTALLATION OF DPCS/ CAVITY TRAYS

465 SEALING DPCS
- Overlaps and junctions: Seal with materials as recommended by dpc manufacturer

560 VERTICAL DPCS GENERALLY
- Form: In one piece wherever possible.
- Joints: Upper part overlapping lower not less than 100 mm.

570 JAMB DPCS AT OPENINGS
- Joint with cavity tray/ lintel at head: Full underlap.
- Joint with sill/ horizontal dpc at base: Full overlap.
- Projection into cavity: Not less than 25 mm.
- Relationship with frame: In full contact.

JOINTS

650 POINTING IN FLASHINGS
- Joint preparation: Free of debris and lightly wetted.
- Pointing mortar: As for adjacent walling.
- Placement: Fill joint and finish flush.

G20 Carpentry/ timber framing/ first fixing

To be read with Preliminaries/ General conditions and structural engineer's information

GENERAL

105 TIMBER PROCUREMENT
- Timber (including timber for wood based products): Obtained from well managed forests/ plantations in accordance with:
- The laws governing forest management in the producer country or countries.
- International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
- Documentation: Provide either:
- Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied, or
- Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.

150 STRENGTH GRADING OF TIMBER
- Grader: A company currently registered under a third party quality assurance scheme operated by a certification body approved by the UK Timber Grading Committee.

160 GRADING AND MARKING OF SOFTWOOD
- Timber of a target/ finished thickness less than 100 mm and not specified for wet exposure:
  Graded at an average moisture content not exceeding 20% with no reading being in excess of 24% and clearly marked as 'DRY' or 'KD' (kiln dried).
- Timber graded undried (green) and specified for installation at higher moisture contents:
  Clearly marked as 'WET' or 'GRN'.
- Structural timber members cut from large graded sections: Regraded to approval and marked accordingly.

PRODUCTS

210 STRUCTURAL SOFTWOOD (GRADED DIRECT TO STRENGTH CLASS) FOR STRUCTURAL USE
- Grading standard: To BS 4978, BS EN 14081-1, or other national equivalent and so marked.
- Strength class to BS EN 338: C24
- Treatment: Double vacuum

270 UNGRADED SOFTWOOD FOR INTERNAL NON-STRUCTURAL USE
- Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
- Surface finish: Sawn
- Treatment: Double vacuum

310 NONSTRUCTURAL PLYWOOD LININGS
- Standard: To an approved national standard.
- Thickness: 15mm
- Appearance class to BS EN 635: BB/BB
- Bond quality to BS EN 314-2: WBP
- Finish: sanded

320 STRUCTURAL PLYWOOD LININGS
- Standard: To an approved national standard.
- Thickness: 18mm
- Appearance class to BS EN 635: BB/BB
- Bond quality to BS EN 314-2: WBP
- Finish: sanded

WORKMANSHIP GENERALLY

401 CROSS SECTION DIMENSIONS OF STRUCTURAL SOFTWOOD AND HARDWOOD
- Dimensions: Dimensions in this specification and shown on drawings are target sizes as defined in BS EN 336.
- Tolerances: The tolerance indicators (T1) and (T2) specify the maximum permitted deviations from target sizes as stated in BS EN 336, clause 4.3:
- Tolerance class 1 (T1) for sawn surfaces.
- Tolerance class 2 (T2) for further processed surfaces.

402 CROSS SECTION DIMENSIONS OF NONSTRUCTURAL SOFTWOOD
- Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
- Maximum permitted deviations from finished sizes: As stated in BS EN 1313-1:
- Clause 6 for sawn sections.
- Clause NA.2 for further processed sections.

403 CROSS SECTION DIMENSIONS OF NONSTRUCTURAL HARDWOOD
- Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
- Maximum permitted deviations from finished sizes: As stated in BS EN 1313-2:
- Clause 6 for sawn sections.
- Clause NA.3 for further processed sections.

420 WARPING OF TIMBER
- Bow, spring, twist and cup: Not greater than the limits set down in BS 4978 or BS EN 14081-1 for softwood, or BS 5756 for hardwood.

430 SELECTION AND USE OF TIMBER
- Timber members damaged, crushed or split beyond the limits permitted by their grading: Do not use.
- Notches and holes: Position in relation to knots or other defects such that the strength of members will not be reduced.
- Scarf joints, finger joints and splice plates: Do not use without approval.

440 PROCESSING TREATED TIMBER
- Cutting and machining: Carry out as much as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, thickness, planed, ploughed, etc.
- Surfaces exposed by minor cutting/ drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

450 MOISTURE CONTENT
- Moisture content of wood and wood based products at time of installation: Not more than:
- Covered in generally unheated spaces: 24%.
- Covered in generally heated spaces: 20%.
- Internal in continuously heated spaces: 20%.

510 PROTECTION
- Generally: Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.
- Timber and components: Store under cover, clear of the ground and with good ventilation.
  Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.
- Trussed rafters: Keep vertical during handling and storage.

520 EXPOSED END GRAIN
- Components: Seal exposed end grain before delivery to site:

530 PAINTED FINISHES
- Structural timber to be painted: Primed as specified before delivery to site.

540 CLEAR FINISHES
- Structural timber to be clear finished: Keep clean and apply first coat of specified finish before delivery to site.

550 EXPOSED TIMBER
- Planed structural timber exposed to view in completed work: Prevent damage to and marking of surfaces and arrises.

JOINTING TIMBER

570 JOINTING/FIXING GENERALLY
- Generally: Where not specified precisely, select methods of jointing and fixing and types, sizes and spacings of fasteners in compliance with section Z20.

630 BOLTED JOINTS
- Bolt spacings (minimum): To BS 5268-2, table 81.
- Holes for bolts: Located accurately and drilled to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger.

- Washers: Placed under bolt heads and nuts that would otherwise bear directly on timber.
  Use spring washers in locations which will be hidden or inaccessible in the completed building.
- Bolt tightening: So that washers just bite the surface of the timber. Ensure that at least one complete thread protrudes from the nut.
- Checking: At agreed regular intervals up to Completion. Tighten as necessary.

670 ANTICORROSION FINISHES FOR FASTENERS
- Galvanizing: To BS 7371-6, with internal threads tapped and lightly oiled following treatment.
- Sherardizing: To BS 7371-8, Class 1.
- Zinc plating: To BS EN ISO 4042 and passivated.

ERECTION AND INSTALLATION

760 TEMPORARY BRACING
- Provision: As necessary to maintain structural timber components in position and to ensure complete stability during construction.

770 ADDITIONAL SUPPORTS
- Provision: Position and fix additional studs, noggings and/ or battens to support edges of sheet materials, and wall/ floor/ ceiling mounted appliances, fixtures, etc. shown on drawings.
- Material properties: Additional studs, noggings and battens to be of adequate size and have the same treatment, if any, as adjacent timber supports.

780 WALL PLATES
- Position and alignment: To give the correct span and level for trusses, joists, etc.
- Bedding: Fully in fresh mortar.
- Joints: At corners and elsewhere where joints are unavoidable use nailed half lap joints. Do not use short lengths of timber.

784 JOISTS GENERALLY
- Centres: Equal, and not exceeding designed spacing.
- Bowed joists: Installed with positive camber.
- End joists: Positioned approximately 50 mm from masonry walls.

795 TRIMMING OPENINGS
- Trimmers and trimming joists: When not specified otherwise, not less than 25 mm wider than general joists.

H10 Patent glazing

To be read with Preliminaries/General conditions.

115 PATENT GLAZING TO MAIN ROOF SLOPES
- Supporting structure: Existing purlins
- Patent glazing system: To BS 5516-1.
- Manufacturer: The Standard Patent Glazing Company (or equivalent)
  Product reference: Skyline Patent Glazing System
- Glazing bar:
- Reference: SPG2 fin with PC2 plain snap-on cap (TBC by manufacturer)
- Material: Aluminium
- Finish: Polyester Powder Coated
- Colour/ texture: RAL 7016
- Spacing: Approx 750mm
- Slope: 32.5°
- Bottom overhang/ lap: As manufacturer's standard
- Pane/ infilling materials:
- Pane: Double glazed unit comprising min 6.5mm laminated low E inner layer. Glazing spec TBC by manufacturer
- Incorporated components:
- Openings None

211 DESIGN
- Sloping and vertical patent glazing to BS 5516-1.
- Access and openings in accordance with BS 8213-1.
- Detailed design of patent glazing system: Complete and submit before commencement of fabrication.
- Related works: Coordinate with supporting structure and interfaces in detailed design.

311 REQUIREMENTS GENERALLY
- Extent of compliance: Entire patent glazing assembly, including flashings and junctions with adjacent parts of the building.
- Deflections and other movements: Make full allowance.

361 WATER PENETRATION
- Requirement: Under site exposure conditions, water must not penetrate onto internal surfaces or into cavities not designed to be wetted.

401 THERMAL SAFETY
- Glazing panes/ units: Must have adequate resistance to thermal stress generated by orientation, shading, solar control and construction.

421 SECURITY
- Fixings to patent glazing bars caps/ wings: Secured to prevent unauthorized removal. Submit proposals.

510 WORKMANSHIP GENERALLY
- Standard: To BS 5516-1 and 2.
- Fixings: Concealed unless otherwise indicated on detailed drawings.
- General requirements: As section Z20.
- Material: Compatible with building component and substrate.
- Metals: Isolate dissimilar metals to avoid electrolytic corrosion.
- Allowance for thermal and building movement: Where appropriate.
- Movement joints: Do not bridge.
- Fabrication: Machine cut and drill components in the workshop wherever possible.
- Installation: Submit proposals before cutting and drilling into structure in positions other than shown on detailed design drawings.

