

GENERAL SPECIFICATION OF WORKS AND MATERIALS TO BE USED

for

**PROPOSED RENOVATION, EXTENSION AND CHANGE OF USE
TO TOURIST / GUEST ACCOMMODATION**

at

**CREEVAGH BEG,
BALLYMAHON,
CO. LONGFORD**

Client: **Fenton White**
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C20 Demolition

To be read with Preliminaries/General conditions

GENERAL REQUIREMENTS

- 120 EXTENT OF DECONSTRUCTION/ DEMOLITION
- General: Subject to retention requirements specified elsewhere, deconstruct/ demolish structures down to levels indicated.
- 130 GROUNDWORKS
- Old foundations, slabs and the like: Break out in locations and to the extents stated.
 - Contaminated material: Remove, and carry out remediation required by the Enforcing Authority.
- 150 FEATURES TO BE RETAINED
- General: Keep in place and protect the following: As indicated.

SERVICES AFFECTED BY DECONSTRUCTION/ DEMOLITION

- 210 SERVICES REGULATIONS
- Work carried out to or affecting new and/ or existing services: Carry out in accordance with the byelaws and/ or regulations of the relevant Statutory Authority.
- 220 LOCATION OF SERVICES
- Services affected by deconstruction/ demolition work: Locate and mark positions.
 - Mains services marking: Arrange with the appropriate authorities for services to be located and marked.
 - Marking standard: In accordance with National Joint Utilities Group 'Guidelines on the positioning and colour coding of underground utilities' apparatus'.
- 230 SERVICES DISCONNECTION ARRANGED BY CONTRACTOR
- General: Arrange with the appropriate authorities for disconnection of services and removal of fittings and equipment owned by those authorities prior to starting deconstruction/ demolition.
- 240 DISCONNECTION OF DRAINS
- General: Locate, disconnect and seal disused foul and surface water drains.
 - Sealing: Permanent, and within the site.
- 250 LIVE FOUL AND SURFACE WATER DRAINS
- Drains and associated manholes, inspection chambers, gullies, vent pipes and fittings:
 - Protect; maintain normal flow during deconstruction/ demolition.
 - Make good any damage arising from deconstruction/ demolition work.
 - Leave clean and in working order at completion of deconstruction/ demolition work.
 - Other requirements: -.
- 260 SERVICE BYPASS CONNECTIONS
- General: Provide as necessary to maintain continuity of services to occupied areas of the site on which the deconstruction/ demolition is taking place and to adjoining sites/ properties.
 - Minimum notice to adjoining owners and all affected occupiers: 72 hours, if shutdown is necessary during changeover.
- 270 SERVICES TO BE RETAINED
- Damage to services: Give notice, and notify relevant service authorities and/ or owner/ occupier regarding damage arising from deconstruction/ demolition.
 - Repairs to services: Complete as directed, and to the satisfaction of the service authority or owner.

DECONSTRUCTION/ DEMOLITION 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 deconstruction/ demolition to be used.

320 GAS OR VAPOUR RISKS

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

330 DUST CONTROL

- General: Reduce airborne dust by periodically spraying deconstruction/ demolition works with an appropriate wetting agent. Keep public roadways and footpaths clear of mud and debris.
- 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 proceeds. Do not leave unnecessary or unstable projections.
- Defects: Report immediately on discovery.
- Damage: Minimize. Repair promptly to ensure safety, stability, weather protection and security.
- Support to foundations: Do not disturb.

360 STRUCTURES TO BE RETAINED

- Extent: As drawing 10101/ T103 & T104 .
- Parts which are to be kept in place: Protect.
- Interface between retained structures and deconstruction/ demolition: Cut away and strip out with care to minimize making good.

370 PARTLY DEMOLISHED STRUCTURES

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

380 DANGEROUS OPENINGS

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

390 ASBESTOS-CONTAINING MATERIALS – KNOWN OCCURRENCES

- General: Materials containing asbestos are known to be present in: the existing roof slates .
- Removal: slates to be maintained and managed, any work/ removal required to these slates to be carried out by a suitably qualified and competent specialist contractor- see Preliminary Health & Safety Plan .

391 ASBESTOS-CONTAINING MATERIALS – UNKNOWN OCCURRENCES

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

410 UNFORESEEN HAZARDS

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

MATERIALS ARISING

510 CONTRACTOR'S PROPERTY

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

511 EMPLOYER'S PROPERTY

- Components and materials to remain the property of the Employer:
- Special requirements: -.

520 RECYCLED MATERIALS

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

C90 Alterations - spot items

GENERAL

110 DESCRIPTIONS

- Location of spot item descriptions: .

120 EMPLOYER'S PROPERTY

- Components and materials arising from alterations that are to remain the property of the Employer: Existing Windows & Doors .
 - Protection: Maintain until items listed above are removed by the Employer or reused in the Works, or until the end of the Contract.
- Special requirements: None.

E20 Formwork for in situ concrete

To be read with Preliminaries/ General conditions.

GENERALLY/ PREPARATION

110 LOADINGS

- Requirement: Design and construct formwork to withstand the worst combination of the following:
 - Total weight of formwork, reinforcement and concrete.
 - Construction loads including dynamic effects of placing, compacting and construction traffic.
 - Wind and snowloads.

200 PROPRIETARY UNDERSLAB INSULATION

- Manufacturer: as 200A or equal approved.
 - Product reference: 200A.
- Recycled content: Contractor's choice.
- Thickness:
 - Under slab: 150mm to give 0.24w/m²K.
 - To edge of slab: 50mm.

200A PROPRIETARY UNDERSLAB INSULATION

- Manufacturer: PIR with Data Sheet provided

CONSTRUCTION

310 ACCURACY

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

315 SUBSTRUCTURE FORMWORK AND UNDERSLAB INSULATION

- Cutting: Neat and accurate to edges, and around penetrations and downstands.
- Laying: Tightly butted and fully supported on firm, even substrate.
- Vertical faces: Stiffen as necessary to act as shutter.
- Formwork/ insulation surfaces: Protect from indentation by spacers and other items.
- Joints in formwork/ insulation and with edge structure and penetrations: Seal to prevent penetration of concrete.
- Concrete placement: Restrain formwork/ insulation against movement.

320 JOINTS IN FORMS

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

330 INSERTS, HOLES AND CHASES

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

350 FORM TIES

- Metal associated with form ties/ devices: Prohibited within cover to reinforcement. Compatible with reinforcement metal.

STRIKING

510 STRIKING FORMWORK

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

F10 Brick/ block walling

To be read with Preliminaries/ General conditions.

TYPES OF WALLING

345 CONCRETE COMMON BRICKWORK To Engs Spec

- Bricks: To BS EN 771-3.
 - Configuration: -.
 - Compressive strength:
 - Mean value: -.
 - Characteristic value: -.
 - Category: -.
 - Freeze/ Thaw resistance: -.
 - Water absorption by capillarity: -.
 - Recycled content: -.
 - Work sizes (length x width x height): -.
 - Tolerance category: -.
 - Special shapes: -.
 - Additional requirements: -.
- Mortar: As section Z21.
 - Standard: To Engs Spec.
 - Mix: To Engs Spec.
 - Additional requirements: -.
- Bond: -.

355 CONCRETE COMMON BLOCKWORK to Engs Spec

- Blocks: To BS EN 771-3.
 - Manufacturer: -.
 - Product reference: -.
 - Configuration: -.
 - Compressive strength:
 - Mean value: -.
 - Characteristic value: -.
 - Category: -.
 - Freeze/ Thaw resistance: -.
 - Thermal properties: -.
 - Recycled content: -.
 - Work sizes (length x width x height): -.
 - Tolerance category: -.
 - Special shapes: -.
 - Additional requirements: -.
- Mortar: As section Z21.
 - Standard: To Engs Spec.
 - Mix: To Engs Spec.
 - Additional requirements: -.
- Bond: -.

WORKMANSHIP GENERALLY

430 CONDITIONING OF CLAY AND CALCIUM SILICATE BRICKS AND CLAY BLOCKS

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

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.

460 MORTAR GROUPS

- Mix proportions: For a specified group select a mix design from the following:
 - Group 1:
 - 1:0–0.25:3 (Portland cement:lime:sand with or without air entraining additive).
 - 1:3 (Portland cement:sand and air entraining additive).
 - Group 2:
 - 1:0.5:4–5 (Portland cement:lime:sand with or without air entraining additive).
 - 1:3 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1:2.5–3.5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1:3–4 (Portland cement:sand and air entraining additive.)
 - Group 3:
 - 1:1:5–6 (Portland cement:lime:sand with or without air entraining additive).
 - 1:3.5–4 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1:4–5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1:5–6 (Portland cement:sand and air entraining additive).
 - Group 4:
 - 1:2:8–9 (Portland cement:lime:sand with or without air entraining additive).
 - 1:4.5 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1:5.5–6.5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1:7–8 (Portland cement:sand and air entraining additive).
- Batching: Mix proportions by volume.
- Mortar type: Continuous throughout any one type of masonry work.

500 LAYING GENERALLY

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

520 ACCURACY

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

545 LEVELLING OF SEPARATE LEAVES

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

595 LINTELS

- Bearing: Ensure full length masonry units occur immediately under lintelends.

610 SUPPORT OF EXISTING WORK

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

620 BLOCK BONDING NEW WALLS TO EXISTING

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

635 JOINTING

- Profile: Consistent in appearance.

645 ACCESSIBLE JOINTS NOT EXPOSED TO VIEW

- Jointing: Struck flush as work proceeds.

665 POINTING TO ALL WALLING

- Joint preparation: Remove debris. Dampen surface.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: to Engs spec.
 - Additional requirements: to Engs Spec.
- Profile: Flush.

671 FIRE STOPPING

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

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**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 level.

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.

F21 Natural stone/ ashlar walling/ dressings

To be read with Preliminaries/ General conditions.

TYPES OF WALLING/ DRESSINGS

120 HARD LANDSCAPING MATERIALS SPECIFICATION

- Minimum BRE 'Green Guide to Specification Online' rating: Contractor's choice .

GENERAL PRODUCTION

250 CUTTING AND DRESSING OF STONE

- Timing: After seasoning but before delivery to site.
- Accuracy:
 - Exposed and joint surfaces: Square, true planes free from hollow or rough areas.
 - Dimensions: Maintains specified joint widths.
- Orientation for natural bed of stones: Appropriate to properties of stones and positions in walling/ dressings.

LAYING AND JOINTING

315 ADVERSE WEATHER

- General: Do not use frozen materials or lay on frozen surfaces.
- Air temperature: Do not lay stones:
 - In cement gauged mortars: At or below 3°C and falling or below 1°C and rising.
 - In hydraulic lime:sand mortars: At or below 5°C and falling or below 3°C and rising.
- Temperature of walling during curing: Above freezing until mortar hardened.
- Newly erected walling: Protect at all times from:
 - Rain and snow.
 - Drying out too rapidly in hot conditions and in drying winds.

325 LAYING GENERALLY

- Stone selection: Do not use units with damaged faces or arrises.
- Accuracy:
 - Courses: Level and true to line.
 - Faces, angles and features: Plumb.
 - Setting out: Achieve satisfactory junctions and joints with adjoining or built-in elements and components.
- Absorbent stones: Dampen in warm weather to reduce suction. Do not soak.
- Mortar joints:
 - Laying: Full bed of mortar with all joints and voids filled.
 - Temporary distance pieces: Lead or stainless steel. Remove when mortar is sufficiently strong.
 - Appearance: Neat and consistent.
- Cleanliness: Keep facework clean. Rubbing and other abrasive or chemical cleaning methods to remove marks and stains not permitted.

390 POINTING

- Joint preparation: Rake out to depth of 7-10 mm as work proceeds. Remove debris. Dampen surface.
- Mortar application: Neat and consistent.

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

To be read with Preliminaries/ General conditions.

CAVITIES

- 110 CONCRETE FILL TO BASE OF CAVITY
- Concrete generally: To BS EN 206-1 and BS 8500-2.
 - Designated concrete: to Engs Spec .
 - Workability: High.
 - Extent: Maintain 75 mm between top of fill and external ground level and a minimum of 225 mm between top of fill and ground level dpc.
 - Placement: Compact to eliminate voids.
- 120 CLEANLINESS
- Cavity base and faces, ties, insulation and exposed dpcs: Free from mortar and debris.
- 130 PERPEND JOINT WEEP HOLES
- Form: Open perpend joint.
 - Locations: Through outer leaf immediately above base of cavity, at cavity trays, stepped dpcs and external openings. 75 mm above top of cavity fill at base of cavity.
 - Provision: At not greater than 1000 mm centres and not less than two over each opening.
- 131 BED JOINT WEEP HOLES
- Form: Open 10 mm diameter hole.
 - Locations: Through outer leaf immediately above base of cavity at cavity trays, stepped dpcs and external openings. 75 mm above top of cavity fill at base of cavity.
 - Provision: At not greater than 1000 mm centres and not less than two over each opening.
- 171 VENTILATION DUCTS IN EXTERNAL WALLING
- Manufacturer: Submit proposals as at 171A .
 - Product reference: to suit thickness of wall build-up & External Insulation Manufacturers recommendations .
 - Placement: Across cavity, sloping away from inner leaf. Full mortar joints to seal cavity.
 - Protection from water penetration to inner leaf: Where barrier is not integral to duct, form stepped dpc cavity tray with stop ends above duct, extending 150 mm on each side.
- 171A VENTILATION DUCTS IN EXTERNAL WALLING
- As indicated on drawing T107-T108.
- Manufacturer: Contractors choice
- Size: 150/ 100mm diameter as indicated in drawings to span thickness of wall buildup
- Colour: White internally/ buff externally
- Accessories: to be supplied with cowls and internal grilles to provide background ventilation
- 173 UNDERFLOOR WALL VENTILATION TO SUSPENDED TIMBER FLOORS
- 2 no. to each room where suspended timber floor
- Manufacturer: Contractors choice
- Size: 100mm diameter to span thickness of wall buildup
- Colour: buff externally
- Accessories: to be supplied with cowls and internal grilles to provide ventilation to suspended timber floors
- 180 CAVITY CLOSERS Contractors Choice
- Manufacturer: - .
 - Product reference: - .
 - Accessories: None .

REINFORCING/ FIXING ACCESSORIES**214 CAVITY WALL TIES GENERALLY**

- Standard: To BS EN845-1.
 - Type: 2 (Masonry general purpose) .
- Manufacturer: Contractors Choice .
 - Product reference: - .
- Material/ finish: Austenitic stainless steel .
- Sizes: 200 mm.
- End types: Symmetrical butterfly loop .
- Design embedment length (minimum): 50 mm.
- Movement: - .
- Additional requirements: - .

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.
 - Horizontal centres: 750 mm .
 - Vertical centres: 450 mm .
- Additional ties: Provide within 225 mm of reveals of unbonded openings.
 - Spacing: At not more than 300 mm centres vertically .

FLEXIBLE DAMP PROOF COURSES/ CAVITY TRAYS**310 DAMP PROOF COURSE - BITUMEN BASED**

- Standard: To BS6398.
 - Class: - .
- Manufacturer: Contractors Choice .
 - Product reference: - .

320 DAMP PROOF COURSE - POLYETHYLENE

- Standard: To BS6515.
- Manufacturer: Contractors Choice .
 - Product reference: - .

330 DAMP PROOF COURSE - PITCH POLYMER

- Manufacturer: Contractors Choice .
 - Product reference: - .

340 SITE FORMED FLEXIBLE SHEET CAVITY TRAYS - BITUMEN BASED

- Standard: To BS6398.
 - Class: - .
- Manufacturer: Contractors Choice .
 - Product reference: - .

345 SITE FORMED FLEXIBLE SHEET CAVITY TRAYS

- Material: Contractors Choice .
- Manufacturer: - .
 - Product reference: - .