520 GLASS
- Standards and product labels: To BS 952 and the relevant parts of:
- BS EN 1096 for coated glass.
- BS EN 12150 for thermally toughened soda lime silicate glass.
- BS EN13024 for thermally toughened borosilicate glass.
- BS EN ISO 12543 for laminated glass.
- Pane dimensions: Within ± mm of nominal size.
- Glass quality: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.
- Glass edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across surface are acceptable if ground out.

H62 Natural slating

To be read with Preliminaries/ General conditions.

TYPES OF SLATING

110 ROOF SLATING TO EXISTING ROOF
- Substrate: Existing rafters.
- Pitch: Approx 32.5° (existing pitch)
- Underlay: TYVEK or equivalent breathable sarking membrane
- Direction: Parallel to eaves.
- Head-lap (minimum): 150mm.
- Counterbattens: As clause 245
- size 50 x 25 mm.
- Fixing: As clause 255, using plain wire nails, on top of existing rafters prior to fitting underlay
- Battens: As clause 245
- Size: 38 x 25mm.
- Fixing: Stainless steel nails
- Slates:
- Supplier: Welsh Slate Ffestiniog blue grey slate or equivalent
- Size: 500 x 250mm x 7mm thick.
- Head-lap (minimum): 80mm
- Fixing: Two nails each slate.

SLATING GENERALLY

210 BASIC WORKMANSHIP
- General: Fix slating and accessories to make the whole sound and weathertight at earliest opportunity.
- Setting out: To true lines and regular appearance, with neat fit at edges, junctions and features.
- Fixings for slating accessories: As recommended by manufacturer.
- Gutters and pipes: Keep free of debris. Clean out at completion.

240 UNDERLAY
- Handling: Do not tear or puncture.
- Laying: Maintain consistent tautness.
- Vertical laps (minimum): 100 mm wide, coinciding with supports and securely fixed.
- Fixing: Galvanized steel, copper or aluminium 20 x 3 mm extra large clout head nails.
- Eaves: Where exposed, underlay must be BS 8747, Annex B, type 5U, or equivalent UV durable type.
- Penetrations: Use proprietary underlay seals or cut underlay to give a watertight fit around pipes
- Ventilation paths: Do not obstruct.

245 BATTENS/ COUNTERBATTENS - TREATED
- Timber: Sawn softwood.
- Standard: To BS 5534, clause 4.12.1.
- Permissible characteristics and defects: Not to exceed limits in BS 5534, annex C.
- Moisture content at time of fixing and covering (maximum): 22%.
- Preservative treatment: As section Z12 and Wood Protection Association Commodity Specification C8.
- Type: Double vacuum.

265 BATTEN FIXING
- Setting out: Align parallel to ridge in straight horizontal lines to gauge of slates. Align on adjacent areas.
- Batten length (minimum): Sufficient to span over three supports.
- Joints in length: Square cut. Butt centrally on supports. Joints must not occur more than once in any group of four battens on one support.
- Additional battens: Provide where unsupported laps in underlay occur between battens.
- Fixing: Each batten to each support. Splay fix at joints in length.

275 SLATE FIXING
- Setting out: Lay slates with an even overall appearance with slightly open (maximum 5 mm) butt joints. Align tails.
- Slate thickness: Consistent in any one course. Lay with thicker end as tail.
- Ends of courses: Use extra wide slates to maintain bond and to ensure that cut slates are as large as possible. Do not use slates less than 150 mm wide.
- Top course: Head-nail short course to maintain gauge.
- Fixing: Centre nail each slate twice through countersunk holes 20-25 mm from side edges.

- Nails: Copper clout to BS 1202-2 or aluminium clout to BS 1202-3.
- Nail dimensions: Determine in accordance with BS 5534 to suit site exposure, withdrawal resistance and slate supplier's recommendations.

ROOF SLATING EDGES/ JUNCTIONS/ FEATURES

305 GENERALLY
- Fittings and accessories: As recommended by slate supplier, do not improvise.
- Exposed fittings and accessories: To match slate colour and finish.
- Cut slates: Cut only where necessary, to give straight, clean edges.
- Flashings: Fix with or immediately after slating. Form neatly.

365 UNVENTILATED EAVES
- Continuous to prevent water retaining troughs.
- Gutter: Dress underlay or underlay support tray to form drip into gutter.
- Undercourse and first course slates: Fix with tails projecting 50 mm over gutter or to centre of gutter, whichever dimension is the lesser.

660 SIDE ABUTMENTS
- Underlay: Turn up not less than 100 mm at abutments.
- Abutment slates: Cut as necessary. Fix close to abutments.
- Soakers: Interleave with abutment slates. Fix by turning down over head of abutment slates.

670 TOP EDGE ABUTMENTS
- Underlay: Turn up not less than 100 mm at abutments.
- Top slate courses: Fix close to abutments.

740 MORTAR BEDDED TILE RIDGES
- Underlay: Lay courses over ridge.
- Overlap (minimum): 150 mm.
- Ridge tiles: Plain blue clay ridge tiles to be proposed by contractor
- Bedding: On mortar, continuous to edges and solid to joints.
- Fixing: Where rigid masonry walls support or abut ridge, secure ridge tiles within 900 mm of such walls to ridge boards or supplementary ridge battens with nails/ wire ties or screws.
- Gable end ridge tiles: Fill ends with mortar and slips of tiles finished flush.

H71 Lead sheet coverings/ flashings

To be read with Preliminaries/ General conditions.

TYPES OF LEADWORK

230 PARAPET GUTTER LINING TO EXISTING SLATE ROOFS
- Substrate: Allow for new WBP ply boarding and batten to roof slope. To be reviewed on removal of existing
- Underlay: Building paper
- Lead: Milled sheet as clause 520
- Thickness: Code 5
- Pretreatment: patination oil
- Laying: Over and beyond tilting fillet.
- Lengths: Not more than 2250 mmm
- Cross joints: Drips as clause 860
- Outlets: TBC

420 COVER FLASHINGS TO GUTTER LININGS
- Lead:
- Thickness: Code 4
- Dimensions:
- Lengths: Not more than 1750mm
- End to end joints: Laps of not less than 100 mm.
- Cover: Overlap to upstand of not less than 75 mm.
- Fixing: Wedge fixed into brick joint

440 SOAKERS AND STEP FLASHINGS TO ABUTMENTS
- Lead soakers:
- Thickness: Code 3
- Dimensions:
  Length: Slate/ tile gauge + lap+ 25 mm.
  Upstand: Not less than 75 mm.
  Underlap: Not less than 100 mm.
- Fixing: By roofer.
- Lead step flashings:
- Thickness: Code 4
- Dimensions:
  Lengths: Not more than 1750mm.
  End to end joints: Laps of not less than 100 mm.
  Cover: Overlap to soaker upstands of not less than 65 mm.
- Fixing: Lead wedges at every course.

470 FLASHINGS TO STRIP ROOFLIGHTS
- Lead:
- Thickness: Code 4
- Dimensions:
- Lengths: Not more than 1750mm
- Fixing: As recommended by rooflight manufacturer

GENERAL REQUIREMENTS/ PREPARATORY WORK

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

516 LEADWELDING
- In situ welding: Is permitted, subject to completion of a 'hot work permit' form and compliance with its requirements.

520 LEAD SHEET
- Production method:
- Rolled, to BS EN 12588, or
- Machine cast, Agrément certified and to code thicknesses with a tolerance (by weight) of ±5%, or
- 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%.
- Identification: Labelled to show thickness/ code, weight and type.

585 EXISTING METAL REMOVED TO REMAIN THE PROPERTY OF THE EMPLOYER
- Removal: Give notice when the metal is to be stripped.
- Handling/ Storage: Keep for reuse by the Employer.

610 SUITABILITY OF SUBSTRATES
- Condition: Dry and free of dust, debris, grease and other deleterious matter.

650 LAYING UNDERLAY
- Handling: Prevent tears and punctures.
- Laying: Butt or overlap jointed onto a dry substrate.
- Fixing edges: With copper or stainless steel staples or clout nails.
- Do not lay over roof edges but do turn up at abutments.
- Wood core rolls: Fixed over underlay.
- Protection: Keep dry and cover with lead at the earliest opportunity

FIXING LEAD

710 FIXINGS
- Nails to timber substrates: Copper clout nails to BS 1202-2, or stainless steel (austenitic) clout nails to BS 1202-1.
- Shank type: Annular ringed, helical threaded or serrated.
- Shank diameter: Not less than 2.65 mm for light duty or 3.35 mm for heavy duty.
- Length: Not less than 20 mm or equal to substrate thickness.
- Screws to concrete or masonry substrates: Brass or stainless steel to BS 1210, tables 3 or 4.
- Diameter: Not less than 3.35 mm.
- Length: Not less than 19 mm.
- Washers and plastic plugs: Compatible with screws and lead.
- Screws to composite metal decks: Self tapping as recommended by the deck and lead manufacturer/ supplier for clips.

770 WEDGE FIXING INTO JOINTS/ CHASES
- Joint/ chase: Rake out to a depth of not less than 25 mm.
- Lead: Dress into joint/ chase.
- 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.
- Application: As section Z22.

JOINTING LEAD

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

860 DRIPS WITH SPLASH LAPS
- Underlap: Dress into rebate along top edge of drip.
- Fixing: One row of nails at 50 mm centres on centre line of rebate.
- Overlap: Dress over drip and form a 40 mm splash lap.

J42 Single layer polymeric sheet roof coverings

To be read with Preliminaries/ General conditions.

TYPES OF ROOF COVERING

110 WARM DECK ROOF COVERING TO FLAT ROOF AREAS
- Substrate: WBP Plywood overlay to existing board
- Preparation:
- Roof covering system: Mechanically fixed single ply PVC membrane.
- Vapour control layer: As recommended by membrane manufacturer
- Insulation: 120mm IKO Enertherm ALU or equivalent
- Waterproof membrane: IKO Armourplan P membrane or equivalent
  Width: 2120 mm.
  Thickness: 1.2mm
  Colour: Dark Grey
- Accessories: Metal edging at upstands, preformed pipe collars, etc all as manufacturer recommendations

PRODUCTS

340 PREFORMED SLEEVES FOR EXTRACT VENT OPENINGS
- Type: Top hat sections
- Manufacturer: By membrane manufacturer
- Size:To be co-ordinated with extract vent supplier

345 PERIMETER TRIMS
- Type: Metal angles
- Manufacturer: Membrane manufacturer
- Product reference: As recommended by membrane manufacturer
- Size: To suit installation requirements

EXECUTION GENERALLY

510 ADVERSE WEATHER
- General: Do not lay membrane at temperatures below 5° or in wet or damp conditions unless effective temporary cover is provided over working area.
- Unfinished areas of roof: Keep dry and protect edges of laid membrane from wind action.

520 INCOMPLETE WORK
- End of working day: Provide temporary seal to prevent water infiltration.
- On resumption of work: Cut away tail of membrane from completed area and remove from roof.

SUBSTRATES/ VAPOUR CONTROL LAYERS/ WARM DECK ROOF INSULATION

610 SUITABILITY OF SUBSTRATES
- Surfaces to be covered: Secure, clean, dry, smooth, free from frost, contaminants, voids and protrusions.
- Preliminary work: Complete, including:
- Grading to correct falls.
- Formation of upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
- Fixing of battens, fillets and anchoring plugs/ strips.
- Moisture content and stability of substrate: Must not impair integrity of roof.

670 LAYING VAPOUR CONTROL LAYER
- Laying: As recommended by membrane manufacture
- Side and head laps: Fully taped
- Upstands, kerbs and other penetrations: Enclose edges of insulation. Fully seal at abutment by taping.

680 LAYING WARM DECK ROOF INSULATION
- Setting out:
- Long edges: Fully supported and running at right angles to edge of roof
- End edges: Adequately supported.
- Joints: Butted together.
- End joints: Staggered.
- Attachment: As recommended by manufacturer
- Completion: Boards must be in good condition, well fitting and secure.

WATERPROOF MEMBRANES/ ACCESSORIES

710 MECHANICAL FIXING OF WATERPROOF MEMBRANE
- Setting out: As manufacturer's recommendations
- Laying: Loose, do not wrinkle or stretch.
- Installing fasteners:
- Use manufacturer's/ supplier's recommended methods and equipment.
- Insertion: Correct and consistent.
- Washers/ Pressure plates/ Bars:
- Distance from fixed edge (minimum): 10 mm.
- Fixing: Flush with membrane.
- Sheet overlaps: Extend beyond washers/ pressure plates as manufacturer's recommendation.
- Surface condition at completion: Fully sealed, smooth, weatherproof and free draining

730 WELDED JOINTING OF WATERPROOF MEMBRANE
- Side and end joints:
- Laps (minimum): As manufacturer's recommendation
- Preparation: Clean and dry surfaces beyond full width of joint.
- Sealing: Weld together.
- Seam sealant: As manufacturer's recommendation
- Condition at completion: Fully sealed, smooth, weatherproof and free draining.

760 PERIMETER OF MEMBRANE
- General: Secure membrane at roof edge conditions, changes of plane, curb flashings, upstands to roof lights, etc. with mechanical fasteners.

775 PERIMETER DETAILS FOR ELASTOMERIC MEMBRANES
- Upstands, edge trims, drips, kerbs, etc: Preformed from waterproof membrane material.
- Reinforcing strip: Lay at edge of horizontal roof plane.
- Securing: Mechanically fasten.
- Roof membrane: Dress over perimeter profiles.
- Sealing: Bond to substrate and to secured perimeter reinforcing strip.

785 ROOF PENETRATIONS THROUGH ELASTOMERIC MEMBRANES
- Roof membrane: Cut around penetrations.
- Flanged sleeve:
- Type: As manufacturer's recommendation
- Installation: Dress over and around penetration.
- Seating: Flush to roof membrane.
- Roof membrane overlap to flange (minimum): 75 mm beyond fasteners.

COMPLETION

910 INSPECTION
- Interim and final roof inspections: Submit reports.

920 ELECTRONIC ROOF INTEGRITY TEST
- Testing authority: As recommended by Single Ply Roofing Association
- Timing of test: On completion and prior to handover.
- Condition of roof prior to testing:
- Waterproof membrane complete to a stage where integrity can be tested.
- Surface: Clean.
- Test results and warranty: Submit on completion of testing

940 COMPLETION
- Roof areas: Clean.
- Outlets: Clear.
- Work necessary to provide a weathertight finish: Complete.
- Storage of materials on finished surface: Not permitted.
- Completed membrane: Do not damage. Protect from traffic and adjacent or high level working.

950 GUARANTEE
- Provide manufacturer and insurance backed 20 year guarantee covering materials and workmanship

K10 Plasterboard dry linings/ partitions/ ceilings

To be read with Preliminaries/ General conditions.

TYPES OF DRY LINING

110 METAL STUD PARTITION SYSTEM GENERALLY
- Manufacturer: British Gypsum or equivalent
- Product reference: Gypwall Classic
- Studs:
- Type: 48mm Gypframe C Studs up to 2.5m high70mm up to 3.6m high
- Centres: 600mm
- Head condition: Fixed to underside of new or existing timber joists
- Linings: Linings given in clauses 130 - 160. Refer to drawings for locations. All studs to include min 50mm acoustic insulation in cavity.
- Accessories: Angle beads to external corners. Shadow gap trims at junctions with beams, joists & walls

130 WALL LINING SYSTEM GENERALLY
- Manufacturer: British Gypsum or equivalent
- Wall: New metal stud partition as K10/110
- Linings: 12.5mm Gyproc Wallboard
- Finishing: Plaster skim coat as clause 680

140 WALL LINING SYSTEM TO WC AREAS
- Manufacturer: British Gypsum or equivalent
- Wall: New metal stud partition as K10/110 or existing brickwork
- Adhesive method to blockwork: dot and dab
- Linings: 12.5mm Glasroc H Tilebacker board
- Finishing: All linings to be tiled

150 WALL LINING SYSTEM TO MEETING ROOMS
- Manufacturer: British Gypsum or equivalent
- Wall: New metal stud partition as K10/110
- Linings: 12.5mm Gyproc Soundbloc
- Finishing: Plaster skim coat as clause 680

160 WALL LINING SYSTEM TO 1 HR FIRE WALLS
- Manufacturer: British Gypsum or equivalent
- Wall: New metal stud partition as K10/110
- Linings: 12.5mm Gyproc Fireline Board
- Finishing: Plaster skim coat as clause 680

170 INSULATED WALL LINING SYSTEM
- Manufacturer: Kingspan or equivalent
- Wall: Blockwork as F10/120
- Linings: 52.5mm Kooltherm K118
- Finishing: Plaster skim coat as clause 680

180 LININGS TO ROOFLIGHT REVEALS
- Linings: 25mm MDF to reveals of individual rooflights
- Finishing: Painted as M60/160
- Other requirements: Face of lining to be flush with ceiling boards with shadow gap trim

240 SUSPENDED CEILING SYSTEM GENERALLY
- Manufacturer: British Gypsum or equivalent
- Product reference: Casoline MF
- Structural soffits: Timber joists
- Suspension system: As recommended by manufacturer
- Linings: 12.5mm Gyproc wallboard
- Access units: metal beaded frame, plasterboard door access panels where required to access ducts/lighting
- Finishing: Plaster skim coat as clause 680

260 FIRE RATED CEILING LINING ON TIMBER JOISTS
- Manufacturer: British Gypsum or equivalent
- Background: Existing timber beams and joists

- Fixing method: Mechanically fixed as manufacturer's recommendations
- Linings: 2 Layers 12.5mm Gyproc Fireline Board - joints staggered - to achieve 60 mins fire protection
- Other requirements: All penetrations through ceiling to be fire stopped
- Finishing: Plaster skim coat as clause 680

270 CEILING LINING ON TIMBER JOISTS
- Manufacturer: British Gypsum or equivalent
- Background: Existing timber beams and joists
- Fixing method: Mechanically fixed as manufacturer's recommendations
- Linings: 12.5mm Gyproc Wallboard
- Finishing: Plaster skim coat as clause 680

INSTALLATION

335 ADDITIONAL SUPPORTS
- Framing: Accurately position and securely fix to give full support to:
- Partition heads running parallel with, but offset from main structural supports.
- Fixtures, fittings and service outlets. Mark framing positions clearly and accurately on linings.
- Board edges and lining perimeters, as recommended by board manufacturer to suit type/performance of lining.