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**415 HORIZONTAL DPCS**

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

- 425 **GROUND LEVEL DPCS**
- Joint with damp proof membrane: Continuous and effectively sealed.
- 435 **STEPPED DPCS IN EXTERNAL WALLS**
- External walls on sloping ground: Install dpcs not less than 150 mm above adjoining finished ground level.
- 445 **SILL DPCS**
- Form and placement: In one piece and turned up at back when sill is in contact with inner leaf.
- 455 **COPING/ CAPPING DPCS**
- Placement: Bed in one operation to ensure maximum bond between masonry units, mortar and dpc.
 - Dpcs crossing cavity: Provide rigid support to prevent sagging.
- 465 **SEALING DPCS PARAPET WALLS**
- Overlaps and junctions: Seal with Adhesive recommended by dpc manufacturer .
- 475 **SITE FORMED CAVITY TRAYS**
- Requirements to prevent downward ingress of water:
 - Profiles: To match those shown on drawings. Firmly secured.
 - Joint treatment: Use unjointed wherever possible, otherwise lap at least 100 mm and seal to produce a free draining and watertight installation.
 - Horizontal cavity trays: Support using cavity closer.
 - Sloping cavity trays: Prevent sagging.
 - Cleanliness: Free from debris and mortar droppings.
- 485 **CAVITY TRAYS OVER OPENINGS AND OTHER CAVITY BRIDGINGS**
- Length: To extend not less than 150 mm beyond ends of lintels/ bridgings.
- 495 **GAS RESISTANT DPCS/ CAVITY TRAYS**
- Joint treatment: Use unjointed wherever possible, otherwise lap at least 150 mm and seal to form a gas and watertight installation.
 - Joint with damp proof membrane: Overlap dpc/ cavity tray not less than 150 mm.
- 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.

PROPRIETARY SILLS/ LINTELS/ COPINGS/ DRESSINGS**720 SILLS**

- Standard: To BS5642-1.
- Material: New sills part of External Insulation System- existing concrete sills to be cut back as detailed on Arch dwg T508/ T517 .
- Manufacturer: as indicated on detail dwgs and as Parex or equal approved .
 - Product reference: - .
- Dimensions: As shown on drawings Details 500 series-T508/ T517s .
- Finish: Details 500 series-T508/ T517 .
- Mortar for bedding/ jointing: Cement gauged as section Z21.
 - Standard: - .
 - Mix: - .
 - Additional requirements: - .
- Joints: Flush.
- Bedding one piece sills: Leave bed joints open except under end bearings and masonry mullions. On completion, point to match adjacentwork.

745 PRESTRESSED CONCRETE LINTELS

- Standard: To BS EN845-2.
- Manufacturer: to Eng Spec. .
 - Product reference: - .
- Types: - .
- Sizes: - .
- Additional requirements: - .
- Placement: Bed on mortar used for adjacent work. Prop at not more than 1.2 m centres to prevent displacement during construction. Retain props in position for not less than 14 days or until mortar has matured, whichever is longer.
 - Bearing length (minimum): to Eng Spec. .

755 PREFABRICATED STEEL LINTELS

- Standard: To BS EN845-2.
- Manufacturer: to Eng. Spec. .
 - Product reference: - .
- Types: - .
- Material/ finish: - .
- Sizes: - .
- Additional requirements: - .
- Placement: Bed on mortar used for adjacent work.
 - Bearing length (minimum): to Eng Spec. .

MISCELLANEOUS ITEMS**850 WALL PLATES**

- Placement: On full bed of mortar to correct horizontal level.

F31 Precast concrete sills/ lintels/ copings/ features

To be read with Preliminaries/ General conditions.

TYPES OF COMPONENTS**105 PRECAST LINTELS**

- Concrete: Components manufacturer's 'proprietary' concrete.
 - Identity: Manufacturer's mix reference.
- Conformity: To BS 8500-2 and the recommendations of BS 8500-1 Annex A4 for the specified exposure class.
 - Evidence: Submit third party certification from a UKAS accredited laboratory.
- Exposure class: to Engspec.
 - Strength class (cylinder/ cube): to Eng Spec.
- Reinforced components: Submit proposals for type of reinforcement and cover.
- Matching sample for finish to visible faces: -.
- Other requirements: -.

130 CONCEALED PRECAST LINTELS

- Standard: To BS EN845-2.
 - Verification of performance: Submit calculations or test certificates.

140 CONCEALED PRECAST LINTELS

- Concrete: Designated to BS 8500-2: Minimum RC30.
 - Aggregate size (maximum): 20 mm.
- Configuration:
 - Clear span up to 900 mm:
 - Section: 140 mm deep x width of wall.
 - Bearing: 150 mm at both ends.
 - Reinforcement: One 12 mm carbon steel bar for each 105 mm of wall thickness.
 - Clear span 900 mm to 1800 mm:
 - Section: 215 mm deep x width of wall.
 - Bearing: 225 mm at both ends.
 - Reinforcement: One 16 mm carbon steel bar for each 105 mm of wall thickness.
- Cover to reinforcement (nominal): 20 mm minimum.

GENERAL REQUIREMENTS**210 MOULDS**

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

220 CONCRETE GENERALLY

- Specification: To BS 8500-2 and BS EN 206-1.
- Producer: Currently certified by a body accredited by UKAS to BS EN 45011 for product conformity certification of ready-mixed concrete.
- Chloride class of concrete:
 - Excluding SRPC: C1 0.40.
 - Using SRPC: C1 0.20.
 - Reinforced and heat cured: C1 0.10.
 - Prestressed: C1 0.10.
- Admixtures containing calcium chloride: Not allowed.

250 REINFORCEMENT

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

255 QUALITY ASSURANCE OF REINFORCEMENT

Reinforcement to BS 4449, BS 4483, BS 6744: Obtain valid certificates of approval for product conformity issued by the UK Certification Authority for Reinforcing Steels.

260 CASTING AND CURING

- Placing of concrete: Thoroughly compact.
- Protection against drying out: Methods and duration to BS EN 13369 clause 4.2.1.3.
- Immature components: Avoid movement, vibration, overloading, physical shock, rapid cooling and thermal shock.
- Delivery to site: Minimum 14 days after casting.

261 CUTTING

- Cutting of precast concrete components: Not permitted.

262 RECORDS

- Records for each type of component: Maintain details including:
 - Unique identification number.
 - Identification of the producer.
 - Identification of the place of production.
 - Correlation with records of mixes, including batch numbers.
 - Date of each stage of manufacture.
 - Dates and results of all tests, checks and inspections.
 - Dimensions related to specified levels of accuracy.
 - Specific location in the finished work.
 - Weight of the unit.
 - Damage and making good.
 - Any other pertinent data, e.g. if unit is a production control unit.
- Availability of records for inspection: On request.

INSTALLATION**420 LAYING**

- Mortar for bedding and jointing: As section Z21.
 - Type: Site batched and mixed.
 - Mix: to Engs Spec.
 - Packing: If required use slate.
- Bedding components: On full bed of mortar.
- Removal of marks, stains and extraneous mortar on visible faces: Rubbing not permitted.

430 SUPPORT OF EXISTING WORK OVER NEW LINTELS

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

440 ONE PIECE SILLS/ THRESHOLDS

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

G20 Carpentry/ timber framing/ first fixing

To be read with Preliminaries/ General conditions.

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.

115 CONTRACTOR'S STRUCTURAL DESIGN

- Design responsibility: Design and detail as per Engineers Spec. .
- Requirement:
 - Generally: As section B50/B51.
 - Modifications: as per Engineers Spec. .
 - Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
 - Service class: as per Engineers Spec..
 - Additional requirements: as per Engineers Spec. .
- Design and production information:
 - Drawings: Showing as per Engineers Spec. .
 - Other requirements: as per Engineers Spec. .
- Timing of submissions: as per Engineers Spec. .

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 GENERALLY**

- Grading standard: To BS 4978, BS EN 14081-1, or other national equivalent and so marked.
- Strength class to BS EN 338: As specified by Engineer .
- Treatment:
 - Preservative treatment: where necessary .
 - Design service life: 30 years.
 - Fire retardant treatment: to give 60 minutes .

230 STRUCTURAL SOFTWOOD (STRENGTH CLASS NOT SPECIFIED) FOR STRUCTURAL USE GENERALLY

- Species and origin: European redwood .
- Grading standard: To the appropriate standard or rules for the specified grade and so marked.
 - Grade: To Engineers Approval .
- Treatment:
 - Preservative treatment: where necessary .
 - Design service life: 30 years.
 - Fire retardant treatment: to give 60 minutes .

- 250 STRUCTURAL HARDWOOD (GRADED DIRECT TO STRENGTH CLASS) FOR STRUCTURAL USE GENERALLY
- Grading standard: To BS 5756 and so marked.
 - Strength class to BS EN 338: To Engineers Approval .
 - Surface finish: Regularized .
 - Treatment:
 - Preservative treatment: where necessary .
 - Design service life: 30 years.
 - Fire retardant treatment: to give 60 minutes .
- 260 STRUCTURAL HARDWOOD (STRENGTH CLASS NOT SPECIFIED) FOR STRUCTURAL USE GENERALLY
- Species and origin: white oak .
 - Grading standard: To BS 5756 and so marked.
 - Grade: To Engineers Approval .
 - Surface finish: Regularized .
 - Treatment:
 - Preservative treatment: where necessary .
 - Design service life: 30 years.
 - Fire retardant treatment: to give 60 minutes .
- 270 UNGRADED SOFTWOOD FOR INTERNAL NONSTRUCTURAL 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: Planed all round .
 - Treatment:
 - Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8 .
 - Design service life: 30 years.
 - Fire retardant treatment: None required .
- 310 STRUCTURAL PLYWOOD as required
- Standard: To the relevant national standards and quality control procedures specified in BS 5268-2, and so marked.
 - Type: Swedish softwood plywood .
 - Grade: to Engineers Approval .
 - Nominal thickness/ number of plies: to Engineers Approval .
 - Finish: Sanded.
 - Treatment: -.
 - Preservative treatment: where necessary .
 - Design service life: 30 years.
 - Fire retardant treatment: to give 60 minutes .
- 311 NON-STRUCTURAL PLYWOOD FOR PARAPET GUTTER BOARDS
- Standard: To an approved national standard.
 - Thickness: 20/25.
 - Appearance class to BS EN 635: E.
 - Bond quality to BS EN 314-2: Class 1.
 - Finish: Unsanded .
 - Treatment:
 - Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8 .
 - Design service life: 30 years .
 - Fire retardant treatment: None required .
- 350 TRUSSED RAFTERS
- Design and fabrication: To BS 5268-3 and BS EN 14250.
 - Manufacturer: A firm currently registered under a third party quality assurance scheme.
 - Truss system: Agrément certified .
 - Ancillary components to be supplied by the truss fabricator: as required and to Engineers Specification .
 - Treatment: Organic solvent type as section Z12 and BWPDA Commodity Specification C8 .

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.
- 435 **NOTCHES, HOLES AND JOINTS IN TIMBER**
- 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, thickened, 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%.
- 451 **MOISTURE CONTENT TESTING**
- Procedure: When instructed, test timber sections with an approved electrical moisture meter.
 - Test sample: Test 5% but not less than 10 lengths of each cross-section in the centre of the length.
 - Test results: 90% of values obtained to be within the specified range. Provide records of all tests.
- 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.
- 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.

670 ANTI-CORROSION 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**740 PRE-ERECTION CHECKING**

- Timing: Not less than 10 days before proposed erection start date.
- Checklist:
 - Foundations and other structures to which timber structure will be attached: Check for accuracy of setting out.
 - Holding down bolts: Check for position, protruding length, condition and slackness.
- Inaccuracies and defects: Report without delay.
- Erection: Obtain permission to commence.

750 MODIFICATIONS/REPAIRS

- Defects due to detailing or fabrication errors: Report without delay.
- Methods of rectification: Obtain approval of proposals before starting modification or remedial work.
- Defective/damaged components: Timber members/ components may be rejected if the nature and/or number of defects would result in an excessive amount of site repair.

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 sheets 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.

775 BEARINGS

- Timber surfaces which are to transmit loads: Finished to ensure close contact over the whole of the designed bearing area.
- Packings: Where provided, to cover the whole of the designed bearing area.
 - Crushing strength: Not less than timber being supported.
 - In external or inaccessible locations: Rot and corrosion proof.

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.

786 JOISTS ON HANGERS

- Hangers: Bedded directly on and hard against supporting construction. Do not use packs or bed on mortar.
- Joists: Cut to leave not more than 6 mm gap between ends of joists and back of hanger. Rebated to lie flush with underside of hangers.
- Fixing to hangers: A nail in every hole.

- 790 STANDARD JOIST HANGERS as required.
- Standard: To BS EN845-1.
 - Size and type: To suit joist, design load and crushing strength of supporting construction.
 - Material/ finish: Galvanized low carbon steel .
- 795 TRIMMING OPENINGS
- Trimmers and trimming joists: When not specified otherwise, not less than 25 mm wider than general joists.
- 800 TRUSSED RAFTER INSTALLATION
- Erection: To BS 5268-3, clause 9.3 and TRA site installation guide.
 - Trusses generally: Do not modify without approval.
 - Damaged trusses: Do not use.
 - Fixing: With truss clips. Bottom chords of standard trusses and rafters of raised tie trusses bearing fully on wall plates.
 - Bottom chords of standard trusses: Do not fix to internal walls until roofing is complete and cisterns are installed and filled.
- 850 INSPECTION GENERALLY
- Structural timber-work: Give reasonable notice before covering up.
- 860 BOLTED JOINTS INSPECTION
- Timing: Inspect all accessible bolts at the end of the Defects Liability Period and tighten if necessary.
- 900 EAVES SOFFIT VENTILATORS
- Manufacturer: integrated with uPVC soffits.
 - Product reference: supply for approval .
 - Type: Continuous strip .
 - Colour: Black.
 - Airway: The equivalent of a continuous opening of not less than 25 mm for full length of eaves.
- 950 FASCIAS/ BARGES/ SOFFITS PVC-U
- Manufacturer: submit proposals.
 - Product reference: -.
 - Material: Cellular PVC-U core with impact modified PVC-U skin and containing no lead or cadmium .
 - Finish: Smooth satin .
 - Colour: Black.
 - Nominal depth: Fascias 200 mm, Soffit 150 mm .
 - Edge profile: Square.
 - Accessories: Box end board .
 - Other requirements: as necessary.
 - Support: 50 x 38 mm preservative treated softwood .
 - Provide additional support at joints.
 - Fixings: screws as required by external insulation manufacturers recommendation & thickness .
 - Installer: A contractor approved by the system manufacturer.

H10 Patent glazing

To be read with Preliminaries/ General conditions.

TYPES OF PATENT GLAZING

- 115 PATENT GLAZING TYPE X
- Supporting structure: Timber roof purlins 45 x 150 mm .
 - Patent glazing system: To BS5516-1.
 - Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
 - Type: Inverted bars, two edge supported, double glazed .
 - Glazing bar:
 - Material: Extruded aluminium alloy bars and plastics caps .
 - Finish: Natural.
 - Colour/ texture: RAL 5000/ matt ??? .
 - Minimum film thickness: 20 micrometres .
 - Spacing: 600 mm.
 - Slope: 25°.
 - Bottom overhang/ lap: 100mm.
 - Pane/ infilling materials: Double glazed units, clear float glass outer pane, clear laminated glass inner pane to BS 6206, Class A.
 - Incorporated components:
 - Openings: None.
 - Accessories: Preformed flashings .
- 120 MATERIALS SPECIFICATION FOR ROOF
- Minimum 'BRE Green Guide to Specification Online' rating: A.