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

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

455 METAL FRAMING FOR PARTITIONS/ WALL LININGS
- Setting out: Accurately aligned and plumb.
- Frame/ Stud positions: Equal centres to suit specified linings, maintaining sequence across openings.
- Additional studs: To support vertical edges of boards.
- Fixing centres at perimeters (maximum): 600 mm.
- Openings: Form accurately.
- 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.
- Services penetrations: Allow for associated fire stopping.

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

505 INSTALLING MINERAL WOOL INSULATION
- Fitting insulation: Closely butted joints and no gaps. Use fasteners to prevent slumping or displacement.
- Services:
- Electrical cables overlaid by insulation: Sized accordingly.
- Ceilings: Cut insulation around electrical fittings, etc.

510 SEALING GAPS AND AIR PATHS
- Location of sealant: To perimeter abutments and around openings.
- Pressurized shafts and ducts: At board-to-board and board-to-metal frame junctions.
- Application: To clean, dry and dust free surfaces as a continuous bead with no gaps.
- Gaps greater than 6 mm between floor and underside of plasterboard: After sealing, fill with compound.

560 JOINTS BETWEEN BOARDS
- Tapered edged plasterboards:
- Bound edges: Lightly butted.
- Cut/ unbound edges: 3 mm gap.

- Square edged plasterboards: 3 mm gap.
- Square edged fibre reinforced gypsum boards: 5 mm gap.

565 VERTICAL JOINTS
- Joints: Centre on studs.
- Partitions: Stagger joints on opposite sides of studs.

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

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

610 FIXING PLASTERBOARD TO TIMBER
- Fixing to timber: Securely at the following centres (maximum):
- Nails: 150 mm.
- Screws to partitions/ wall linings: 300 mm. Reduce to 200 mm at external angles.
- Screws to ceilings: 230 mm.
- Position of nails/ screws from edges of boards (minimum):
- Bound edges: 10 mm.
- Cut/ unbound edges: 13 mm.
- Position of nails/ screws from edges of timber supports (minimum): 6 mm.

620 FIXING PLASTERBOARD WITH ADHESIVE DABS
- Setting out boards: Accurately aligned and plumb.
- Fixing to substrates: Securely using adhesive dabs.
- Adhesive dab spacings for each board:
- Horizontally: One row along top edge and one continuous dab along bottom edge.
- Vertically: One row along each edge and thereafter at intermediate spacings to suit size of board:

Thickness (mm)	Width (mm)	Dab centres (mm)
9.5	1200	400
9.5/12.5	900	450
12.5	1200	600

- Adhesive dab dimensions (width x length): At least 50-75 mm x 250 mm.
- Position of dabs from edges/ ends of boards (minimum): 25 mm.

FINISHING

650 LEVEL OF DRY LINING ACROSS JOINTS
- Sudden irregularities: Not permitted.
- 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.
- Tapered edge joints:
  Permissible deviation (maximum) across joints when measured with feet resting on boards: 3 mm.
- External angles:
  Permissible deviation (maximum) for both faces: 4 mm.
- Internal angles:
  Permissible deviation (maximum) for both faces: 5 mm.

670 SEAMLESS JOINTING TO PLASTERBOARDS
- Cut edges of boards: Lightly sand to remove paper burrs.
- Filling and taping: Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of paper tape, fully bedded.
- Protection of edges/ corners: Reinforce external angles, stop ends, etc. with specified edge/ angle bead.
- Finishing: Apply jointing compound. Feather out each application beyond previous application to give a flush, smooth, seamless surface.
- Nail/ screw depressions: Fill with jointing compound to give a flush surface.

- Minor imperfections: Remove by light sanding.

680 SKIM COAT PLASTER FINISH
- Plaster type: British Gypsum Thistle Multi Finish or equivalent
- Thickness: 2-3 mm.
- Joints: Fill and tape except where coincident with metal beads.
- Finish: Tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks.

695 INSTALLING BEADS/ STOPS
- Cutting: Neatly using mitres at return angles.
- Fixing: Securely using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
- 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 PLASTERBOARD
- Filling small areas with broken cores: Cut away paper facing, remove loose core material and fill with jointing compound.
- Finish: Flush, smooth surface suitable for redecoration.
- Large patch repairs: Cut out damaged area and form neat hole with rectangular sides.
  Replace with matching plasterboard.
- Fixing: Use methods to suit type of dry lining, ensuring full support to all edges of existing and new plasterboard.
- Finishing: Fill joints, tape and apply jointing compound to give a flush, smooth surface suitable for redecoration.

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

To be read with Preliminaries/ General conditions.

TYPES OF FLOORING/ SHEATHING/ DECKING /SARKING/ LININGS/ CASINGS

120 PLYWOOD DECKING TO FLAT ROOF AREAS
- Substrate: New/extg SW joists at 400mm c/c with existing timber planks.
- Additional supports: as required
- Flooring: Plywood manufactured to the relevant standards and quality control procedures specified in BS 5268-2, and so marked.
- Type: Birch
- Grade: WBP BB/BB
- Nominal thickness/ number of plies: 18mm minimum
- Edges: Square.
- Setting out: Long edges running across joists. End joints central over joists and staggered.
- Fixing to joists:
- Fasteners: Nails
- Fixing centres (maximum):
  Around perimeter and along short edges of each board: 150 mm.
  Along intermediate supports: 300 mm.
- Fixing distance from edges: 25 mm from long edges and minimum 10 mm from short edges.

WORKMANSHIP

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

930 ADDITIONAL SUPPORTS
- Additional studs, noggings and battens:
- Provision: In accordance with board manufacturer's recommendations and as follows:
  Tongue and groove jointed rigid board areas: To all unsupported perimeter edges.
  Butt jointed rigid board areas: To all unsupported edges.
- Size: Not less than 50 mm wide and of adequate thickness.
- Quality of timber: As for adjacent timber supports.
- Treatment (where required): As for adjacent timber supports.

940 BOARD MOISTURE CONTENT AND CONDITIONING
- Moisture content of boards at time of fixing: Appropriate to end use.
- Conditioning regime: Submit proposals.

960 FIXING GENERALLY
- Boards/ sheets: Fixed securely to each support without distortion and true to line and level.
- Fasteners: Evenly spaced in straight lines and, unless otherwise recommended by board manufacturer, in pairs across joints.
- Distance from edge of board/ sheet: Sufficient to prevent damage.

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

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

K13 Rigid sheet fine linings and paneling

To be read with Preliminaries/ General conditions.

TYPES OF LINING AND PANELLING

110 WALL PANELLING TO GROUND FLOOR ENTRANCE AREA
- Drawing Reference: 353 CD 2206
- Support structure: Floor to ceiling height post and rail framing set off brickwork wall behind
- Panels: 2mm PPC aluminium sheet with folded edges to form tray, bonded to 18mm ply infill backing. Full depth contrasting sleeves, 20mm thick, to three sides of door and lift entrances.
- Installation:
- Method of fixing panels: Secret fixed with clips/hooks
- Edge treatment: 10mm shadow gap between panels
- Other requirements: Allow for 4No. recessed post boxes, PPC to match (to be confirmed) Cut outs for intercom, lift control panel and signage as shown on drawing to be confirmed

GENERAL REQUIREMENTS

260 ENVIRONMENTAL CONDITIONS
- General requirements prior to starting work specified in this section: Building weathertight; wet trades completed and affected areas dried out.
- 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
- Site dimensions: Take as necessary before starting fabrication.
- Permissible deviations for panels:
- Length: ±1.5 mm.
- Width: ±1.5 mm.
- 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.
- 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
- Setting out: Accurate, true to line and level, free from undulations and lipping, with lines and joints aligned, straight and parallel unless specified otherwise.
- Movement allowance: Adequate for future moisture and temperature movement of boards.
- Fixing of panels: Secure, to prevent pulling away, bowing, or other movement during use.
- Methods of fixing and fasteners: As section Z20 unless specified otherwise.
- Trims: Wherever possible, to be in unjointed lengths between angles or ends of runs.
- Running joints: Where unavoidable, submit proposals for location and method of jointing.
- Angle joints: Mitred, unless specified otherwise.

L10 Windows/ Rooflights/ Screens/ Louvres

To be read with Preliminaries/ General conditions.

GENERAL

110 EVIDENCE OF PERFORMANCE
- Certification: Provide independently certified evidence that all incorporated components comply with specified performance requirements.

115 TIMBER PROCUREMENT
- Timber (including timber for wood based products): Obtained from well managed forests and/ or plantations in accordance with:
- The laws governing forest management in the producer country or countries.
- International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
- Documentation: Provide either:
- Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
- Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.