DESIGN/ PERFORMANCE REQUIREMENTS

- 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.
- 321 VERIFICATION OF PERFORMANCE
- Reports and calculations: Based on approved laboratory testing or computer modelling. Submit before commencement of patent glazing work.
- 341 FIRE RESISTANCE
- Standard: To BS476-22.
 - Period: 30 min. integrity, 15 min. insulation tested on internal face .
- 351 SURFACE SPREAD OF FLAME
- Standard: To BS476-7.
 - Internal: Class Class 0.
 - External: Class Not required .
- 361 WATER PENETRATION
- Requirement: Under site exposure conditions, water must not penetrate onto internal surfaces or into cavities not designed to be wetted.
- 365 WATER PENETRATION OF ROOF PATENT GLAZING
- Method of test: To BS 5516-1, Annex G.
 - Watertightness classification: I.
- 371 HEAT CONSERVATION
- Average thermal transmittance (U-value) of patent glazing: 2.0 W/m²K .

381 CONDENSATION

- Requirement: Condensation must not form on internal surfaces of framing members or glazing/ infilling in the following conditions:
 - External air temperature: 0°C .
 - Internal air temperature: 15°C .
 - Internal relative humidity (maximum): 40% .

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.

FABRICATION AND INSTALLATION**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 572 for basic soda lime silicate glass.
 - BS EN 1096 for coated glass.
 - BS EN 1863 for heat strengthened soda lime silicate glass.
 - BS EN 12150 for thermally toughened soda lime silicate glass.
 - BS EN 13024 for thermally toughened borosilicate glass.
 - BS EN ISO 12543 for laminated glass.
- Pane dimensions: Within ± 2 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.

560 INFILLING

- Standard: To BS 5516-1.
- Sheets: Accurately sized with undisfigured and undamaged edges and surfaces.

570 SUITABILITY OF STRUCTURE

- Contractor's survey:
 - Programme: Carry out not less than two weeks before commencement of patent glazing installation.
 - Scope: Geometric survey of supporting structure, checking line, level and fixing points.
 - Structure unsuitable to receive patent glazing: Give notice.

580 PROTECTION AND FINAL CLEANING

- Cement and plaster based spillage: Remove whilst wet.
- Staining, scratching and other disfigurement of patent glazing: Prevent during installation and by following trades.
- Completion: At agreed time, remove protective coverings and thoroughly clean external and internal surfaces with mild detergent solutions approved by patent glazing manufacturer.

H61 Fibre cement slating

FIBRE CEMENT SLATING

To be read with Preliminaries/General conditions.

TYPES OF SLATING

- 105 ROOF SLATING As Tegral Trutone or equal approved
- Substrate: Rafters at 400 mm centres .
 - Pitch: 25°, 33° and 39° .
 - Underlay: Reinforced bitumen membrane to BS 8747, type 5U .
 - Recycled content: Contractor's choice .
 - Direction: Parallel to eaves.
 - Head-lap (minimum): 220 mm.
 - Battens:
 - Size: 50 x 25 mm .
 - Fixing: 65 x 3.35 mm galvanized round plain shank nails .
 - Slates: To BS EN 492, type NT (nonasbestos).
 - Manufacturer: As Tegral Trutone or equal approved .
 - Product reference: As Tegral Trutone or equal approved .
 - Shape: Rectangular.
 - Colour: Blue/ black .
 - Size: 600 x 300 mm .
 - Head-lap (minimum): to Manufacturers recommendations .
 - Fixing: to Manufacturers recommendations .
 - Accessories: as Glidevale Slate dry verge system DV200 in black or equal approved .

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 slate or accessory 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 and components.
 - Ventilation paths: Do not obstruct.
- 245 BATTENS/ COUNTERBATTENS - TREATED
- Timber: Sawn softwood.
 - Species: To BS 5534, clause 4.12.1.
 - Permissible characteristics and defects: Not to exceed limits in BS 5534, Annex C.
 - Grading: Fully factory pre-graded.
 - Moisture content at time of fixing and covering (maximum): 22%.
 - Preservative treatment: As section Z12 and Wood Protection Association Commodity Specification C8.
 - Type: Organic solvent .
- 247 BATTENS/ COUNTERBATTENS - UNTREATED
- Timber: Sawn softwood.
 - Species: To BS 5534, clause 4.12.1.
 - Permissible characteristics and defects: Not to exceed limits in BS 5534, Annex C.
 - Grading: Fully factory pre-graded.
 - Moisture content at time of fixing and covering (maximum): 22%.
- 255 COUNTERBATTENS ON RIGID SARKING
- Fixing: Through rigid sarking into rafters at not more than 300 mm centres.

257 COUNTERBATTENS ON STRUCTURAL METAL LINER TRAYS

- Fixing: To each tray upstand at not more than 400 mm centres.

259 COUNTERBATTENS ON RAFTERS

- Fixing: Into rafters at not more than 400 mm centres.

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 onesupport.
- Additional battens: Provide where unsupported laps in underlay occur between battens.
- Fixing: Each batten to each support. Splay fix at joints in length.

270 BATTENS FIXED TO MASONRY

- Setting out: In straight horizontal lines. Align on adjacent areas.
- Batten length (minimum): 3 m.
- Fixing centres (maximum): 400 mm.

275 SLATE FIXING

- Setting out: Lay slates to a half lap bond with not more than 5 mm gaps. Align tails.
- Ends of courses: Use extra width slates to maintain bond and to ensure that cut slates are as large as possible. Do not use half slates.
- Extra width slates: Use additional fixings as recommended by slate manufacturer.
- Top courses: Cut top two slate courses as necessary to maintain gauge. Head-nail top course.
- Fixings for slates: Nails/rivets recommended by slate manufacturer.

290 MORTAR BEDDING/ POINTING

- Mortar: As section Z21, 1:3 cement:sand, with plasticizing admixtures permitted.
 - Bond strength providing resistance to uplift: To BS 5534.
- Weather: Do not use in wet or frosty conditions or when imminent.
- Preparation of slates and accessories to be bedded or pointed: Coat relevant surfaces with a suitable bonding agent.
- Preparation of concrete and clay tile accessories to be bedded: Wet and drain surface water before fixing.
- Appearance: Finish neatly as work proceeds and remove residue.

ROOF SLATING EDGES/ JUNCTIONS/ FEATURES**305 GENERALLY**

- Fittings and accessories: As recommended by slate manufacturer, 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.

325 FIRE SEPARATING WALLS

- Separating walls: Completely fill space between top of wall and underside of slates with mineral wool quilt to provide fire stopping.
- Boxed eaves: Completely seal air paths in plane of separating wall with wire reinforced mineral wool, not less than 50 mm thick, fixed to rafters and carefully cut to shape to provide fire stopping.

355 VENTILATED EAVES WITH SEPARATED GRILLES/ TRAYS

- Fascia grilles:
 - Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Ventilator trays:
 - Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
 - Fix to provide free passage of air over insulation.
- Underlay support: Contractor's choice.
 - 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.

365 UNVENTILATED EAVES

- Underlay support: 12 mm plywood, as section G20 .
 - 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.

405 DRY (CLOSED) VERGES

- Undercloak: Fibre cementsheet.
 - Position: Level with underside of slating battens.
 - Bedding: On mortar identical to that used in gable walling.
- Underlay: Carry over full width of undercloak. Project 30 mm to turn down behind closer.
- Slating battens: Carry over underlay to abut verge batten.
- Verge batten for closer fixing:
 - Size: 38 x19 mm.
 - Position: From eaves to ridge.
 - Fixing: To slating batten ends.
- Closer:
 - Product reference: 1.Contractors choice at new roof except Section J-J Architects Drawing-Glidevale DV200 Dry SlateVerge
 - 2.Aluminium Z Profile as provided by External Insulation manufacturer at existing roof end verges- see Architects dwgs. .
 - Fixing: Screw to verge batten.
 - Joints in length: Apply sealant strip.

445 MORTAR BEDDED VERGES WITH BEDDED UNDERCLOAK

- Underlay: Carry 50 mm onto outer leaf of gable wall and bed on mortar.
- Undercloak: Fibre cement slate or sheet.
 - Position: Over underlay, level with underside of slating battens, sloping towards verge.
 - Projection beyond face of wall: 38-50mm.
 - Bedding: On mortar identical to that used in gable walling.
- Slating battens: Carry onto undercloak and finish 100 mm from vergeedge.
- Verge closure battens: Fix between ends of slating battens.
- Verge slates:
 - Bedding: Flush with undercloak on 75 mm wide bed of mortar.
 - Pointing: Struck weathered profile, 5 mm back from verge slates.
 - Fixing: Do not displace or crack mortar.

455 MORTAR BEDDED VERGES WITH NAILED UNDERCLOAK

- Underlay: Carryover full width of verge.
- Undercloak: Fibre cement slate or sheet.
 - Position: Over underlay, level with underside of slating battens, sloping towards verge.
 - Projection: 38-50 mm beyond face of barge board .
 - Fixing: Nails.
- Slating battens: Carry onto undercloak and finish 100 mm from vergeedge.
- Verge closure battens: Fix between ends of slating battens.
- Verge Slates:
 - Bedding: Flush with undercloak on 75 mm wide bed of mortar.
 - Struck weathered profile, 5 mm back from verge slates.
 - Fixing: Do not displace or crack mortar.

505 DRY CAPPED HIPS

- Underlay: Lay coursesover hip.
 - Overlaps (minimum): 150 mm.
- Dry hip fixing battens: -.
- Roof slates: Cut and fix closely at hip.
- Dry hip cappings:
 - Product reference: As Tegral or similar approved .
 - Fixing: Screw to hip fixing battens.
 - Joints in length: Apply sealant strip.
 - Bottom hip cappings: Shape neatly to align withcorner of eaves.

525 MITRED HIPS

- Underlay: Lay coursesover hip.
 - Overlaps (minimum): 150 mm.
- Hip fixing battens: -.
- Mitred slates: Cut double width slates and fix to form a straight, close mitred junction.
- Soakers: Interleave with mitred slates. Fix by turning down over head of mitred slates.

- 535 **LEAD ROLL HIPS**
- Underlay: Lay courses over hip.
 - Overlaps (minimum): 150 mm.
 - Hip slates: Cut close to timber roll and fix to form a straight junction.
- 635 **MITRED VALLEYS**
- Underlay: Lay strips not less than 600 mm wide centred on valleys. Overlap with general roof underlay.
 - Mitred slates: Cut double width slates and fix to form a straight, close mitred junction.
 - Soakers: Interleave with mitred slates. Fix by turning down over head of mitred slates.
- 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.
- 675 **TOP EDGE VENTILATED ABUTMENTS**
- Underlay: Provide air gap at abutment as recommended by ventilator manufacturer.
 - Abutment ventilator:
 - Manufacturer: as Glidevale or equal approved .
 - Product reference: as MR50 Monovent or equal approved .
 - Fixing: As recommended by manufacturer.
- 690 **ROOF WINDOWS**
- Underlay: Turn up not less than 100 mm at window surrounds under integral flashings/soakers.
 - Roof slates: Cut as necessary and fix closely all round.
- 705 **DRY VENTILATED CAPPED RIDGES**
- Underlay: Provide air gap at apex.
 - Top slating battens: Position and fix to suit fixing of ridge cappings.
 - Dry ridge cappings:
 - Product reference: as Tegral Fibre Cement Continuous Vent or equal approved .
 - Fixing: Screw to top slating battens.
 - Joints in length: Face away from prevailing wind. Apply sealant strip.
 - Ridge terminals:
 - Product reference: as Tegral Fibre Cement Continuous Vent or equal approved .
- 730 **LEAD ROLL RIDGES**
- Underlay: Lay courses over ridge.
 - Overlap (minimum): 150 mm.
 - Top slate courses: Fit close to timber roll.
- 800 **CHANGE OF ROOF PITCH**
- Slating substrate work: Fix timber tilting fillet to support flashing and courses of slates above change of pitch.
 - Roof slates: Make weathertight with flashing.
 - Courses above change of pitch: Fix undercourse and first course slates.
 - Courses below change of pitch: Cut top two courses as necessary to maintain gauge. Head-nail top course.
- 840 **VENTILATOR SLATES**
- Ventilator slates:
 - Manufacturer: as Tegral in line vents to match slates or equal approved .
 - Product reference: as above.
 - Requirement: To ventilate roof void .
 - Positions: Top edge abutments, in second top slate course over corridor Rm 0.02 and- Eaves, in lowest course clear of insulation in existing roof .

H71 Lead sheet coverings/ flashings

To be read with Preliminaries/ General conditions.

TYPES OF LEADWORK

- 200 GUTTER LINING
- Substrate: Plywood on rafters at 400 mm centres .
 - Preparation: Not required .
 - Underlay: Not required .
 - Type of lead: Machine cast and BBA certified .
 - Thickness: 2.00 or 2.24 mm (Code 5) .
 - Pretreatment: Apply thin coating of patination oil to underside of lead and allow to dry before laying .
 - Joints in direction of fall: Wood cored roll .
 - Spacing: On centre line of gutter .
 - Cross joints: Wood cored roll at gutter watershed .
 - Spacing: 1500 mm .
 - Outlets: Turn down 75 mm into fascia gutter .
- 230 VALLEY GUTTER LINING TO SLATE/ TILE ROOFS
- Underlay: Not required .
 - Type of lead: Machine cast and BBA certified .
 - Thickness: 2.00 or 2.24 mm (Code 5) .
 - Pretreatment: Apply thin coating of patination oil to underside of lead and allow to dry before laying .
 - Laying: Over and beyond tilting fillets.
 - Lengths: Not more than 1500 mm .
 - Cross joints: Lapped not less than 200 mm.
 - Fixing: Well edges. Nail top edge of each sheet. Dress bottom end neatly into eaves gutter.
- 315 RIDGE/ HIP ROLLS TO SLATE ROOFS
- Clips: At capping laps and not more than 500 mm .
 - Fixing: Nail to top of ridge/ hip board before fixing core. Nail each side not more than 50 mm from edge of capping (drill slates as necessary).
 - Core: Rounded timber.
 - Size: 45 mm high x 45 mm wide .
 - Shape: Tapered to a flat base 30 mm wide.
 - Fixing: To ridge/ hip board with brass or stainless steel screws at not more than 600 mm centres, with base not less than 5 mm above slates.
 - Leadcapping:
 - Thickness: 2.00 or 2.24 mm (Code 5) .
 - Lengths: Not more than 1500 mm .
 - Hip capping: Nail head of each length around core.
 - Laps: Not less than 150 mm for ridges, 100 mm for hips.
 - Cover: Wings of capping to extend not less than 150 mm on to roof.
- 322 SOAKERS FOR MITRED HIPS TO SLATE/ PLAIN TILE ROOFS
- Lead:
 - Thickness: 1.25 or 1.32 mm (Code 3).
 - Dimensions:
 - Length: Slate/ tile gauge + lap + 25 mm.
 - Underlaps: Not less than 100mm.
- 324 SOAKERS FOR MITRED VALLEYS TO SLATE ROOFTS
- Lead:
 - Thickness: 1.25 or 1.32 mm (Code 3).
 - Dimensions:
 - Length: Slate/ length of valley mitre + 25 mm.
 - Underlaps: Not less than 150 mm.