120 SITE DIMENSIONS
- Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.

PRODUCTS

330 ALUMINIUM WINDOWS TO EXISTING WINDOW OPENINGS
- Drawing Ref: 353 CD 3002 & 3003
- Manufacturer: Aluprof Aluminium Systems
- Product reference: MB Slimline
- Finish as delivered: PPC to RAL 7016
- Glazing details:DGU with clear float outer layer and low E coated inner layer - refer to drawings
- Beading: As manufacturer's standard
- Ironmongery/ Accessories: Stainless steel handles, hinges,
- Fixing: Strap fixing
- Accessories: Include for aluminium trim to edges to accommodate stepped reveal

480 METAL GLAZED SCREENS AND EXTERNAL DOORS TO GROUND FLOOR
- Drawing reference: 353 CD 3004 & 3005
- Manufacturer: Aluprof Aluminium Systems
- Product reference: MB 79N (with SR50 screen surround to main entrance door)
- Screen height: 3465mm Max
- Materials:
- Frames:
  Finish: PPC to RAL 7016
- Glazing details: Hermetically sealed double glazed units comprising;
  Outer: 7.5mm clear laminated glass
  Cavity: 12mm Argon filled (90%) with black warm edge spacer
  Inner: 6mm clear toughened glass with Low-E coating .
- Incorporated features: Double doors and opening lights as shown on drawings
- Ironmongery: Doors to be provided with hinges and lock cases. Handles and cylinders to be provided by ironmongery supplier
- Fixing:.As manufacturer's recommendation

500 INTERNAL GLAZED SCREENS GENERALLY
- Manufacturer: Rea Metal Windows or equivalent
- Screen height: Refer to drawings 353 CD 3008 - 3009
- Materials:
- Frames: Steel W20 sections
  Finish: PPC to RAL 7016
- Glazing details: Toughened single glazing (including reeded glass panels as shown on drawings)
- Incorporated features: Double doors, single doors, overhead closers all as shown
- Fixing:.As manufacturer's recommendations
- Ironmongery: Doors supplied with hinges and lock cases. Handles and cylinders by ironmongery supplier

510 FIRE RATED INTERNAL GLAZED SCREENS TO EAST STAIR

- Manufacturer: Rea Metal Windows or equivalent
- Screen height: Refer to drawings 353 CD 3008 - 3009
- Materials:
- Frames: Steel W20 sections incorporating additional elements to achieve 30 min FR
  Finish: PPC to RAL 7016
- Glazing details: Clear fire rated glass with additional reeded glass panel as overlay (TBC)
- Incorporated features:Single doors and overhead closers all as shown
- Fixing:.As manufacturer's recommendations
- Ironmongery: Doors supplied with hinges and lock cases. Handles and cylinders by ironmongery supplier

580 ROOFLIGHTS TO EXISTING ROOF

- Manufacturer:The Rooflight Company Ltd
- Product reference: Conservation Rooflight (between rafters) ref CR15-2 (717 x 1635mm overall)
- Frame: Steel
- Finish: PPC
- Colour: RAL 7016
- Kerb: Flashing kit supplied as part of system
- Glazing details: 4mm toughened outer, 12mm argon filled cavity, 4mm low e toughened inner
- Other requirements: Windows to be top hung opening, operated with hand winding mechanism
- Fixing: As manufacturer's recommendations

EXECUTION

710 PROTECTION OF COMPONENTS

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

740 CORROSION PROTECTION

- Protective coating: Two coats of bitumen solution to BS 6949 or an approved mastic impregnated tape.
- Timing of application: Before fixing components.

765 WINDOW INSTALLATION GENERALLY

- Installation: Into prepared openings.
- Gap between frame edge and surrounding construction:
- Maximum: 2.5mm
- Distortion: Install windows without twist or diagonal racking.

780 FIXING OF WOOD FRAMES

- Standard: As section Z20.
- Spacing: When not predrilled or specified otherwise, position fasteners not more than 150 mm from ends of each jamb, adjacent to each hanging point of opening lights, and at maximum 450 mm centres.

810 SEALANT JOINTS

- Sealant:
- Manufacturer: British Adhesives Ltd (BAL)
- Application: As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.

820 IRONMONGERY

- Fixing: Assemble and fix carefully and accurately using fasteners with matching finish supplied by ironmongery manufacturer. Do not damage ironmongery and adjacent surfaces.
- Checking/ Adjusting/ Lubricating: Carry out at completion and ensure correct functioning.

L20 Doors/ shutters/ hatches

To be read with Preliminaries/ General conditions.

GENERAL

112 TIMBER PROCUREMENT
- Timber (including timber for wood based products): Obtained from well managed forests and/ or plantations in accordance with:
- The laws governing forest management in the producer country or countries.
- International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
- Documentation: Provide either:
- Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
- Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.

150 SITE DIMENSIONS
- Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.

PRODUCTS

110 INTERNAL FLUSH TIMBER DOORSETS GENERALLY
- Manufacturer: Shadbolt or equivalent
- Door leaf:
- Core: Solid core as manufacturer's standard
- Facings: MDF
- Lippings: Hardwood all edges
- Finish as delivered: Factory finished with epoxy lacquer
- Frame and architraves:
- Material: MDF
- Finish as delivered: Primed for on-site painting
- Ironmongery: Refer to schedule
- Fixing: Screwed to adjacent construction

250 EXTERNAL TIMBER DOORSET TO WEST FIRE ESCAPE
- Manufacturer: To be proposed by Contractor
- Door leaf: Solid core flush door
- Material: As manufacturer's standard for external use
- Finish: Primed for on-site painting
- Frame: Hardwood
- Material: Meranti
- Finish: Primed for on-site painting
- Ironmongery: Refer to schedule
- Perimeter seals: Weatherstripping to jambs and threshold weathering strip
- Other requirements: PAS24 Security rated including astragal to lock case
- Fixing: Screwed into jamb brickwork and plugged and pelleted

630 ROOF ACCESS HATCH TO EXISTING ROOF
- Manufacturer: Bilco Uk or equivalent
- Product reference: Versamount Replacement Hatch
- Size: Approx 750 x 1350mm to match existing opening size

EXECUTION

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

730 PRIMING/ SEALING
- Wood surfaces inaccessible after installation: Primed or sealed as specified before fixing components.

740 CORROSION PROTECTION

- Surfaces to be protected: Timber frames against masonry .
- Protective coating: Two coats of bitumen solution to BS 6949 or an approved mastic impregnated tape.
- Timing of application: Before fixing components.

790 FIXING OF WOOD FRAMES

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

830 FIXING IRONMONGERY GENERALLY

- Fasteners: Supplied by ironmongery manufacturer.
- Finish/ Corrosion resistance: To match ironmongery.
- Holes for components: No larger than required for satisfactory fit/ operation.
- Adjacent surfaces: Undamaged.
- Moving parts: Adjusted, lubricated and functioning correctly at completion.

850 LOCATION OF HINGES

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

L30 Stairs/ ladders/ walkways/ handrails/ balustrades

To be read with Preliminaries/ General conditions.

PRELIMINARY INFORMATION/ REQUIREMENTS

110 DESIGN
- Completion of design: Finalise details to meet structural and safety requirements of BS 5395.
- Type of activity/ occupancy category to BS 6399-1: C1/C2 (vii) Restaurants and bars.

130 SITE DIMENSIONS
- Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.

COMPONENTS

300 STEEL HANDRAIL TO STAIRCASES
- Component material, grade and finish as delivered:
- Handrails: 32mm Ø Mild steel tube to match existing
- Infill: 10.5mm laminated glass with 15 x 15mm beads to perimeter frame of 50 x 10mm flats
- Finish: Powder coated to RAL 9005 black
- Workmanship:
- Metalwork: As section Z11
- Other requirements:
- Fixing: 100 x 100mm plate to match existing

310 STEEL & GLASS BALUSTRADE TO JULIET BALCONIES
- Drawing reference: 353 CD 3007
- Component material, grade and finish as delivered:
- Frame: 40 x 40mm Mild steel angle (galvanised)
- Infill: 8.8mm laminated glass with 15 x 15mm beads to perimeter frame
- Finish: PPC to RAL 7016
- Workmanship:
- Metalwork: As section Z11
- Other requirements:
- Fixing: Fixed within depth of reveal with 25mm Ø spacers

320 STAINLESS STEEL HANDRAIL TO GROUND FLOOR STEPS
- Component material, grade and finish as delivered:
- Handrails: 40 x 5mm brushed stainless steel flats to form rail and posts
- Workmanship:
- Metalwork: As section Z11
- Other requirements:
- Fixing: TBC

INSTALLATION

630 CORROSION PROTECTION OF DISSIMILAR MATERIALS
- 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
- Fasteners and methods of fixing: To section Z20.
- Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
- Temporary support: Do not use stairs, walkways or balustrades as temporary support for other work.

L40 General glazing

To be read with Preliminaries/ General conditions.

GENERAL REQUIREMENTS

150 WORKMANSHIP GENERALLY
- Glazing generally: To BS 6262.
- Integrity: Glazing must be wind and watertight under all conditions with full allowance made for deflections and other movements.
- Dimensional tolerances: Panes/ sheets to be within ± 2 mm of specified dimensions.
- Materials:
- 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.
- Protection: Keep materials dry until fixed. Protect insulating glass units and plastics glazing sheets from the sun and other heat sources.

152 PREPARATION
- Surrounds, rebates, grooves and beads: Clean and prepare before installing glazing.

155 GLASS GENERALLY
- Standards: To BS 952 and relevant parts of:
- BS EN 572 for basic soda lime silicate glass.
- BS EN 1096 for coated glass.
- BS EN 1748-1 for borosilicate glass.
- BS EN 1748-2 for ceramic glass.
- BS EN 1863 for heat strengthened soda lime silicate glass.
- BS EN 12150 for thermally toughened soda lime silicate safety glass
- BS EN 12337 for chemically strengthened soda lime silicate glass.
- BS EN 13024 for thermally toughened borosilicate safety glass.
- BS EN ISO 12543 for laminated glass and laminated safety glass.
- Panes/ sheets: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.
- 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.