- 420 COVER FLASHINGS generally
- Lead:
 - Thickness: 1.75 or 1.80 mm (Code 4) .
 - Dimensions:
 - Lengths: Not more than 1000 mm .
 - End to end joints: Laps of not less than 100 mm.
 - Cover: Overlap to upstand of not less than 75 mm.
 - Fixing: Lead wedges into bed joint, clips to lead upstand at laps and 500 mm centres .
- 440 SOAKERS AND STEP FLASHINGS At Section J-J
- Lead soakers:
 - Thickness: 1.75-2.00 mm (Code 4) .
 - Dimensions:
 - Length: Slate/ tile gauge + lap + 25 mm.
 - Upstand: Not less than 75 mm.
 - Underlay: Not less than 100 mm.
 - Fixing: By roofer.
 - Lead stepflashings:
 - Thickness: 1.75 or 1.80 mm (Code 4) .
 - Dimensions:
 - Lengths: Not more than 1500 mm .
 - 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.
- 450 STEP AND COVER FLASHINGS at section J-J
- Lead:
 - Thickness: 1.75 or 1.80 mm (Code 4) .
 - Dimensions:
 - Lengths: Not more than 1500 mm .
 - End to end joints: Laps of not less than 100 mm.
 - Upstand: Not less than 85 mm.
 - Cover to roof: Not less than 150 mm.
 - Fixing: Lead wedges at every course and clips at not more than 500 mm centres along free edge.
- 497 LEAD DAMP PROOF COURSE/ CAVITY TRAY AT RAKING ABUTMENTS
- Lead:
 - Thickness: 1.75 or 1.80 mm (Code 4) .
 - Finish: Fully coated on both sides with high-build, bitumen based paint on the surfaces which are to be embedded.
 - Joints:
 - Generally: Lap not less than 50mm.
 - Where the lead spans a cavity: Leadwelded.
 - Laying: On a thin even bed of wetmortar.
 - Next layer of overlying construction: Bed on mortar without delay and finish joint neatly.
 - Chase in bedding mortar under damp proof course: Rake out to a depth of 25 mm before fully set, for subsequent fitting of flashing.

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 scribes 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.
- 515 LEADWELDING
- In situ leadwelding: Not permitted.

516 LEADWELDING

- In situ leadwelding: 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 and BBA certified, 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 $\pm 10\%$.
- Identification: Labelled to show thickness/ code, weight and type.

610 SUITABILITY OF SUBSTRATES

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

630 PLYWOOD UNDERLAY

- Standard: Manufactured to an approved national standard and to BS EN 636, section 7 (plywood for use in humid conditions).
 - Sheet size: 2400 or 1200 x 1200 mm and 6 mm thick.
- Moisture content: Not more than 22% at time of covering. Give notice if greater than 16%.
- Laying: Cross joints staggered and a 0.5 to 1 mm gap between boards.
- Fixing: With 25 mm annular ringed shank copper or stainless steel nails, at 300 mm grid centres over the area of each sheet and at 150 mm centres along edges, set in 10 mm from perimeter edges.
 - Nail heads: Set flush or just below the surface.

640 TIMBER FOR USE WITH LEADWORK

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

FIXING LEAD**705 HEAD FIXING LEAD SHEET**

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

710 FIXINGS

- 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.

715 CLIPS

- Manufacturer: Contractor's choice.
- Material:
 - Lead clips: Cut from sheets of same thickness/ code as sheet being secured.
 - Copper clips:
 - Thickness: 0.60 mm.
 - Temper: BS EN 1172, designation R220 in welts, seams and rolls, R240 elsewhere; dipped in solder if exposed to view.
 - Stainless steel clips:
 - Thickness: 0.46 mm.
 - Grade: BS EN 10088, 1.4301(304)terne coated if exposed to view.
- Dimensions:
 - Width: 50 mm where not continuous.
 - Length: To suit detail.
- Fixing clips: Secure each to substrate with either two screw or three nail fixings not more than 50 mm from edge of lead sheet. Use additional fixings where lead downstands exceed 75 mm.
- Fixing lead sheet: Welt clips around edges and turn over 25 mm.

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.
- Sealant: Contractor's choice .
 - Application: As section Z22.

780 WEDGE FIXING INTO DAMP PROOF COURSE JOINTS

- Joint: Rake/ cut out under damp proof course to a depth of not less than 25 mm.
- Lead: Dress lead into joint.
 - 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.
- Sealant: Contractor's choice .
 - 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.
 - Details where bossing must be used: Not applicable .

830 STANDING SEAM JOINTS

- Joint allowance: 100 mm overlap, 75 mm underlap and copper or stainless steel clips at not more than 750 mm centres.
- Forming joint: Welt overlap and clips around underlap, loosely turn over to form a standing seam of consistent cross section.

840 WOOD CORED ROLL JOINTS WITHOUT SPLASH LAP

- Wood core:
 - Size: 45 x 45 mm round tapering to a flat base 25 mm wide.
 - Fixing to substrate: Brass or stainless steel countersunk screws at not more than 300 mm centres.
- Undercloak: Dress half way around core.
- Copper or stainless steel clips. Fix to core at not more than 450 mm centres. Do not restrict thermal movement of the undercloak.
- Overcloak: Dress around core with edge welted around ends of clips, finishing 5 mm clear of main surface.

845 WOOD CORED ROLL JOINTS WITH SPLASH LAP

- Wood core:
 - Size: 45 x 45 mm round tapering to a flat base 25 mm wide.
 - Fixing to substrate: Brass or stainless steel countersunk screws at not more than 300 mm centres.
- Undercloak: Dress three quarters around core.
 - Fixing: Nail to core at 150 mm centres for one third length of the sheet starting from the head.
- Overcloak: Dress around core and extend on to main surface to form a 40 mm splash lap.

847 HOLLOW ROLL JOINTS

- Joint allowance: 125 mm overcloak and 100 mm undercloak.
- Copper or stainless steel clips: Fix to substrate at not more than 450 mm centres.
- Overcloak: Welt with clips around undercloak to form a roll of consistent cross section.

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.

880 WELTED JOINTS

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

970 PATINATION OIL

- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice.
- Location: as required.
- Application: As soon as practical, apply a smear coating to lead, evenly in one direction and in dry conditions.

J21 Mastic asphalt roofing/ insulation/ finishes

To be read with Preliminaries/ General conditions.

TYPES OF COATING/ PAVING

- 115A WARM DECK ROOF Built up bitumen roofing system
- Substrate: Concrete deck .
 - Preparation: Remove existing chippings and make good existing .
 - Vapour control layer: fully bonded layer of glass fibre base felt .
 - Insulation: Rigid urethane foam .
 - Overlay: Not required .
 - Separating layer (loose laid): Reinforced bitumen sheathing felt .
 - Laps (minimum): 75 mm.
 - Coating: Built up Felt Roofing
 - Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice.
 - Application: -.
 - Surface protection: solar reflective paint .
 - Accessories: -.

PERFORMANCE

- 210 ROOF PERFORMANCE
- General: Secure, free draining and weathertight.
- 220 AVOIDANCE OF INTERSTITIAL CONDENSATION: WARM AND INVERTED ROOFS
- Determine: Interstitial condensation risk of roof construction as recommended in BS6229.
 - Basic design data:
 - Outdoor notional psychrometric conditions, winter:
 - Temperature: -5°C.
 - Relative humidity: 90%.
 - Vapour pressure: 0.36 kPa.
 - Duration: 60 days.
 - Outdoor notional psychrometric conditions, summer:
 - Temperature: 18°C.
 - Relative humidity: 65%.
 - Vapour pressure: 1.34 kPa.
 - Duration: 60 days.
 - Indoor notional psychrometric conditions:
 - Temperature: 20°C.
 - Relative humidity: 60%.
 - Vapour pressure: -.
 - Winter interstitial condensate (warm roof):
 - Calculated amount (maximum): 0.35 kg/m².
 - Calculated annual net retention: Nil.
 - Vapour control layer: If necessary, provide a suitable membrane so that damage and nuisance from interstitial condensation do not occur.
- 225 AVOIDANCE OF INTERSTITIAL CONDENSATION: WARM AND INVERTED ROOFS
- Determine: Interstitial condensation risk of roof construction as recommended in BS 5250, annex D.
 - Vapour control layer: If necessary, provide a suitable membrane so that damage and nuisance from interstitial condensation do not occur.
- 230 INSULATION
- Requirement: Determine type and thickness of insulation and integral or separate overlay to satisfy the following criteria:
 - Thermal transmittance of the roof (maximum): 0.22 W/m²K.
 - Compressive strength of insulation (minimum) at 10% compression: -.
 - Finished surface: Suitably even, stable and robust to receive roof covering.
 - Insulation compliance: To a relevant British Standard, or Agrément certified.

PRODUCTS

- 320 PRIMER -
- Type: Bitumen primer .
 - Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- 325 BONDING COMPOUND
- Type: Bitumen to BS 3690-1 or BS EN 12591 .
 - Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- 330 TIMBER TRIMS, ETC
- Quality: Planed. Free from wane, pitch pockets, decay and insect attack (except ambrosia beetle damage).
 - Moisture content at time of covering (maximum): 22%.
 - Preservative treatment: Copper Azole (CU AZ).
- 395 VAPOUR CONTROL LAYER
- Type: fully bonded layer of BS 8747 glass fibre base felt bonded in bitumen; .
 - Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
 - Thickness: 1000 gauge.
 - Vapour resistance: 1000 MN s/g.
- 420 RIGID URETHANE FOAM WARM DECK ROOF INSULATION
- Standard: thermal conductivity of 0.026 W/mK .
 - Manufacturer: as Xtratherm or equal approved .
 - Product reference: Xtratherm FR-BG suitable for use below partially bonded bitumen based built up roofing systems .
 - Density: 30 kg/m³ .
 - Edges: Square.
 - Thickness: 100 mm.
 - Facing: Bitumen membrane .
- 495 SOLAR REFLECTIVE PAINT
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
 - Colour: Grey.

EXECUTION GENERALLY

- 510 ADVERSE WEATHER
- General: Do not lay mastic asphalt in wet or damp conditions unless effective temporary cover is provided over working area.
 - Unfinished areas of the roof: Keep dry.
- 520 INCOMPLETE WORK
- Daywork joints in warm roofs and edges of phased roofing: Adequately protected and fully weathertight.
- 530 APPLYING PRIMERS
- Coverage per coat (minimum): 0.2 L/m².
 - Surface coverage: Even and full.
 - Coats: Fully bonded. Allow volatiles to dry off thoroughly between coats.

SUBSTRATES/ VAPOUR CONTROL LAYERS/ WARM DECK ROOF INSULATION

- 610 **SUITABILITY OF SUBSTRATES**
- Substrates generally:
 - Secure, even textured, clean, dry and frostfree.
 - Preliminary work: Completed, including:
 - Chases (minimum): 25 x 25 mm.
 - External angles: Chamfered where required to maintain full thickness of mastic asphalt.
 - Formation of upstands and kerbs.
 - Grading to correct falls.
 - Movement joints.
 - Penetrations/ Outlets.
 - Moisture content and stability of substrate: Must not impair integrity of roof.
- 620 **REMOVING EXISTING MASTIC ASPHALT**
- Areas to be removed: To existing flat roof .
 - Existing roof: Do not damage.
 - Timing: Only remove sufficient mastic asphalt as will be replaced and made weathertight on same day.
- 635 **REMOVING EXISTING CHIPPINGS**
- Mechanical stripping: Not permitted .
- 640 **FIXING TIMBER TRIMS**
- Fasteners: Sherardized steel screws .
 - Fixing centres (maximum): 400 mm.
- 642 **KEYING TO VERTICAL/ SLOPING DENSE CONCRETE**
- Surface preparation: Remove mould oil, clean and apply proprietary high bond primer or proprietary keying mix of cement:sand slurry incorporating a bonding agent.
- 660 **JOINTS IN RIGID BOARD SUBSTRATES**
- Cover strip: Lay centrally over substrate joints before laying vapour control layers or coverings. Adhere to substrate with bonding compound along edges only.
- 670 **LAYING VAPOUR CONTROL LAYER**
- Attachment: Secure.
 - Bond: Continuous with no air pockets.
 - Appearance on completion: Smooth.
 - Side and head laps: Seal using materials and method recommended by membrane manufacturer.
 - Joints in second layer (if any): Stagger by half a sheet.
 - Upstands, kerbs and other penetrations: Enclose edges of insulation. Fully seal at abutment by bonding or taping.
- 680 **LAYING WARM DECK ROOF INSULATION**
- Setting out:
 - Long edges: Fully support and run at right angles to Manufacturers Recommendations .
 - End edges: Adequately support.
 - Joints: Buttogether.
 - End joints: Stagger.
 - Margin to walls, upstands, pipes and other projections (minimum): to Manufacturers Recommendations .
 - Bedding: Full bed of bonding compound.
 - Mechanical fixing: to Manufacturers Recommendations .
 - Completion: Boards must be in good condition, well fitting and stable.
- 685 **LAYING OVERLAY TO WARM DECK ROOF INSULATION**
- Setting out:
 - Joints: Buttogether.
 - End joints: Stagger to break joint with insulation.
 - Margin to walls, upstands, pipes and other projections (minimum): 25 mm.
 - Bedding: Full bed of bonding compound.
 - Mechanical fixing: to Manufacturers Recommendations .
- 880 **APPLYING SOLAR REFLECTIVE PAINTS**
- Number of coats: Two.
 - Coverage per coat (minimum): -.
 - Surface coverage: Even and full.
 - Coats: Fully bonded.

COMPLETION

940 COMPLETION

- Roof areas: Clean.
 - Outlets: Clear.
- Work necessary to provide a weathertight finish: Complete.
- Storage of materials on finished surface: Not permitted.
- Completed mastic asphalt roof coating: Do not damage. Protect from petroleum based solvents and other chemicals, traffic and adjacent or high level working.

J40 Flexible sheet waterproofing/ damp proofing

To be read with Preliminaries/ General conditions.

110 SOFT BLINDING TO HARDCORE BEDS

- Material: Soft sand.
 - Thickness (minimum): 50 mm.
- Finish on completion: Smooth, consolidated bed free of sharp projections.

TYPES OF TANKING/ DAMP PROOFING**120 LOOSE LAID POLYETHYLENE DAMP PROOFING**

- Substrate: Soft blinded hardcore .
- Manufacturer: as Visqueen 120A or equal approved .
 - Product reference: -.
- Thickness/ Gauge: 300 micrometres (1200 gauge) .
- Recycled content: Contractor's choice .
- Joints:
 - Surfaces to be joined: Clean and dry beyond full width of joint.
 - Laps (minimum): as recommended by Manufacturer .
 - Sealing: Continuous mastic strip between overlaps; edge of top sheet sealed with jointing tape .

120A LOOSE LAID POLYETHYLENE DAMP PROOFING

- Manufacturer: Visqueen Building Products.
 - Web: www.visqueenbuilding.co.uk.
 - Email: riba@visqueenbuilding.co.uk.
 - Product reference: PIFA Standard DPM
- Colour: Black.
- Thickness: 300 micrometres (1200 gauge) .

WORKMANSHIP**310 WORKMANSHIP GENERALLY**

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

320 INSPECTION

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

360 JUNCTIONS WITH PROJECTING DPCS/ CAVITY TRAYS

- Adjoining surfaces: Clean and dry.
- Dpcs/ Cavity trays: Lap and fully bond/ seal with sheeting.
 - Laps (minimum): 150 mm.
 - Bonding/ Sealing: As recommended by Manufacturer .

365 JUNCTIONS WITH FLUSH DPCS/ CAVITY TRAYS

- Adjoining surfaces: Clean and dry.
- Dpcs/ Cavity trays:
 - Expose edge where concealed.
 - Lap and fully bond/ seal sheeting to wall.
 - Dressing of sheeting beyond dpc/ cavity tray (minimum): 50 mm.
 - Bonding/ Sealing: As recommended by Manufacturer .

- 370 PREFORMED COLLARS FOR PIPES, DUCTS, CABLES, ETC.
- Manufacturer: Contractor's choice .
 - Product reference: -.
 - Sealing: Fully bond to penetrations and sheeting using double-sided jointing tape .
 - Completed junctions: Impervious.

K10 Plasterboard dry linings/ partitions/ ceilings

To be read with Preliminaries/ General conditions.

TYPES OF DRY LINING

- 115 METAL STUD PARTITION SYSTEM as Gyproc Gypframe C- STUDS System or equal approved
- Partition type: Single row studs .
 - Partition height: Maximum 3000mm .
 - Head condition: Timber joists.
 - Deflection allowance: 10 mm maximum.
 - Structural performance:
 - Strength grade to BS 5234-2: Medium.
 - Additional tests: Not required.
 - Air pressure and deflection: Not applicable .
 - Other requirements: None.
 - Fire resistance of complete partition assembly: To BS 476-20 and -22, 30/30 minutes (Integrity/ Insulation as indicated on drawings) .
 - Airborne sound insulation
 - Laboratory measurement of complete partition assembly:
 - Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: Not less than 44 R_w dB .
 - Metal framing: Type recommended by board manufacturer to complete the partition assembly and achieve specified performance.
 - Insulation: As recommended by board manufacturer to meet specified performance .
 - Recycled content: Contractor's choice .
 - Thickness: 50 mm.
 - Resilient layer: -.
 - Linings: as 15 mm Gyproc Wall board/ 12.5mm Gypsum Plasterboard/ Moisture Resistant Plasterboard/ 15mm Gypsum Glasroc Firecase S Board or equal plasterboard each side .
 - Finishing: Skim coat plaster .
 - Primer/ Sealer: Primer to painted areas .
 - Accessories: Beads/ stops as recommended by board manufacturer .
 - Other requirements: Fire stopping around services as section P12 .
- 245 CEILING LINING ON TIMBER to finishes schedule
- Background: Joists at 400/ 600/ 360mm centres .
 - Metal resilient (acoustic) bars: Not required .
 - Linings: 12.5 mm plasterboard .
 - Fixings: Screws.
 - Finishing: Skim coat plaster .
 - Primer/ Sealer: As recommended by board manufacturer for vapour control .
 - Accessories: Metal beads/ stops recommended by board manufacturer .
 - Other requirements: Fire stopping around service penetrations as section P12 .

GENERAL/ PREPARATION

- 305 COMPLIANCE WITH PERFORMANCE REQUIREMENTS
- Testing/ Assessment: Submit UKAS accredited laboratory reports for the following: Fire resistance: Partitions (including deflection heads and doorsets) and suspended ceilings (including access units). .
 - Materials, components and details: As used in testing/ assessment reports. If discrepancies arise, give notice.
- 325 PREPARATION OF MASONRY TO RECEIVE WALL LININGS
- General: Suitable to receive lining system. Redundant fixtures and services removed. Cutting, chasing and making good completed.
 - Holes, gaps, service penetrations, perimeter junctions and around openings: Seal.
 - Adhesive fixings: Prepare substrate to achieve effective bonding.
 - Contaminants: Remove loose material, dirt, grease, oil, paper, etc.
 - Absorption: Control by dampening, priming or applying bonding agents as necessary.
- 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 and performance of lining.

- 375 NEW WET LAID BASES
- Dpcs: Install under full width of partitions/ freestanding wall linings.
 - Material: Bituminous sheet or plastics.

COMPONENTS

- 401 GYPSUM PLASTERBOARD
- Type: To BS EN 520, type A .
 - Core density(minimum): 650 kg/m³.
 - Recycled content: Contractors choice .
 - Exposed surface and edge profiles: Suitable to receive specified finish .
- 402 GYPSUM PLASTERBOARD (VAPOUR CONTROL)
- Type: To BS EN 520, type A .
 - Core density(minimum): 650 kg/m³.
 - Recycled content: Contractors choice .
 - Moisture vapour resistance of backing layer (minimum): 60 MNs/g.
 - Exposed surface and edge profiles: Suitable to receive specified finish .
- 403 GYPSUM PLASTERBOARD (MOISTURE RESISTANT)
- Type: To BS EN 520, type H1 .
 - Core: Moisture resistant.
 - Density(minimum): 710 kg/m³.
 - Paperfacings: Moisture resistant.
 - Recycled content: Contractors choice .
 - Exposed surface and edge profiles: Suitable to receive specified finish .
- 404 GYPSUM PLASTERBOARD (IMPROVED FIRE PROTECTION)
- Type: To BS EN 520, type F .
 - Core: Including fibres and/ or other additives for improved cohesion.
 - Density(minimum): 800 kg/m³.
 - Recycled content: Contractors choice .
 - Exposed surface and edge profiles: Suitable to receive specified finish .
- 430 ACCESS PANELS to existing ATTIC Hatch through suspended ceiling grid system
- Type: - .
 - Sizes: - .
 - Frame: Bead for taping and jointing .
 - Panel: Metal with powder coated factory finish .
 - Lock: - .
- 432 METAL STUDS
- Manufacturer: as Gypsum Gypframe or similar approved .
 - Product reference: - .

INSTALLATION

- 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 in adjacent rows.
 - 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.

455A 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.
 - Window opens: Use sleeved or boxed metal studs and/ or suitable timber framing to achieve strength grade requirements for framing assembly and adequately support weight of fire shutter door
 - Services penetrations: Allow for associated fire stopping.

465 STAGGERED STUD PARTITIONS

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

475 METAL FURRINGS FOR WALL LININGS

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

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 jointing compound.

530 CAVITY FIRE BARRIERS WITHIN PARTITIONS/ WALL LININGS

- Metal framed systems:
 - Material: Wire reinforced mineral wool 50 mm (minimum) thick .
 - Installation: Form accurately and fix securely with no gaps to provide a complete barrier to smoke and flame.
- Adhesive fixed wall lining systems:
 - Material: Adhesive compound.
 - Installation: Form in a continuous line with no gaps to provide a complete barrier to smoke and flame.

555 FIRE STOPPING AT PERIMETERS OF DRY LINING SYSTEMS

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

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.
 - Two layer boarding: Stagger joints between layers.

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.

595 DEFLECTION HEADS

- Fixing boards: Do not fix to head channels.

610 FIXING PLASTERBOARD TO TIMBER

- Fixing to timber: Securely at the following centres (maximum):
 - Nails: 150mm.
 - 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: 13mm.
- Position of nails/ screws from edges of timber supports (minimum): 6 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 edgejoints:
 - 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.

680 SKIM COAT PLASTER FINISH

- Plaster type As recommended by board manufacturer. .
 - 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.

692 RIGID BEADS/STOPS

- Internal: To BS EN 13658-1.
- External: To BS EN13658-2.

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/ LINING/ CASINGS**110 WOOD-BASED SHEETS GENERALLY**

- Standard: To BS EN13986.
- Evidence of compliance: Submit.

315 PLYWOOD FLOORING

- Substrate: existing suspended timber joists .
- Additional supports: as required & make sound and level as necessary .
- Flooring: Plywood manufactured to the relevant standards and quality control procedures specified in BS EN 636, and so marked.
- Type: Canadian Douglas fir plywood .
- Grade: 3.
- Nominal thickness/ number of plies: 18.
- Edges: Tongued and grooved all edges.
- Other requirements: -.
- Setting out: Long edges running across joists. End joints central over joists and staggered.
- Fixing to joists:
- Fasteners: 50 mm x 8 gauge wood screws into pilot holes .
- Fixing centres (maximum):
- Around floor 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.
- Joint treatment: -.
- Expansion provision:
- Clear expansion gap around perimeter of floor area and upstands: 1.5 mm per metre run of floor, with a minimum gap of 10 mm .
- Intermediate expansion/ movement joints: As recommended by flooring manufacturer.

816 MARINE PLYWOOD Marine Ply to gutters/ roofing work

- Substrate: Timber rafters/ timber joists .
- Additional supports: as required.
- Plywood: To BS 1088-1 but excluding plywood made of gaboony veneers.
- Manufacturer/ Supplier: Contractors Choice .
- Product reference: -.
- Thickness: 18mm.
- Edges: Square.
- Preservative treatment: required.
- Other requirements: -.
- Setting out: Long edges running across supports .
- Gap between adjacent boards: -.
- Fixing to supports:
- Fasteners: 50 mm x 8 gauge wood screws into pilot holes .
- Fixing centres (maximum):
- Around board edges: 150 mm.
- Along intermediate supports: 300 mm.
- Fixing distance from edges (minimum): 10 mm.
- Joint treatment: Bonded with waterproof adhesive .
- Accessories: -.

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/ dwangs (Scot) 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 timbersupports.

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.
- Surplus adhesive: Removed as the work proceeds.

975 METAL WALL FRAMING

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

976 MINERAL WOOL INSULATION TO METAL FRAMING

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

980 OPEN JOINTS

- 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.

K21 Wood strip/ board fine flooring/ linings

To be read with Preliminaries/ General conditions.

TYPES OF FLOORING/ LINING**110 WOOD FLOORING**

- Substrate: Plywood as clause K11 .
 - Preparation: -.
- Vapour control layer: -.
- Strips/ Boards: Free from decay, through splits and insect attack (including ambrosia beetle damage, unless permitted in the class/ grade specified). Planed all round.
 - Manufacturer/ Supplier: Submit Proposal.
 - Wood species: White oak.
 - Appearance class/ Grade: Select.
 - Finished face width: 145 mm.
 - Finished thickness: 25 mm.
 - Edges: Square.
 - Moisture content at time of fixing: 6-9%.
 - Method of fixing/ joining: Secret nailing .
- Finish: Sealed.
- Accessories: -.
- Other requirements: -.

GENERAL/ PREPARATION**210 WORKMANSHIP GENERALLY**

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

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

250 FIXTURES

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

270 STRIP/ BOARD MOISTURE CONTENT TESTING

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

280 EXISTING WOOD FLOORING

- Condition: Boards securely fixed and acceptably level. Protruding fasteners punched in or countersunk.

FIXING/ FINISHING**335 TREATED TIMBER**

- Surfaces exposed by minor cutting and drilling: Treated with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.

340 ACCESS PANELS

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

350 FIXING STRIPS/ BOARDS

- Strips/ Boards: Fixed securely to each support with flat, true surfaces free from undulations, splits, hammer marks, scratches and protruding fastenings.
- Movement of timber: Allowed for when positioning strips/ boards and fastenings to prevent cupping, springing, opening of joints or other defects.
- Heading joints (where permitted): End matched, butted and, where applicable, positioned centrally over supports and distributed across the flooring to achieve a random effect.
- Surface fixing: -.

360 EXPANSION PROVISION

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

370 FINISH TO FLOORING

- Exposed fastener heads: Punched or set below surface and filled with stopping to match wood.
- Strips/ Boards: Sanded to give a clean, smooth and flush surface free from score marks.
- Finish: varnished/ pre- finished .

K32 Panel cubicles/ duct and wall linings/ screens

To be read with Preliminaries/ General conditions.

- 112 FULLY FRAMED PANEL CUBICLES to Toilets
- Manufacturer: as Petal Postform or equal approved .
 - Product reference: as 490 range or equal approved .
 - Frame:
 - Type: Floor-anchored .
 - Height: 2000MM.
 - Material/ finish: Stainless steel, satin polished .
 - Panels:
 - Height (overall): 2000 mm.
 - Floor clearance: 150 mm.
 - Core material: Compact laminate .
 - Thickness: 12mm.
 - Facings: Decorative high pressure laminate (HPL) .
 - Colour/ Pattern/ Species: To be specified .
 - Edge treatment: Laminate, ROUNDED edge; colour to be specified .
 - Doors:
 - Height: 2000mm .
 - Core material: Compact laminate.
 - Thickness: 12mm.
 - Facings: Decorative high pressure laminate (HPL) .
 - Colour/ Pattern/ Species: To be specified .
 - Edge treatment: Laminate, round edge.
 - Ironmongery: stainless steel.
 - Colour: - .
 - Accessories: Coat hooks and Toilet rollholders
 - Other requirements: None.
- 140 DUCT/ WALL LININGS – PANELS ONLY Panel Toilet & Urinal system & Vanity Unit To Toilets dwg. T204
- Manufacturer: as Petal Postform or equal approved .
 - Product reference: as P300 range or equal approved .
 - Panels:
 - Type:
 - Precut for urinals/ cistern access; full height;
 - Precut for WC pan/ cistern access, low level; and
 - As drawing T204 for vanity units .
 - Width (coordinating): As drawing .
 - Core material: Compact laminate .
 - Thickness: 12 mm.
 - Facings: Decorative high pressure laminate (HPL) .
 - Colour/ Pattern/ Species: To be specified .
 - Edge treatment: Laminate, round edge and as per dwg
 - Reaction to fire (minimum classification, finished panel): Manufacturer's standard .
 - Fasteners: Manufacturer's standard .
 - Framing/ Support:
 - Duct panels: Softwood frame, site fabricated .
 - Wall panels: Softwood grounds, as panel manufacturer's recommendations .
 - Flashgap panels: Decorative high pressure laminate (HPL); colour to be specified .
 - Skirting: Coved PVC - see section M50 .
- 180 DUCT PANEL SUPPORT FRAMING – SITE FABRICATED SOFTWOOD As required
- Framing: Softwood, free from decay and active insect attack and with no knots wider than half the width of the section.
 - Finished size: As panel manufacturer's recommendations .
 - Moisture content at time of fixing (maximum): 18%.
 - Spacing (centres): As panel manufacturer's recommendations .
 - Method of fixing: As panel manufacturer's recommendations .
 - Treatment: As section Z12 and Wood Protection Association Commodity Specification FR3, Type HR (Humidity resistant).

210 SAMPLES

- General: Before placing orders submit representative samples of the following: Panel and door material and colours.
- Delivered materials/ products: To match samples.

250 INSTALLATION

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

K40 Demountable suspended ceilings

To be read with Preliminaries/General conditions.

TYPES OF CEILING SYSTEM

- 105 SUSPENDED CEILING SYSTEM as Armstrong or equal approved at 105A
- Standard: To BS EN 13964.
 - Ceiling:
 - Type: Board.
 - Module: 600 x 600 mm.
 - Soffit height above finished floor level: 3000mm.
 - Grid:
 - Form: Non-interlocking.
 - Exposure: Concealed grid and edges.
 - Access: Access panels indicated on drawings.
 - Suspension system: Required.
 - Perimeter trim: Required.
 - Accessories: Timber edge battens.
 - Integrated services fittings: Hangers and housings for linear luminaires.
 - Other requirements: -.
- 105A CEILING TILES
- Manufacturer: As Armstrong World Industries Ltd. or equal approved.
 - Web: www.armstrong-ceilings.co.uk.
 - Email: sales-support@armstrong.com.
 - Product reference: Ultima Mineral Tile
 - Modular size: 600 x 600 mm.
 - Edge profile: Tegalur.
 - Other requirements: None.

GENERAL/ PERFORMANCE

- 205 COMPLIANCE WITH PERFORMANCE REQUIREMENTS
- Testing/ assessment: Submit UKAS accredited laboratory reports for the following: Fire performance.
 - Materials, components and details: Use those used in the test and identified in the assessment reports. If discrepancies arise, give notice.
- 220 STRUCTURAL PERFORMANCE -
- Loads: The ceiling system must safely support all anticipated loads, including services fittings:
 - Class: -.
 - Additional loads/ pressures to be sustained by ceiling system: None.
 - Ceiling system subject to wind pressure: No.
 - Deflection (maximum) between points of support:
 - Span under 1200 mm: Span/400.
 - Span 1200-1800 mm: Span/500.
 - Span over 1800 mm: Span/600.
 - Test standard: To BS EN 13964.
- 225 FIRE PERFORMANCE -
- Completed ceiling system: Not intended for fire protection.
 - Surface spread of flame ratings:
 - Ceiling soffit surfaces: To Building Regulations, Class 0.
 - Ceiling void surfaces: To Building Regulations Class 0.
 - Fire resistance:
 - Overall fire resistance: -.
 - Ceiling resistance: -.
 - Other protection: None.
 - Test reports or assessments: Include details of performance related to the particular elements of construction.
 - Ceilings with integrated luminaires: Test/ assess with luminaires in place.

COMPONENTS

- 240 SAMPLES
- General: Submit representative samples of the following: ceiling tiles for equal approved.