165 HEAT SOAKING OF THERMALLY TOUGHENED GLASS
- Standard: BS EN 14179.
- Mean glass temperature: 290° ± 10°C.
- Certified evidence of treatment: Submit.

M40 Stone/ concrete/ quarry/ ceramic tiling/ mosaic

To be read with Preliminaries/ General conditions.

TYPES OF TILING/ MOSAIC

110 CERAMIC WALL TILING TO WC & SHOWER AREAS
- Drawing reference: 353 CD 7401 - 7422
- Tiles:
- Manufacturer/ Supplier: Solus Ceramics
  Product reference: Bright Range
- Colour: TBC
- Size: 100 x 200mm
- Background/ Base: Tilebacker board as K10/140
- Preparation: As recommended by manufacturer
- Bedding: Thin bed ribbed as manufacturer's recommendations.
- Adhesive: To British Adhesives Ltd (BAL) recommendations for substrate
- Joint width: 2mm
- Grout: Mapei Ultracolour Plus colour to be confirmed
- Movement joints: N/A
- Accessories: Schluter Systems FINEC anodised trim at all external corners

GENERAL

210 SUITABILITY OF BACKGROUNDS/ BASES
- Background/ base tolerances: To permit specified flatness/ regularity of finished surfaces given the permissible minimum and maximum thickness of bedding.
- New background drying times (minimum):
- Concrete walls: 6 weeks.
- Brick/ block walls: 6 weeks.
- Rendering: 2 weeks.
- Gypsum plaster: 4 weeks.

250 SAMPLES
- General: Submit representative samples of the following: All tiling

PREPARATION

310 EXISTING BACKGROUNDS/BASES GENERALLY
- Efflorescence, laitance, dirt and other loose material: Remove.
- Deposits of oil, grease and other materials incompatible with the bedding: Remove.
- Tile, paint and other nonporous surfaces: Clean.
- Wet backgrounds: Dry before tiling.

390 PLASTERBOARD BACKGROUNDS
- Boards: Dry, securely fixed and rigid with no protruding fixings and face to receive decorative finish exposed.

FIXING

510 FIXING GENERALLY
- Colour/shade: Unintended variations within tiles for use in each area/room are not permitted.
- Variegated tiles: Mix thoroughly.
- Adhesive: Compatible with background/base. Prime if recommended by adhesive manufacturer.
- Cut tiles: Neat and accurate.
- Fixing: Provide adhesion over entire background/base and tile backs.
- Final appearance: Before bedding material sets, make adjustments necessary to give true, regular appearance to tiles and joints when viewed under final lighting conditions.
- Surplus bedding material: Clean from joints and face of tiles without disturbing tiles.

530 SETTING OUT
- Joints: True to line, continuous and without steps.
- Joints on walls: Horizontal, vertical and aligned round corners.
- Joints in floors: Parallel to the main axis of the space or specified features.
- Cut tiles: Minimise number, maximise size and locate unobtrusively.
- Joints in adjoining floors and walls: Align.
- Joints in adjoining floors and skirtings: Align.

- Movement joints: Where locations are not indicated, submit proposals.

550 FLATNESS/ REGULARITY OF TILING
- Sudden irregularities: Not permitted.
- Deviation of surface: Measure from underside of a 2 m straightedge placed anywhere on surface. The straightedge should not be obstructed by the tiles and no gap should be greater than 3 mm.

560 LEVEL OF TILING ACROSS JOINTS
- Deviation (maximum) between tile surfaces either side of any type of joint:
- 1 mm for joints less than 6 mm wide.
- 2 mm for joints 6 mm or greater in width.

650 THIN BED ADHESIVE - RIBBED (WALLS)
- Application: Apply 3 mm floated coat of adhesive to dry background in areas of approximately 1 m². Trowel to ribbed profile.
- Tiling: Press tiles firmly onto float coat.

651 THIN BED ADHESIVE - SOLID (WALLS)
- Application: Apply floated coat of adhesive to dry background in areas of about 1 m². Comb surface.
- Tiling: Apply thin even coat of adhesive to backs of dry tiles. Press tiles firmly onto float coat.
- Finished adhesive thickness (maximum): 3 mm.

MOVEMENT JOINTS/ GROUTING/ COMPLETION

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

885 COLOURED GROUT
- Staining of tiles: Not permitted.
- Evaluating risk of staining: Apply grout to a few tiles in a small trial area. If discolouration occurs apply a protective sealer to tiles and repeat trial.

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

To be read with Preliminaries/ General conditions.

TYPES OF COVERING

150 STUDDED RUBBER STEP TREADS & FLOORING TO EAST STAIRCASE
- Location: See drawings
- Base: Extg timber
  Preparation: As recommended by manufacturer
  Manufacturer and reference: Norament 926 by Nora Systems comprising Norament StairTreads and matching flooring to landings
  Width: Approx 1250mm
  Thickness: 4 mm
  Colour/pattern: to be confirmed
- Adhesive and primer: As recommended by manufacturer
- Jointing: Nora two component joint sealing compound
- Finishing: As manufacturers recommendations

GENERAL REQUIREMENTS

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

250 LAYOUT - ROLL MATERIALS
- Setting out of seams: Agree setting out for all sheeting types

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

340 CONDITIONING
- 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.
- Conditioning time and temperature (minimum): As recommended by manufacturer with time extended by for materials stored or transported at a temperature of less than 10°C immediately prior to laying.

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

PREPARING BASES

410 NEW BASES
- Suitability of bases and conditions within any area: Commencement of laying of coverings will be taken as acceptance of suitability.
- Base drying aids: Not used for at least four days prior to moisture content testing.
- Base moisture content test: Carry out in accordance with BS 5325, Annexe A or BS 8203, Annexe A.
  - Locations for readings: In all corners, along edges, and at various points over area being tested.
- Commencement of laying coverings: Not until all readings show 75% relative humidity or less.

LAYING COVERINGS

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

680 SEAM WELDING:
- Do not commence welding of coverings until a minimum of 24 hours after laying or until adhesive has completely set.
- Cut groove, 3 mm wide by 2/3 the depth of material, evenly along each joint using:
- Altro hand grooving tool or
- Automatic grooving machine fitted with diamond blade.
- Hot-weld using hot air welding gun (fitted with high speed welding nozzle) and Altro welding rod. Select colour of rod to match floor covering. Cut off surplus weld rod with spatula. Do not chemical weld.
- Form a neat, smooth, strongly bonded joint, flush with finished surface.

720 DOORWAYS:
- Make joint on centre line of door leaf unless specified otherwise.

780 TRAFFIC:
- After laying, keep floor covering free from traffic until adhesive is set.

COMPLETION

820 FINISHING
- Cleaning operations:
- Wash floor with water containing neutral (pH 6-9) detergent. If necessary, lightly scrub heavily soiled areas.
- Rinse with clean water, removing surplus to prevent damage to adhesive. Allow to dry.
- Emulsion polish: Two coats of a type recommended by covering manufacturer.

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

M60 Painting/ clear finishing

To be read with Preliminaries/ General conditions.

COATING SYSTEMS

140 CLEAR INTUMESCENT COATING TO EXISTING FLOOR JOISTS AND TIMBER BOARD SOFFITS
- Manufacturer: Envirograf Intumescent Systems
- Product reference: Clear Fire Retardant Product 42 HW01
- Surfaces: All surfaces
- Preparation: As recommended by paint manufacturer
- Initial coats: 1 coat HWAP Primer
- Intermediate coat: 3 coats HW02N clear intumescent to achieve 60 mins fire protection
- Finishing coats: 1 coat HW Excel clear top coat (matt)

145 INTUMESCENT PAINT TO CAST IRON COLUMNS, BEAM SHOES & TRUSS BRACKETS/RODS
- Manufacturer: Nullifire or similar
- Product reference: SC802 On site water based intumescent base coat - exact reference to be confirmed
- Surfaces: All surfaces
- Preparation: As recommended by paint manufacturer
- Initial coats: Primer as recommended by manufacturer
- Intermediate coat: SC802 as recommended by manufacturer to achieve 60 mins fire protection
- Finishing coats: Top coat as recommended by manufacturer

150 EMULSION PAINT TO WALLS & CEILINGS
- Manufacturer: Crown Paints (Crown Trade)
- Product reference: Matt vinyl emulsion
- Surfaces: Skim coated plasterboard
- Preparation: As recommended by paint manufacturer
- Initial coats: Thinned down (25%) trade matt emulsion or primer to timber surfaces
- Number of coats: one
- Finishing coats: Emulsion
- Number of coats: Two

155 EGGSHELL PAINT TO SKIRTINGS/ARCHITRAVES/CILLBOARDS
- Manufacturer: Crown Paints (Crown Trade)
- Product reference: Acrylic eggshell
- Surfaces: MDF panel mouldings, skirtings, frames, etc
- Preparation: As recommended by paint manufacturer
- Initial coats: Thinned down (25%) trade matt emulsion or primer to timber surfaces
- Number of coats: one
- Finishing coats: eggshell
- Number of coats: Two

GENERAL

210 COATING MATERIALS
- Selected manufacturers: Submit names of any alternative before commencement of any coating work.

215 HANDLING AND STORAGE
- Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
- Materials from more than one batch: Store separately.

280 PROTECTION
- 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
- Standard: In accordance with BS 6150 and all manufacturer’s recommendations
- Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.

- Substrates: Sufficiently dry in depth to suit coating.
- Efflorescence salts: Remove.
- Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
- Surface irregularities: Remove.
- Joints, cracks, holes and other depressions: Fill flush with surface, provide smooth finish.
- Dust, particles and residues from preparation: Remove and dispose of safely.
- Water based stoppers and fillers:
- Apply before priming unless recommended otherwise by manufacturer.
- If applied after priming: Patch prime.
- Doors, opening windows and other moving parts:
- Ease, if necessary, before coating.
- Prime resulting bare areas.

425 IRONMONGERY
- Removal: Before commencing work remove ironmongery from surfaces to be coated.
- Replacement: Refurbish as necessary; refit when coating is dry.

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

461 PREVIOUSLY COATED WOOD
- Degraded or weathered surface wood: Take back to provide suitable substrate.
- Degraded substrate wood: Repair with sound material of same species.

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

APPLICATION

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

N11 Domestic kitchen fittings, furnishings and equipment

Supply and installation of kitchen equipment is to be carried out by specialist contractor. For details of equipment to be provided refer to specialist contractor drawings and schedules. Refer to preliminaries and general conditions for co-ordination attendances etc

N13 Sanitary appliances and fittings

To be read with Preliminaries/ General conditions.

TYPES OF APPLIANCE/ FITTING

300 SANITARY APPLIANCES GENERALLY
- Refer to Zest Bathrooms Schedule & Specification for all sanitaryware, taps and accessories

580 SEALANT POINTING
- Type: Silicone
- Manufacturer: British Adhesives Ltd (BAL)
  Product reference: Micromax sealant
- Colour: Clear

EXECUTION

610 INSTALLATION GENERALLY
- Assembly and fixing: Surfaces designed to falls to drain as intended.
- Fasteners: Nonferrous or stainless steel.
- Supply and discharge pipework: Fix before appliances.
- Fixing: Fix appliances securely to structure. Do not support on pipework.
- Jointing and bedding compounds: Recommended by manufacturers of appliances, accessories and pipes being jointed or bedded.
- On completion: Components and accessories working correctly with no leaks.Labels & stickers removed

620 NOGGINGS AND BEARERS
- Noggings, bearers, etc. to support sanitary appliances and fittings: Position accurately. Fix securely.

630 TILED BACKGROUNDS OTHER THAN SPLASHBACKS
- Timing: Complete before fixing appliances.
- Fixing appliances: Do not overstress tiles.

670 INSTALLING CISTERNS
- Cistern operating components: Obtain from cistern manufacturer.
- Float operated valve: Matched to pressure of water supply.
- Overflow pipe: Fixed to falls and located to give visible warning of discharge.
- Location: Agreed, where not shown on drawings.

710 INSTALLING TAPS
- Fixing: Secure against twisting.
- Seal with appliance: Watertight.
- Positioning: Hot tap to left of cold tap as viewed by user of appliance.

720 INSTALLING WASTES AND OVERFLOWS
- Bedding: Waterproof jointing compound.
- Fixing: With resilient washer between appliance and backnut.

P10 Sundry insulation/ proofing work

To be read with Preliminaries/ General conditions

TYPES OF INSULATION

230 INSULATION LAID BETWEEN AND BELOW EXISTING RAFTERS
- Manufacturer: Kingspan or equivalent
- Product reference: Thermapitch TP10
- Thickness: 75mm between rafters, 50mm below rafters
- Airspace above insulation: 25mm
- Installation requirements: As manufacturer's recommendations
- Insulation: Below rafter insulation secured with battens to each rafter position

P20 Unframed isolated trims/ skirtings/ sundry items

To be read with Preliminaries/General conditions

110 MEDIUM DENSITY FIBREBOARD SKIRTINGS
- Standard: To BS EN 622-5.
- Formaldehyde class: To BS EN 622-1, Class E1.
- Size: 100 x 15mm
- Edges: Square
- Finish: primed for painting as spec M60/160
- Support/ Fixing: Screwed and filled

120 MEDIUM DENSITY FIBREBOARD SKIRTINGS
- Standard: To BS EN 622-5.
- Formaldehyde class: To BS EN 622-1, Class E1.
- Size: 50 x 15mm
- Edges: Square
- Finish: primed for painting as spec M60/160
- Support/ Fixing: Screwed and filled

130 MEDIUM DENSITY CILL BOARDS
- Standard: To BS EN 622-5.
- Formaldehyde class: To BS EN 622-1, Class E1.
- Size: 20mm thick to suit depth of opening
- Edges: Square with pencil round edges
- Finish: primed for painting as spec M60/160
- Support/ Fixing: Screwed and filled

510 INSTALLATION GENERALLY
- Joinery workmanship: As section Z10.
- Metal workmanship: As section Z11.
- Methods of fixing and fasteners: As section Z20 where not specified.
- Straight runs: To be in one piece, or in long lengths with as few joints as possible.
- Running joints: Location and method of forming to be agreed where not detailed.
- Joints at angles: Mitred
- Position and level: To be agreed where not detailed.

R10 Rainwater drainage systems

To be read with Preliminaries/ General conditions.

SYSTEM PERFORMANCE

210 DESIGN
- Design: Complete the design of the rainwater drainage system.
- Standard: To BS EN 12056-3, clauses 3-7 and National Annexes.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

221 COLLECTION AND DISTRIBUTION OF RAINWATER
- General: Complete, and without leakage or noise nuisance.

PRODUCTS

380 CAST IRON PIPEWORK TO RAINWATER PIPES
- Manufacturer: Alumasc
- Product reference: Heritage Apex
- Section: Circular
- Nominal size: 75mm Ø
- Finish: Painted as manufacturer's standard
- Colour: Black
- Brackets: As recommended by manufacturer
- Fixings: As recommended by manufacturer

385 CAST IRON GUTTER TO LIFT SHAFT
- Manufacturer: Alumasc
- Product reference: Heritage Apex
- Section: Half round
- Nominal size: 100mm
- Finish: Painted as manufacturer's standard
- Colour:Black
- Brackets: As recommended by manufacturer
- Fixings: As recommended by manufacturer

390 CAST IRON HOPPER HEADS
- Manufacturer: Alumasc
- Product reference: Heritage Apex Small Rectangular Hopper
- Size: 254 x 178 x 178mm
- Finish: Painted as manufacturer's standard.
- Colour: Black
- Brackets: As recommended by manufacturer
- Fixings: As recommended by manufacturer

EXECUTION

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

605 INSTALLATION GENERALLY
- Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
- Plastics and galvanized steel pipes: Do not bend.
- Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
- Protection:
- Fit purpose made temporary caps to prevent ingress of debris.
- Fit access covers, cleaning eyes and blanking plates as the work proceeds.

610 FIXING AND JOINTING GUTTERS
- Joints: As recommended by manufacturer
- Brackets: Securely fixed.
- Fixings: As recommended by manufacturer.
- Additional brackets: Where necessary to maintain support and stability, provide at joints

in gutters and near angles and outlets.
- Roofing underlay: Dressed into gutter.

616 SETTING OUT EAVES GUTTERS - LEVEL
- Setting out: Level and as close as practical to the roof.
- Outlets: Aligned with connections to below ground drainage.

630 INSTALLING RAINWATER OUTLETS
- Fixing: Secure. Fix before connecting pipework.
- Junctions between outlets and pipework: Accommodate movement in structure and pipework.

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

640 FIXING VERTICAL PIPEWORK
- Bracket fixings: As recommended by manufacturer to suit system.
- Distance between bracket fixing centres (maximum): As recommended by manufacturer.

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

690 ELECTRICAL CONTINUITY - PIPEWORK
- Joints in metal pipes with flexible couplings: Clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

COMPLETION

905 INTERNAL PIPEWORK TEST - ENGLAND, WALES, IRELAND AND NORTHERN IRELAND
- Preparation: Temporarily seal open ends of pipework with plugs.
- Test apparatus: Connect a 'U' tube water gauge and air pump to pipework via a plug.
- Testing: Pump air into pipework until gauge registers 38 mm.
- Required performance:
  - Allow a period for temperature stabilization, after which the pressure of 38 mm is to be maintained without loss for at least 3 minutes.

910 GUTTER TEST
- Preparation: Temporarily block all outlets.
- Testing: Fill gutters to overflow level and after 5 minutes closely inspect for leakage.

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Z10 Purpose made joinery

To be read with Preliminaries/ General conditions.

110 FABRICATION

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

120 CROSS SECTION DIMENSIONS OF TIMBER

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

130 PRESERVATIVE TREATED WOOD

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

140 MOISTURE CONTENT

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

250 FINISHING

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

Z11 Purpose made metalwork

To be read with Preliminaries/ General conditions.

PRODUCTS

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

FABRICATION

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

520 COLD FORMED WORK
- Profiles: Accurate, with straight arrises.

527 WELDING
- Preparation:
- Joint preparation: Clean thoroughly.
- Surfaces of materials that will be self-finished and visible in the completed work: protect from splatter.
- Jointing:
- Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
- Strength requirements: Welds to achieve design loads.
- Complex assemblies: Agree priority for welding members to minimize distortion caused by welds.
- Tack welds: Use only for temporary attachment.
- Jigs: Provide to support and restrain members during welding.
- Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater.
- Weld terminations: Clean and sound.

FINISHING

710 FINISHING WELDED AND BRAZED JOINTS VISIBLE IN COMPLETE WORK
- Standard: To BS EN ISO 8501-3.
- Butt joints: Smooth, and flush with adjacent surfaces.
- Fillet joints: Neat.
- Grinding: Grind smooth where indicated on drawings.