245 STANDARDS

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

280 ACCESS UNITS to existing Attic Hatch

- Manufacturer: Contractor's choice .
 - Product reference: -.
- Size: 550 x 900 mm.
- Frame type: Picture.
- Fire performance: As suspended ceiling.
- Lock type: Touch catch .
- Operation: Concealed steel hinges, downward opening .
- Finish: Powder coated .
- Colour: White.

EXECUTION**302 CONTROL SAMPLES**

- General: Complete areas as part of the finished work in the following locations: OFFICES.
- Approval: Obtain before completing areas of similar work.

305 SETTING OUT

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

310 BRACING

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

315 PROTECTION

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

320 TOP FIXING

- Building structure: Verify suitability.
- Structural soffit: Existing timber joists at 360 mm nominal centres .
 - Suitability to receive specified fixings: Evaluate and confirm.
- Fixing generally: In accordance with BS EN 13964.
- Fixing to:
 - Concrete: Drill and insert suitable expanding anchors.
 - Aerated concrete: Fix through from the top of concrete units and provide a system of primary support channels.
 - Structural steel: Drill, or use suitable proprietary clips/ adaptors.
 - Metal roof decking: Fix to sides of liner tray corrugations.
 - Timber: Fix to side of joists at least 50 mm from bottom edge. If ceiling system is intended for fire protection, fix into top third of joists.
 - Hollow structural members: Submit fixing proposals.

325 INSTALLING HANGERS

- Wire hangers: Straighten and tension before use.
- Installation: Install vertical or near vertical, without bends or kinks. Do not allow hangers to press against fittings, services, or insulation covering ducts/ pipes.
- Obstructions: Where obstructions prevent vertical installation, either brace diagonal hangers against lateral movement, or hang ceiling system on an appropriate rigid sub-grid bridging across obstructions and supported to prevent lateral movement.
- Extra hangers: Provide as necessary to carry additional loads.
- Fixing:
 - Wire hangers: Tie securely at top with tight bends to loops to prevent vertical movement.
 - Angle/ strap hangers: Do not use rivets for top fixing.
- Spacings: 600mm.

330 INSTALLING TIMBER EDGE BATTENS

- Fixing: Firmly to perimeter wall or other building structure.
 - Fasteners: Plugged and screwed to walls .
 - Fixing centres (maximum): 600mm.

335 INSTALLING PERIMETER TRIMS

- Jointing: Neat and accurate, without lipping or twisting.
 - External and internal corners: Mitre joints generally. Overlap joints at internal corners are not acceptable .
 - Intermediate butt joints: Minimize. Use longest available lengths of trim. Align adjacent lengths.
- Fixing: Fix firmly to perimeter wall, edge battens or other building structure.
 - Fasteners: as recommended by Manufacturer .
 - Fixing centres: 600 mm .

345 CONCEALED GRIDS

- Grid fixings: Angle hangers.
- Primary support channels: Install level. Do not kink or bend hangers.
 - Wire hangers wrapped around primary channels: Twice wrapped. Loops tightly formed.
 - Angle/ Strap hangers: Do not use rivets for bottom fixing.
- Splines: Locate between infill units to assist levelling of adjacent units and to resist air movement at joints.
- Spring-tee grids: Do not omit primary channel.

355 INSTALLING INFILL UNITS

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

365 INSTALLING METAL INFILL UNITS

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

375 BOARD CEILING SYSTEMS

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

385 UPSTANDS AND BULKHEADS

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

390 OPENINGS IN CEILING MATERIALS

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

395 INTEGRATED SERVICES

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

401 CEILING MOUNTED LUMINAIRES

- Support: -
 - Independently supported luminaires: Suspension adjusted to line and level of ceiling.
 - Ceiling supported luminaires: Modifications and/ or extra support required: To each luminaire.
- Surface mounted luminaires: Units installed so that in event of a fire the designed grid expansion provision is not affected.
- Modular fluorescent recessed luminaires: Compatible with ceiling module. Extension boxes must not foul ceiling system.
- Recessed rows of luminaires: Provide flanges for support of grid and infill units, unless mounted above grid flanges. Retain in position with lateral restraint.
- Fire protecting/ resisting ceiling systems: Luminaires must not diminish protection integrity of ceiling system.
- Access: Provide access for maintenance of luminaires.

406 TRUNKING

- Recessed trunking: Provide flanges for support of grid and infill units, unless mounted above grid flanges. Retain in position with lateral restraint.

411 MECHANICAL SERVICES

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

415 INSTALLING INSULATION

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

421 CEILING SYSTEMS INTENDED FOR FIRE PROTECTION

- Junctions of ceiling systems with perimeter abutments and service penetrations: Seal gaps with tightly packed mineral wool or intumescent sealant to prevent penetration of smoke and flame.
- Ceiling system/ wall junctions: Maintain protective value of ceiling system.
 - Fixings and grounds: Noncombustible.
 - Metal trim: Provide for thermal expansion.
- Access and access panels: Maintain continuity of fire protection.

500 ELECTRICAL CONTINUITY AND EARTH BONDING

- Substantial conductive parts of the ceiling system: Electrically continuous and fully earth bonded to carry prospective earth fault currents.
 - Standard: To BS7671.
- Sequence: Complete earth bonding as soon as possible after completion of each independent area of suspension system.
- Testing: After completion of the ceiling system, associated services and fittings, test conductive parts of suspension system required to carry earth fault current, or used as bonding connections. Give notice before testing.
 - Electrical continuity: Measure from various distant conductive points of ceiling system and to earth bar in distribution board serving the area.
 - Test current: Sufficient to indicate probable electrical performance under fault conditions.
 - Test instrument: Type providing a pulse of about 25 A at safe voltage for safe duration, and indicating resistance in ranges 0-2 ohms and 0-20 ohms.
 - Resistance of measuring conductors: Deduce from test instrument readings.
 - Test readings: Record and certify. Add results to resistance of other parts of the path forming the earth fault loop.

COMPLETION**520 USER INSTRUCTIONS**

- Contents: Include the following:
 - Correct methods for removing and replacing infill units and other components.
 - Cleaning methods and materials.
 - Recommendations for redecoration.
 - Ceiling systems intended for fire protection: Limitations placed on subsequent alterations and maintenance procedures, to ensure that their fire performance is not impaired.
 - Maximum number, position and value of point loads that can be applied to ceiling system after installation.

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.
 - Designated items: Windows, doors and screens, rooflights .
- 140 CONTROL SAMPLES
- Procedure:
 - Finalise component details.
 - Fabricate one of each of the following designated items as part of the quantity required for the project.
 - Obtain approval of appearance and quality before proceeding with manufacturer of the remaining quantity.
 - Designated items: window section .

PRODUCTS

- 380 PVC-U WINDOWS
- Standard: Agrément certified.
 - Colour/ Texture: to non standard colour/ smooth .
 - Exposure category to BS 6375-1/ Design wind load: -.
 - Operation and strength characteristics: To BS 6375-2.
 - Reinforcement: -.
 - Glazing details: to achieve A rating .
 - Beading: Internal .
 - Ironmongery/ Accessories:
 - Locking handle;
 - Horizontal friction pivot;
 - Restrictor; and
 - Trickle ventilator .
 - Fixing: Lug fixing as clause 783. .
- 440 PVC-U SUBFRAMES
- Manufacturer: As Window Manufacturer .
 - Product reference: -.
 - Fixing: Use lugs and ties supplied by subframe manufacturer.

510 GLAZED WOOD SCREENS

- Location: Type I & J dwg. T212 .
- Timber: Generally to BS EN 942.
 - Species: American white oak .
 - Appearance class: J2.
 - Moisture content on delivery: 9-13%.
- Panels: 12 mm plywood, oak veneered both sides .
- Assembly adhesive: PVAC to BS EN 204, Class D4 .
- Joinery workmanship: As section Z10.
- Finish as delivered: Prepared and primed as section M60 .
- Glazing details: Hardwood beads fixed with brass cups and screws .
- Special features/ Other requirements: Glazed panelled door as section L20 .
- Fixing: Screw fixed and pelleted as clause 780 .

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.

730 PRIMING/ SEALING

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

750 BUILDING IN

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

755 PVC-U WINDOW INSTALLATION

- Standard: In accordance with clause 783 and British Plastics Federation 'Code of practice for the survey and installation of windows and external doorsets'.

760 REPLACEMENT WINDOW INSTALLATION

- Standard: To BS8213-4.

770 DAMP PROOF COURSES IN PREPARED OPENINGS

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

783 FIXING OF PVC-U FRAMES

- Standard: As section Z20.
- Fasteners: as recommended by Window Manufacturer .
 - Spacing: When not predrilled or specified otherwise, position fasteners 150-250 mm from ends of each jamb, adjacent to each hanging point of opening lights, but no closer than 150 mm to a transom or mullion centre line, and at maximum 600 mm centres.

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

110 EVIDENCE OF PERFORMANCE

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

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.
- Certification scheme: Contractor's choice, submit proposals.
 - Other evidence: None.

115 FIRE RESISTING DOORS/ DOORSETS/ ASSEMBLIES

- Evidence of fire performance: Provide certified evidence, in the form of a product conformity certificate, directly relevant fire test report or engineering assessment, that each door/ doorset/ assembly supplied will comply with the specified requirements for fire resistance if tested to BS 476-22, BS EN 1634-1 or BS EN 1634-3. Such certification must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.

120 NON FIRE RESISTING DOORS/ DOORSETS/ ASSEMBLIES

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

150 SITE DIMENSIONS

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

PRODUCTS

270 WOOD DOORS Generally

- Materials: Generally to BS EN 942.
 - Species: American white oak.
 - Appearance class: -.
- Panels: 3 mm oak veneered faced plywood; Bonding quality to BS EN 314-2: Class 3.
- Assembly:
 - Adhesive: PVAC to BS EN 204, Class D4.
 - Joinery workmanship: As section Z10.
 - Accuracy: To BS 4787-1.
- Preservative treatment: Organic solvent as section Z12 and WPA Commodity Specification C5; Desired service life: 30 years.
- Moisture content on delivery: 9-13%.
- Finish as delivered: Prepared and primed, as section M60.
- Glazing/ Infill details: Clear fire-resisting glazing/ clear laminated glazing as per dwg T212.
 - Manifestation: As drawing T212.
 - Beading: External.
- Other requirements: None.

280 DOORS STEEL

- Manufacturer: Contractor's choice .
 - Product reference: -.
- Finish as delivered: Polyester powder coated to BS 6496, colour to be specified .
- Glazing/ Infill details: Not applicable .
 - Manifestation: Not applicable .
 - Beading: Not required.
- Ironmongery: Lockable with handle to be provided & installed by door manufacturer .
- Other requirements: None.

330 WOOD DOOR FRAMES -

- Materials: Generally to BS EN 942.
 - Species: American white oak .
 - Appearance class: -.
- Assembly:
 - Adhesive: PVAC to BS EN 204, Class D4 .
 - Joinery workmanship: As section Z10.
- Preservative treatment: Organic solvent as section Z12 and WPA Commodity Specification C5; Desired service life: 30 years.
- Moisture content on delivery: 9-13% .
- Finish as delivered: Prepared and primed, as section M60 .
- Perimeter seals: Fire and smoke seal as required .
- Fixing: Plugged and screwed as section Z20 .

370 DOOR FRAMES - STEEL

- Manufacturer: Contractor's choice .
 - Product reference: -.
- Perimeter seals: EPDM weatherseal .
- Finish as delivered: Polyester powder coated .
- Fixing: -.

480 DOORSETS PVC-U

- Manufacturer: Submit proposals .
 - Product reference: To achieve 'A' rating .
- Door leaf: -.
- Finish as delivered: Polyester powdercoated to non standard colour .
- Frame and architraves: -.
- Finish as delivered: Polyester powdercoated to non standard colour .
- Glazing/ Infill details: Clear double glazing .
 - Manifestation: As drawing T211 & 212.
 - Beading: Internal .
- Ironmongery: As ironmongery schedule .
- Perimeter seals: EPDM weatherseal .
- Other requirements: -.
- Fixing: To manufacturers recommendations .

610 ROLLER SHUTTERS/ CURTAINS Automatic closing in case of fire connected to fire alarm

- Manufacturer: Submit proposals .
 - Product reference: -.
- Performance: Fire resistance: 30 minutes .
- Arrangement: Vertical, face fitted across opening .
- Shutter/ curtain material: Aluminium .
 - Finish as delivered: powder coated to ral colour to be specified .
- Frame/ Guides: Steel.
 - Finish as delivered: powder coated to ral colour to be specified .
- Operation: Electrical, with constant pressure button control .
- Ironmongery: as specified by Manufacturer .
- Other requirements: Battery back up unit .

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.

- 750 **FIXING DOORSETS**
- Timing: After associated rooms have been made weathertight and the work of wet trades is finished and dried out.
- 760 **BUILDING IN**
- General: Not permitted unless indicated on drawings.
- 770 **DAMP PROOF COURSES ASSOCIATED WITH BUILT IN WOOD FRAMES**
- Method of fixing: To backs of frames using galvanized clout nails.
- 780 **DAMP PROOF COURSES IN PREPARED OPENINGS**
- Location: Correctly positioned in relation to door frames. Do not displace during fixing operations.
- 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.
- 800 **FIXING OF LOOSE THRESHOLDS**
- Spacing of fixings: Maximum 150 mm from each end and at 600 mm maximum centres.
- 809 **FIRE RESISTING/ SMOKE CONTROL DOORS/ DOORSETS/ ROLLER SHUTTERS/ CURTAINS**
- Installation: By a firm currently registered under a third party accredited fire door installer scheme in accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.
- 810 **FIRE RESISTING/ SMOKE CONTROL DOORS/ DOORSETS/ ROLLER SHUTTERS/ CURTAINS**
- Gaps between frames and supporting construction: Filled as necessary in accordance with requirements for certification and/ or door/ doorset manufacturer's instructions.
- 820 **SEALANT JOINTS**
- Sealant:
 - Manufacturer: Contractor's choice .
 - Product reference: - .
 - Colour: Grey .
 - Application: As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.
- 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.
- 840 **FIXING IRONMONGERY TO FIRE RESISTING DOOR ASSEMBLIES**
- General: All items fixed in accordance with door leaf manufacturer's recommendations ensuring that integrity of the assembly, as established by testing, is not compromised.
 - Holes for through fixings and components: Accurately cut.
 - Clearances: Not more than 8 mm unless protected by intumescent paste or similar.
 - Lock/ Latch cases for fire doors requiring ≥ 60 minutes integrity performance: Coated with intumescent paint or paste before installation.
- 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 on centre line of door leaf .
 - Hinges for fire resisting doors: Positioned in accordance with door leaf manufacturer's recommendations.
- 860 **INSTALLATION OF EMERGENCY EXIT DEVICES**
- Standard: Unless specified otherwise, install panic bolts/ latches in accordance with BS EN 1125.

L30 Stairs/ ladders/ walkways/ handrails/ balustrades

To be read with Preliminaries/ General conditions.

PRELIMINARY INFORMATION/ REQUIREMENTS**130 SITE DIMENSIONS**

- Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- Designated items: All external steps and ramps .

COMPONENTS**550 PURPOSE MADE BALUSTRADES To all external ramps and steps**

- Component material, grade and finish as delivered:
 - Guarding: Low carbon steel - nylon coated .
 - Handrails: Low carbon steel - nylon coated .
 - Lower handrail: Not required .
- Workmanship:
 - Joinery: Not applicable .
 - Metalwork: To section Z11 .
- Other requirements: None.
- Fixing: Anchor fixed to concrete/ fixed through external insulation to masonry wall & with thermal break as recommended by External Insulation Manufacturer .
- Centres: As required.

570 PURPOSE MADE HANDRAILS To all external ramps & steps

- Component material, grade and finish as delivered:
 - Handrails: Low carbon steel - nylon coated .
 - Lower handrail: Not required .
 - Brackets: Low carbon steel - nylon coated .
- Workmanship:
 - Joinery: Not applicable .
 - Metalwork: To section Z11 .
- Other requirements: -.
- Fixing: Anchor fixed to concrete/ fixed through external insulation to masonry wall & with thermal break as recommended by External Insulation Manufacturer .
- Centres: As required.