745 PREPARATION FOR APPLICATION OF COATINGS
- General: Complete fabrication, and drill fixing holes before applying coatings.
- Paint, grease, flux, rust, burrs and sharp arrises: Remove.

780 GALVANIZING
- Standard: To BS EN ISO 1461.
- Preparation:
- Vent and drain holes: Provide in accordance with BS EN 14713. Seal after sections have drained/cooled.
- Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
- Welding slag: Remove.
- Component cleaning: To BS EN ISO 8501-1.

Z12 Preservative/ fire retardant treatment

To be read with Preliminaries/ General conditions.

110 TREATMENT APPLICATION
- Timing: After cutting and machining timber, and before assembling components.
- Processor: Licensed by manufacturer of specified treatment solution.
- Certification: For each batch of timber provide a certificate of assurance that treatment has been carried out as specified.

120 COMMODITY SPECIFICATIONS
- Standard: Current edition of the British Wood Preserving and Damp-proofing Association (BWPDA) Manual.

130 PRESERVATIVE TREATMENT SOLUTION STRENGTHS/ TREATMENT CYCLES
- General: Select to achieve specified service life and to suit treatability of specified wood species.

140 COPPER-ORGANIC PRESERVATIVE TREATMENT
- Solution:
- Manufacturer: Arch Timber Protection
  Product reference: Tanalith E
- Application: High pressure impregnation.
- Moisture content of wood at time of treatment: Not more than 28%. After treatment, allow timber to dry before using.

160 ORGANIC SOLVENT PRESERVATIVE TREATMENT
- Solution:
- Manufacturer: Arch Timber Protection
  Product reference: Vacsol Aqua
- Application: Double vacuum + low pressure impregnation, or immersion.
- Moisture content of wood at time of treatment: As specified for the timber/ component at time of fixing. After treatment, timber to be surface dry before use.

165 MICROEMULSION PRESERVATIVE TREATMENT
- Solution:
- Manufacturer: Arch Timber Protection
  Product reference: Resistol
- Application: low pressure impregnation.
- Moisture content of wood at time of treatment: As specified for the timber/ component at time of fixing. After treatment, timber to be surface dry before use.

Z20 Fixings and adhesives

To be read with Preliminaries/ General conditions.

PRODUCTS

310 FASTENERS GENERALLY
- Materials: To have:
- Bimetallic corrosion resistance appropriate to items being fixed.
- Atmospheric corrosion resistance appropriate to fixing location.
- Appearance: Submit samples on request.

320 PACKINGS
- Materials: Noncompressible, corrosion proof.
- Area of packings: Sufficient to transfer loads.

340 MASONRY FIXINGS
- Light duty: Plugs and screws.
- Heavy duty: Expansion anchors or chemical anchors.

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

390 ADHESIVES GENERALLY
- Standards:
- Hot-setting phenolic and aminoplastic: To BS 1203.
- Thermosetting wood adhesives: To BS EN 12765.
- Polyvinyl acetate thermoplastic adhesive: To BS 4071.

410 POWDER ACTUATED FIXING SYSTEMS
- Types of fastener, accessories and consumables: As recommended by tool manufacturer.

EXECUTION

610 FIXING GENERALLY
- 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.
- Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.
- Appearance: Fixings to be in straight lines at regular centres.

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

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

680 PLUGGED COUNTERSUNK SCREW FIXING
- Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
- Plugs: Glue in to full depth of hole.
- Finished level of plugs: Projecting above surface.

690 USING POWDER ACTUATED FIXING SYSTEMS
- Powder actuated fixing tools: To BS 4078-2 and Kitemark certified.
- Operatives: Trained and certified as competent by tool manufacturer.

700 APPLYING ADHESIVES
- Surfaces: Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.
- Support and clamping during setting: Provide as necessary. Do not mark surfaces or distrort components .
- Finished adhesive joints: Fully bonded. Free of surplus adhesive.

Z21 Mortars

To be read with Preliminaries/ General conditions.

CEMENT GAUGED MORTARS

110 CEMENT GAUGED MORTAR MIXES
- Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

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

131 READY-MIXED LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS
- Standard: To BS EN 998-2.
- Lime: Nonhydraulic to BS EN 459-1.
- Type: CL 90S.
- Pigments for coloured mortars: To BS EN 12878.

160 CEMENTS FOR MORTARS
- Cement: To BS EN 197-1 and CE marked.
- Types: Portland cement, CEM I.
  Portland limestone cement, CEM ll/A-L or CEM ll/A-LL.
  Portland slag cement, CEM II/B-S.
  Portland fly ash cement, CEM II/B-V.
- Strength class: 32.5, 42.5 or 52.5.
- White cement: To BS EN 197-1 and CE marked.
- Type: Portland cement, CEM I.
- Strength class: 52.5.
- Sulfate resisting Portland cement:
- Types: To BS 4027 and Kitemarked.
  To BS EN 197-1 fly ash cement, CEM ll/B-V and CE marked.
- Strength class: 32.5, 42.5 or 52.5.
- Masonry cement: To BS EN 413-1 and CE marked.
- Class: MC 12.5.

180 ADMIXTURES FOR SITE MADE CEMENT GAUGED MORTARS
- Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
- Other admixtures: Submit proposals.
- Prohibited admixtures: Calcium chloride, ethylene glygol and any admixture containing calcium chloride

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

LIME:SAND MORTARS

310 LIME:SAND MORTAR MIXES
- Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

320 SAND FOR LIME:SAND MASONRY MORTARS
- Type: Sharp, well graded.
- Quality, sampling and testing: To BS EN 13139.
- Grading/ Source: As specified elsewhere in relevant mortar mix items.

330 READY PREPARED LIME PUTTY
- Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.

- Maturation: In pits/ containers that allow excess water to drain away.
- Density of matured lime putty: 1.3-1.4 kg/litre.

345 ADMIXTURES FOR HYDRAULIC LIME:SAND MORTARS

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

360 MAKING LIME:SAND MORTARS GENERALLY

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

370 SITE PREPARED NONHYDRAULIC LIME:SAND MORTARS

- Mixing: Mix materials thoroughly by compressing, beating and chopping. Do not add water.
- Equipment: Roller pan mixer or submit proposals.

390 KNOCKING UP NONHYDRAULIC LIME:SAND MORTARS

- Knocking up before and during use: Achieve and maintain a workable consistency by compressing, beating and chopping. Do not add water.
- Equipment: Roller pan mixer or submit proposals.

Z22 Sealants

To be read with Preliminaries/General conditions.

PRODUCTS

310 JOINTS
- Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.

EXECUTION

610 SUITABILITY OF JOINTS
- Presealing checks:
- Joint dimensions: Within limits specified for the sealant.
- Substrate quality: Surfaces regular, undamaged and stable.

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

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

Z31 Powder coatings

To be read with Preliminaries/ General conditions.

120 POWDER COATING MATERIALS
- Selected manufacturer: Submit details before commencement of powder coating including:
- Name and contact details.
- Details of accreditation schemes.
- Technical data of product including current Agrément certificates.

220 POWDER COATING APPLICATORS
- Applicator requirements:
- Approved by powder coating manufacturer.
- Currently certified to BS EN ISO 9001.
- Comply with quality procedures, guarantee conditions, standards and tests required by powder coating manufacturer.
- Applicator to use only one plant.
- Selected applicator: Submit details before commencement of powder coating including: Name and contact details.
  Details of accreditation schemes.

225 GUARANTEES
- Powder coating manufacturer and applicator guarantees:
- Submit sample copies before commencement of powder coating.
- Submit signed project specific copies on completion of work.

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

320 PRETREATMENT OF STEEL COMPONENTS
- Condition of components to be pretreated:
- Free from corrosion and damage.
- All welding and jointing completed and finish off as specified.
- Free from impurities including soil, grease, oil.
- Suitable for and compatible with the pretreatment process.
- Conversion coating requirements: To BS EN 13438.
- Rinsing requirements: Use demineralized water. Drain and dry.

430 EXTENT OF POWDER COATINGS
- Application: To visible component surfaces, and concealed surfaces requiring protection. Coated surfaces will be deemed 'significant surfaces' for relevant BS 6496/ BS EN 13438 performance requirements.

435 APPLICATION OF POWDER COATINGS
- Surfaces to receive powder coatings: Free from dust or powder deposits.
- Powder colours: Obtain from one batch of one manufacturer.
- Commencement of powder coatings: To be continuous from pretreatment.
- Jig points: Not visible on coated components.
- Curing: Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
- 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.
- Overcoating of components: Not acceptable.

440 PERFORMANCE AND APPEARANCE OF POWDER COATINGS

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

450 ALUMINIUM ALLOY FABRICATIONS

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

460 STEEL FABRICATIONS

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

470 FIXINGS

- 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/ REPLACEMENT

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

510 PROTECTION

- Powder coated surfaces of components: Protect from damage during handling and installation, or by subsequent site operations.
- Protective coverings: Must be:
- Resistant to weather conditions.
- Partially removable to suit building in and access to fixing points.
- Protective tapes in contact with powder coatings: Must be:
- Low tack, self adhesive and light in colour.
- 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.
- Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

540 COMPLETION

- Protection: Remove
- Cleaning and maintenance of powder coatings: Carry out in accordance with procedures detailed in powder coating manufacturer and applicator guarantees.