INSTALLATION**610 MOISTURE CONTENT**

- Temperature and humidity: Monitor and control internal conditions to achieve specified moisture content in wood components at time of installation.

620 PRIMING/SEALING/PAINTING

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

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 or strutting for other work.
- Applied finishes: Substrates to be even, dry, sound and free from contaminants. Make good substrate surfaces and prepare/ prime as finish manufacturer's recommendation before application.

670 INSTALLATION OF TREAD INSERTS/ NOSINGS

- Treads: Fully cured, sound and level.
- Fixing:
 - Location/ position: As drawing T206-210 inclusive .
 - Fixings: As manufacturer's recommendations .
 - Centres: As manufacturer's recommendations .

L40 General glazing

To be read with Preliminaries/ General conditions.

GENERAL REQUIREMENTS

- 111 **PREGLAZING**
- Preglazing of components: Permitted.
 - Prevention of displacement: Submit details of precautions to be taken to protect glazing and compound/ seals during delivery and installation.
 - Defective/ displaced glazing/ compound/ seals: Reglaze components in situ.
- 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.
- 151 **PREPARATION**
- Surrounds, rebates, grooves and beads: Cleaned and prepared by others.
- 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.
- 160 **LINEAR PATTERNED/ WIRED GLASS**
- Alignment: Vertical/ Horizontal as appropriate, and pattern matched across adjacent panes in close proximity.
- 181 **BEAD FIXING WITH SCREWS**
- Screw spacing: Regular at maximum 225 mm centres, and within 75 mm of each corner.
- 190 **GLASS TO GLASS JOINTING**
- Sealant: Silicone.
 - Standard: To BS EN ISO 11600.
 - Class: -.
 - Colour: Clear.
 - Fire resistance rating: as per window schedule Architects dwg
 - Joints:
 - Width: Consistent and suitable to receive sealant.
 - Gap between panes: Completely filled, leaving no voids or bubbles.
 - Surplus sealant: Removed to leave a clean, neatly finished weathertight joint.

TYPES OF GLAZING

- 230 **BEAD FIXED SINGLE GLAZING** to internal window screens as indicated on dwg
- Pane material: toughened insulating glass/ toughened glass .
 - Surround/ bead: Hardwood .
 - Preparation: Sealant primer .
 - Bead location: Inside .
 - Bead fixing: - .
 - Glazing compound: One-part, high modulus, silicone sealant .
 - Glazing installation:
 - Glass: Located centrally in surround using setting and location blocks and distance pieces.
 - Finished thickness of back bedding after inserting glazing (minimum): 3 mm.
 - Front bedding: Applied to fill voids.
 - Beads: Bedded in glazing compound and fixed securely.
 - Visible edge of glazing compound: Finished internally and externally with a smooth chamfer.
- 515 **FIRE RESISTANT CHANNEL GLAZING** As Required & to Window Schedule
- Fire resistance rating: 30 minutes integrity .
 - Pane material: Intumescent laminated glass - internal grade .
 - Orientation: Non fire glass glazed to the protected side .
 - Frame/ Surround material: Hardwood frame .
 - Beads:
 - Material: Hardwood .
 - Fixing: stainless steel woodscrews .
 - Fire resistant channel: Intumescent neoprene channel .
 - Aperture lining: Intumescent sheet/ strip recommended for the purpose by channel manufacturer.
 - Installation: By a firm currently registered under a UKAS certified accreditation scheme for the installation of fire resistant glazing, in accordance with glazing manufacturer's recommendations.
- 520 **FIRE RATING**
- Assessment of capability: Submit proposed construction details of designated items to a UKAS/ NAMAS accredited laboratory or other approved authority for assessment of capability of achieving specified fire ratings.
 - Test standard: To BS 476-22 .
 - Assessment/ test results and reports: Submit immediately they are available, and before installing glazing.
 - Designated items: As indicated on dwg
- 550 **GLASS MIRRORS** As indicated on drawings
- Mirror material: Float glass, silvered to give maximum reflection, free from tarnishing, discoloration, scratches and other defects visible in the designed viewing conditions.
 - Thickness: 6 mm .
 - Backing: Silvered .
 - Edge treatment: Polished bevel .
 - Background: Plastered masonry .
 - Fixing method: Dome top wood screws with polyethylene sleeves and washers at 600 mm centres .
 - Installation: Fixed accurately and securely without overtightening fasteners, to provide a flat surface giving a distortion free reflection.
- 610 **WINDOW FILM**
- Type: Safety .
 - Manufacturer: Contractors Choice .
 - Product reference: - .
 - Colour: White- translucent .
 - Application: Carried out by a firm approved by the film manufacturer in accordance with manufacturer's recommendations.
 - Evidence of applicator's competence and experience: Submit on request.
 - Sample area: Complete as part of the finished work, in an approved location and obtain approval of appearance before proceeding.
 - Ambient air temperature at time of application: Above 5°C.
 - Installed film: Fully adhered to the glass with no peeling, and free from bubbles, wrinkles, cracks or tears.
 - Further contact with applied films: Avoid until bonding adhesive has cured.
 - Cleaning and maintenance instructions: Submit copies.
- 630 **MANIFESTATION** As above
- Design: As drawing
 - Art work: - .
 - Media: - .
 - Technique: Applied film .

M13 Calcium sulfate based levelling screeds

To be read with Preliminaries/ General conditions.

TYPES OF LEVELLING SCREED

- 120 PROPRIETARY SELF SMOOTHING LEVELLING SCREEDS all areas as called up on Finishes schedule
- Substrate: ceramic tiles .
 - Manufacturer:
 - Product reference:
 - Screed construction: all as per manufacturers recommendations .
 - Thickness:
 - Nominal: all as per manufacturers recommendations .
 - Minimum: -.
 - Maximum: -.
 - In situ crushing resistance (ISCR) category: -.
 - Flatness/ surface regularity: SR1.
 - Finish: Unsanded .
 - To receive: 3.5 mm vinyl sheet flooring .
 - Movement joints: all as per manufacturers recommendations .
 - Services: Not required.

GENERALLY/ PREPARATION

- 220 SUITABILITY OF SUBSTRATES
- General:
 - Within tolerances for level and surface regularity.
 - Moisture content: To suit type of screed.
 - Sound, clean and even textured.
 - Concrete strength: In accordance with BS 8204-1, table 2.
 - Penetrations/ Outlets: Completed.
 - Movement joints: Correctly installed.
- 230 CONDUITS UNDER FLOATING SCREEDS
- Requirement: Haunch up on both sides of conduits in 1:4 cement:sand mortar.
 - Timing: Before laying insulation.
- 235 PIPE DUCTS/ TRUNKING
- Requirement: Fix securely to substrate and level accurately in relation to finished floorsurface.
 - Timing: Before laying screed.
- 270 FULLY BONDED CONSTRUCTION
- Substrate surface:
 - Requirement: Suitable to accept screed and achieve a full bond.
 - Preparation: Remove mortar matrix and expose coarse aggregate over entire area of hardened substrate.
 - Timing: Shortly before layingscreed.
 - Bonding coat: As recommended by screed manufacturer .
 - Edge strips at perimeter abutments: -.
 - Installation: To full depth of screed.

BATCHING AND MIXING

- 303 AGGREGATES
- Sand: To BS EN13139.
 - Grading limits: In accordance with BS 8204-1, table B1.

315 MIXING SELF SMOOTHING SCREEDS

- Dry preblended materials: Batch using completely full bags only.
- Materials: Mix thoroughly to uniform consistence.
- Water content: Sufficient to achieve correct flow rate for screed.
- Flow rate test of mix batches:
 - Test method: Flow ring test.
 - Timing: Before pumping screed and at strategic intervals during screeding.
 - Criteria: Screed manufacturer's recommended values.
 - Results and frequency of testing: Record.

LAYING**320 ADVERSE WEATHER**

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

325 LEVEL OF SCREED SURFACES

- Permissible deviation (allowing for thickness of coverings): ± 7 mm from datum .

335 FLATNESS/ SURFACE REGULARITY OF SCREEDS

- Standard: In accordance with BS 8204-1, table 5.
 - Testing: To Annex C.
- Sudden irregularities: Not permitted.

355 LAYING SELF SMOOTHING SCREEDS

- Self smoothing screeds: Lay continuously. Agitate thoroughly.
- Joints generally:
 - Defined joints: Minimize.
 - Daywork joints: Form with vertical edge. Prime before continuing screeding.

FINISHING/ CURING**440 CURING SELF SMOOTHING SCREEDS**

- General: Prevent premature drying. Immediately after laying, protect surface from wind, draughts and strong sunlight.
- Drying after curing: Allow screeds to dry gradually. Do not subject to artificial drying conditions that will cause cracking or other shrinkage related problems.

M20 Plastered/ Rendered/ Roughcast coatings

To be read with Preliminaries/ General conditions.

TYPES OF COATING

- 110 CEMENT:LIME:SAND EXTERNAL PLASTER
- Substrate: Concrete blockwork, as section F10 .
 - Preparation: Spatterdash keying coat .
 - Cement:lime:sand mortar:
 - Type: Contractor's choice .
 - Pigment: Not required.
 - Undercoats:
 - Mix (cement:lime:sand): 1:0.5:4-4.5 (where final coat thrown) or 1:1:5-6 (where final coat trowelled) .
 - Cement type: Contractor's choice .
 - Thickness (excluding dubbing out and keys): First coat 8-12 mm (exclusive of keys) and second coat 6-10 mm .
 - Final coat:
 - Mix (cement:lime:sand): 1:1:5-6 .
 - Cement type: Contractor's choice .
 - Other requirements: None.
 - Thickness: 6-8 mm.
 - Finish: Plain.
 - Accessories: Stainless steel beads .
- 110A CEMENT:LIME:SAND EXTERNAL PLASTER TO RANDOM STONE CHIMNEY
- Substrate: RANDOM STONE WALL.
 - Preparation: Bonding agent mixed with skud coat .
 - Cement:lime:sand mortar:
 - Type: Contractor's choice .
 - Pigment: To match external insulation render .
 - Undercoats:
 - Mix (cement:lime:sand): 1:0.5:4-4.5 (where final coat thrown) or 1:1:5-6 (where final coat trowelled) .
 - Cement type: Contractor's choice .
 - Thickness (excluding dubbing out and keys): First coat 8-12 mm (exclusive of keys) and second coat 6-10 mm .
 - Final coat:
 - Mix (cement:lime:sand): 1:1:5-6 .
 - Cement type: Contractor's choice .
 - Other requirements: None.
 - Thickness: 6-8 mm.
 - Finish: Plain.
 - Accessories: Stainless steel beads .
- 110B CEMENT:LIME:SAND INTERNAL PLASTER
- Substrate: Concrete blockwork, as section F10 .
 - Preparation: Spatterdash keying coat .
 - Cement:lime:sand mortar:
 - Type: Contractor's choice .
 - Pigment: Not required.
 - Undercoats:
 - Mix (cement:lime:sand): 1:0.5:4-4.5 (where final coat thrown) or 1:1:5-6 (where final coat trowelled) .
 - Cement type: Contractor's choice .
 - Thickness (excluding dubbing out and keys): First coat 8-12 mm (exclusive of keys) and second coat 6-10 mm .
 - Final coat:
 - Mix (cement:lime:sand): 1:1:5-6 .
 - Cement type: Contractor's choice .
 - Other requirements: None.
 - Thickness: 6-8 mm.
 - Finish: Plain.
 - Accessories: Stainless steel beads .

280 GYPSUM PLASTER SKIM COAT ON PLASTERBOARD

- Plasterboard: 15/ 12.5mm .
 - Preparation: Bonding agent recommended by plaster manufacturer .
- Plaster: Board finish/ finish plaster to BS EN 13279-1.
 - Manufacturer: Contractor's choice .
 - Product reference: - .
 - Thickness: 3mm .
 - Finish: Smooth.
- Accessories: Beads and stops .

GENERAL**421 SCAFFOLDING**

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

MATERIALS AND MARKING OF MORTAR**438 CEMENTS FOR MORTARS**

- Cement: To BS EN 197-1 and CE marked.
 - Types:
 - Portland cement, CEM I.
 - Portland slag cement, CEM II.
 - Portland fly ash cement, CEM II.
 - Strength class: 32.5, 42.5 or 52.5.
- White cement: To BS EN 197-1 and CE marked.
 - Type: Portland cement, CEM1.
 - Strength class: 52.5.
- Sulfate resisting Portland cement: To BS 4027 and Kitemarked.
 - Strength class: 42.5.
- Masonry cement: To BS EN 998-1 and Kitemarked.

450 CHLORIDE CONTENT OF MORTARS

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

495 MIXING

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

497 COLD WEATHER

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

PREPARING SUBSTRATES**510 SUITABILITY OF SUBSTRATES**

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

527 RAKING OUT FOR KEY

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

531 ROUGHENING FOR KEY

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

536 SPATTERDASH KEY

- Materials:
 - Cement: To BS EN 197-1 and CE marked.
 - Sand: Clean, coarse.
 - Admixtures: SBR bonding agent, Agrément certified .
- Mix proportions (cement:sand): 1:1.5-2.
- Consistency: Thick slurry, well stirred.
- Application: Throw onto dampened background and leave rough.
 - Thickness: 3-5mm.
- Curing: Controlled to achieve a firm bond to substrate.

541 BONDING AGENT APPLICATION

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

551 REMOVAL AND RENEWAL OF EXISTING PLASTER/ RENDER

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

556 REMOVING DEFECTIVE EXISTING RENDER

- Render for removal: Detached, hollow, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.
- Removing defective render: Cut out to regular rectangular areas with straight edges.
 - Horizontal and vertical edges: Square cut or slightly undercut.
 - Bottom edges to external render: Do not undercut.
 - Render with imitation joints: Cut back to joint lines.
- Cracks:
 - Fine hairline cracking/ crazing: Leave.
 - Other cracks: Obtain instructions .
- Dust and loose material: Remove from exposed substrates and edges.

566 REMOVING DEFECTIVE EXISTING PLASTER

- Plaster for removal: Detached, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.
 - Hollow, detached areas: Obtain instructions .
- Stained plaster: Submit proposals .
- Removing defective plaster. Cut back to a square, sound edge.
- Faults in substrate (structural deficiencies, damp, etc.): Submit proposals.
- Cracks:
 - Fine hairline cracking/ crazing: Leave.
 - Other cracks: Obtain instructions .
- Dust and loose material: Remove from exposed substrates and edges.

568 EXISTING DAMP AFFECTED PLASTER/ RENDER

- Plaster affected by rising damp: Remove to a height of 300 mm above highest point reached by damp or 1 m above dpc, whichever is higher.
- Perished and salt contaminated masonry:
 - Mortar joints: Rakeout.
 - Masonry units: Submit proposals.
- Faults in substrate (structural deficiencies, additional sources of damp, etc.): Submit proposals.
- Drying out substrates: Establish drying conditions. Leave walls to dry for as long as possible before plastering.
- Dust and loose material: Remove from exposed substrates and edges.

BACKINGS/ BEADS/ JOINTS**600 ADDITIONAL FRAMING SUPPORTS FOR BACKINGS**

- Framing: Accurately position and securely fix to give full support to fixtures, fittings and service outlets.
- Support board edges and perimeters: As recommended by board manufacturer to suit type and performance of board.

605 GYPSUM PLASTERBOARD BACKINGS

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

- 610 **FIXING PLASTERBOARD BACKINGS TO TIMBER -**
- Fixings, accessories and installation methods: As recommended by board manufacturer.
 - Fixing: At the following centres(maximum):
 - Nails: 150mm.
 - Screws to partitions/ walls: 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: 13mm.
 - Position of nails/ screws from edges of supports (minimum): 6 mm.
 - Nail/ screw heads: Set below surface. Do not break paper or gypsum core.
- 630 **BEADS/ STOPS FOR INTERNAL USE -**
- Material: Galvanized steel to BS EN 13658-1.
- 636 **BEADS/ STOPS FOR EXTERNAL USE -**
- Material: Galvanized steel to BS EN 13658-2 .
- 640 **BEADS/ STOPS GENERALLY**
- Location: External angles and stop ends except where specified otherwise.
 - Corners: Neat mitres at return angles.
 - Fixing: Secure, using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
 - Beads/ stops for external render: Fix mechanically.
 - Finishing: After coatings have been applied, remove surplus material while still wet, from surfaces of beads/ stops exposed to view.
- 646 **CRACK CONTROL AT JUNCTIONS BETWEEN DISSIMILAR SOLID SUBSTRATES**
- Locations: Where defined movement joints are not required. Where dissimilar solid substrate materials are in same plane and rigidly bonded or tied together.
 - Crack control materials:
 - Isolating layer: Building paper to BS 1521.
 - Metal lathing: Internally: Galvanized steel plain expanded metal with spacers .
 - Installation: Fix metal lathing over isolating layer. Stagger fixings along both edges of lathing.
 - Width of installation over single junctions:
 - Isolating layer: 150 mm.
 - Lathing: 300 mm.
 - Width of installation across face of dissimilar substrate material (column, beam, etc. with face width not greater than 450 mm):
 - Isolating layer: 25 mm (minimum) beyond junctions with adjacent substrate.
 - Lathing: 100 mm (minimum) beyond edges of isolating layer.
- 659 **PLASTERBOARD JOINTS**
- Joints and angles (except where coincident with metal beads). Reinforce with continuous lengths of jointing tape.
- 673 **PLASTERING OVER CONDUITS/ SERVICE CHASES**
- General: Prevent cracking over conduits and other services.
 - Services chased into substrate: Isolate from coating by covering with galvanized metal lathing, fixed at staggered centres along both edges.

INTERNAL PLASTERING

- 710 **APPLICATION GENERALLY**
- Application of coatings: Firmly and in one continuous operation between angles and joints. Achieve good adhesion.
 - Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
 - Accuracy: Finish to a true plane, to correct line and level, with angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.
 - Drying out: Prevent excessively rapid or localized drying out.
- 715 **FLATNESS/ SURFACE REGULARITY**
- Sudden irregularities: Not permitted.
 - Deviation of plaster surface: Measure from underside of a straight edge placed anywhere on surface.
 - Permissible deviation (maximum) for plaster not less than 13 mm thick: 3 mm in any consecutive length of 1800 mm.

718 JUNCTION OF NEW PLASTERWORK WITH EXISTING

- New plasterwork: Finish flush with original face of existing plasterwork to form a seamless junction.

720 DUBBING OUT

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

725 UNDERCOATS GENERALLY

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

742 THIN COAT PLASTER

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

777 SMOOTH FINISH

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

EXTERNAL RENDERING**810 APPLICATION GENERALLY**

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

820 DUBBING OUT FOR RENDERING

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

830 ANCHORED MESH REINFORCEMENT

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

840 UNDERCOATS GENERALLY

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

856 FINAL COAT - PLAIN FLOATED FINISH

- Finish: Even, open texture free from laitance.

871 FINAL COAT - DRY DASH FINISH

- Coarse aggregate: To BS EN 12620. Well washed.
 - Size: to match existing.
 - Type: To match existing.
- Application and finishing: Achieve firm adhesion to an even overall appearance. After throwing aggregate tap particles lightly into coating.

880 CURING AND DRYING

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

M21 Insulation with rendered finish

To be read with Preliminaries/General conditions.

GENERAL/ SYSTEM REQUIREMENTS

120 SURVEY OF STRUCTURAL SUBSTRATE

- Timing: Before starting work covered in this section.
- Objective: To confirm suitability for application of external wall insulation system.
- Survey report: Submit, covering:
 - The form and condition of the structural substrate.
 - A schedule of repairs and/ or additional works necessary to render the substrate suitable to receive the system.
 - A schedule of services, fixtures and fittings requiring removal to facilitate installation of the system.
 - Proposals for treatment of cold bridges that may occur as a result of installing the system, e.g. at door and window reveals, concrete floor edges, movement joints.
 - Any other relevant information.

160 REMEDIAL WORK

- Remedial work shown to be necessary by survey: Forms part of this Contract and is specified elsewhere .

180 STRUCTURAL SUBSTRATE

- Description: 100mm blockwork with pebble dash finish .
- Preparation: Removal of pebble dash finish and remedial work as required to make sound substrate for external insulation .

230 RENDERED EXTERNAL WALL INSULATION SYSTEM

- Standard: BREcertified.
 - Evidence of compliance: Submit copy of current certificate for proposed system.
- Certified effective life (minimum): 20 years .
- Fire rating: Class 0 surface spread of flame as defined in Building Regulations.
- Vapour permeability of system: Not less than that of the construction to which it is applied.
 - Dew point calculations: Provide evidence that risk of interstitial condensation within the building fabric is reduced to an acceptable level.
- Thermal transmittance (U-value) of existing walls: 1.78W/m²K.
Required thermal transmittance (U-value) of insulated walls including finishes: 0.26 W/m²K.
- Finish: Coloured render finish on polymer modified cementitious render as Parextherm Acrylic system or equal approved .
- Beads/ Trims: Provide and fix all necessary bell casts, stop beads, movement and expansion joint beads, etc. required to complete the installation.

360 SAMPLES

- Procedure: Submit samples/ examples of designated items for approval. Keep approved samples on site for the duration of the contract for inspection/ comparison purposes.
- Designated items: Self coloured Render Finish & colour .

380 UNIFORMITY OF COLOUR AND TEXTURE OF COATING MIXES

- Type/ proportion of constituent materials: Unchanged once samples of coatings have been approved.
- Supplies of materials: Sufficient to give consistent and uniform colour and texture.

INSTALLATION

410 INSTALLATION

- Installer: The system manufacturer, or a contractor approved by the system manufacturer.

420 ADVERSE WEATHER

- Materials/ Surfaces: Do not use frozen materials and do not apply materials to frost bound surfaces.
- Adhesives/ Mortars/ Renders: Do not apply when air temperature is:
 - at or below 5°C on a falling thermometer or below 3°C on a rising thermometer, or when temperature of the air or wall surface is above 30°C and the surface is not protected.
 - outside range recommended by manufacturer, if different from above.
- Temperature of the work: Maintain above minimum level recommended by manufacturer until adhesive/ mortar/ render has fully hardened.
- Newly rendered surfaces: Protect against adverse weather conditions.
- Coatings damaged by adverse weather: Replace.

430 SUBSTRATES

- Condition before pretreatment/ application of coatings: Structurally sound, adequately true and level, dry, free from contamination by dirt, dust, efflorescence or other deleterious substances, and in a suitable condition to receive specified coatings.

440 ON SITE PULL OUT TESTS ON FIXING PINS

- Objective: To prove suitability of structural substrate and determine size and number of fixings required.
- Pull out test load: 2 x design load .
- Notice: Give notice of testing timetable to Architect .
 - Period of notice: Four working days .

490 CONSTRUCTION/ MOVEMENT JOINTS

- Location: Coincident with changes of substrate .
- Bead/ Trims: As clause 210 .
- Formation: Accurately to detail.
- Modifications to joint locations/ design: Agree revisions before proceeding.

520 SUPPORTS FOR SERVICES/ FITTINGS

- Service/ fitting:
 - CCTV cameras;
 - Rainwater pipes;
 - Signs; and
 - Soil pipes
- Location: As Architects drawings .
- Type of support: As recommended by system manufacturer .

530 SEALANT JOINTS

- Locations: As recommended by system manufacturer and Architects drawings .
- Sealant: Type recommended by system manufacturer .
- Joints: Formed in accordance with section Z22 and system manufacturer's recommendations using any necessary joint fillers, backing strips, etc.

550 INSPECTION OF COMPLETED INSTALLATION

- Timing: As soon as possible after completion of the work and before removing scaffolding.
- Notice for inspection (minimum): 5 working days .
- Defects: Report immediately.

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

To be read with Preliminaries/ General conditions.

TYPES OF COVERING**130 CARPET TILING**

- Location: As indicated on Finishes Schedule .
- Base: Existing suspended timber floor joist with new OSB board .
 - Preparation: Particleboard flooring as clause ??? .
- Fabricated underlay: -.
- Carpet tiles:
 - Manufacturer: as Shaw or equal approved .
 - Product reference: as No Rules or equal approved .
 - Type: Loop pile .
 - BS EN 1307 classification:
 - Category: Type 1 .
 - Level of use class: -.
 - Luxury rating class: -.
 - Recycled content: Contractor's choice .
 - Size: 610 x 610 mm .
 - Colour/ pattern: colour to be selected from No Rules Collection Laid in 'Movement' pattern .
- Method of laying: to Manufacturers recommendations .
- Accessories: Edging strip at thresholds as clause 740 .
- Other requirements: None.

150 SHEETING - vinyl

- Location: to Dressing Rooms, Physio Rooms, Refs Room, Stores, Kitchen Plant Rooms & Male & Female Toilets.
- Base: Existing tiled surface levelled with self levelling compound .
 - Preparation: Make good existing tiles .
- Fabricated underlay: -.
- Flooring roll: Linoleum: Select from Marmoleum Real/ Vivace .
 - Manufacturer: as Clause 150A or equal approved .
 - Product reference: -.
 - BS EN 685 class: 34.
 - Slip potential:
 - Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum) to BS 7976: 30 dry.
 - Surface roughness (Rz) (minimum) to BS 1134: -.
 - Recycled content: Contractor's choice .
 - Width: 2000 mm.
 - Thickness: 3.2mm.
 - Colour/ pattern: to be selected .
- Adhesive (and primer if recommended by manufacturer): As clause 640 .
- Seam welding: Hot welding with complimentary coloured rod .
- Accessories: Edging trim for thresholds as clause 740 .
- Finishing: As clause 820 .
- Other requirements: None.

150A FLOORING ROLL

- Manufacturer: As Forbo Flooring Systems UK Ltd.
 - Web: www.forbo-flooring.co.uk.
 - Email: info.flooring.uk@forbo.com.
 - Product reference: Forbo Marmoleum® Real/ Vivace
- Thickness: 3.2 mm.
- Colour: to be selected .
- Seam welding: Hot welded with matching coloured rod .

155 PVC SHEET FLOORING IN SPECIAL WET AREAS

- Location: To all WCs and Kitchens .
- Base: Existing tiled surface levelled with self levelling compound/ plywood on suspended timber floor .
 - Preparation: Make good existing tiles .
- Fabricated underlay: -.
- Flooring roll: PVC to BS EN 13553.
 - Manufacturer: as Polyflor or equal approved .
 - Product reference: Vogue Ultra PUR .
 - Identity code: -.
 - BS EN 685 class: -.
 - Slip potential:
 - Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum) to BS 7976: 36 wet.
 - Surface roughness (Rz) (minimum) to BS 1134: -.
 - Recycled content: Contractor's choice .
 - Width: 2000mm.
 - Thickness: 2mm.
 - Colour/ pattern: To be selected .
- Adhesive (and primer if recommended by manufacturer): to Manufacturer Recommendations and As clause 640 .
- Seam welding: Hot welding with complimentary coloured rod .
- Accessories: Skirtings as clause 770 .
- Finishing: None.
- Other requirements: coved skirtings with all associated formers, edge trims and accessories .

155A SAFETY SHEET

- Manufacturer: Polyflor Ltd.
 - Web: www.polyflor.com.
 - Email: info@polyflor.com.
 - Product reference: Polysafe Vogue Ultra PUR Safety Floor
- Colour: to be selected .
- Acoustic underlay: Not required .

GENERAL REQUIREMENTS**210 WORKMANSHIP GENERALLY**

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

220 SAMPLES

- Covering samples: Before placing orders, submit representative sample of each type.

250 LAYOUT - ROLL MATERIALS

- Setting out of seams: Agree setting out for sheeting types M50/ 150-linoleum .

270 EXTRA MATERIAL

- Provision of extra material: At completion, hand to Employer extra material of each type of covering to extent of 1 2 carpet tiles .

330 COMMENCEMENT

- Required condition of works prior to laying materials:
 - Buildings 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 a factor of two 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.
- 420 **EXISTING BASES**
- Notification: Before commencing work, confirm that existing bases will, after preparation, be suitable to receive coverings.
 - Suitability of bases and conditions within any area: Commencement of laying of coverings will be taken as acceptance of suitability.
- 430 **NEW WET LAID BASES**
- 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, Annex A or BS 8203, Annex 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.
- 440 **SUBSTRATES TO RECEIVE THIN COVERINGS**
- Trowelled finishes: Uniform, smooth surface free from trowel marks and other blemishes. Abrade suitably to receive specified floor covering material.
- 460 **SMOOTHING/ LEVELLING UNDERLAYMENT COMPOUND**
- Type: As per M13/120 .
 - Manufacturer: As per M13/120 .
 - Product reference: As per M13/120 .
- 470 **BASES FROM WHICH EXISTING FLOOR COVERINGS HAVE BEEN REMOVED**
- Substrate: Clear of covering and as much adhesive as possible. Skim with smoothing underlayment compound to give smooth, even surface.
- 480 **EXISTING FLOOR COVERINGS TO BE OVERLAID**
- Substrate: Make good by local resticking and patching or filling with smoothing underlayment compound to give smooth, even surface.
- 530 **PARTICLEBOARD FLOORING**
- Substrate: Boards securely fixed, level and free from surface sealers and contaminants.
 - Gaps between boards: Not more than 1 mm.
 - Priming: As required by covering adhesive manufacturer.
 - Equilibrium moisture content at time of laying covering: As in service conditions.

LAYING COVERINGS

- 610 **SETTING OUT TILES**
- Method: Set out from centre of area/ room, so that wherever possible:
 - Tiles along opposite edges are of equal size.
 - Edge tiles are more than 50% of full tile width.
- 620 **COLOUR CONSISTENCY**
- Finished work in any one area/ room: Free from banding or patchiness.
- 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 trowel ridges, high spots caused by particles on the substrate, and other irregularities.
- 650 **SEAMS**
- Patterns: Matched.
 - Joints: Tight without gaps.
- 670 **BORDERS/ AND FEATURE STRIPS IN SHEET MATERIAL**
- Curl: Not acceptable.
 - Corners: Mitre joints.

680 SEAM WELDING COVERINGS

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

720 DOORWAYS

- Joint location: On centre line of door leaf.

740 EDGINGS AND COVER STRIPS

- Manufacturer: As Gradus or similar approved .
- Product reference: at junctions of different floor coverings and under all doors .
- Material/ finish: brushed stainless steel .
- Fixing: Secure with edge of covering gripped. Use matching fasteners where exposed to view

770 SKIRTINGS

- Types: PVC.
- Manufacturer: As Safety Flooring Manufacturer .
- Product reference: Continuous flooring to form coved skirtings with associated edge trims and accessories .
- Fixing: Secure with top edge straight and parallel with floor.
- Corners: Mitrejoints.

780 TRAFFICKING AFTER LAYING

- Covering types: All.
- Traffic free period: Until adhesive is set .

COMPLETION**820 FINISHING LINOLEUM FLOORING**

- 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

110A EMULSION PAINT

- Manufacturer: As Dulux Trade, brand of ICI Paints/AkzoNobel or equal approved
 - Web: www.duluxtrade.co.uk.
 - Email: john_ashford@ici.com.
 - Product reference: DiamondMatt
- System code: to be specified .
- Colour: to be specified .

130A GLOSS PAINT

- Manufacturer: As Dulux Trade, brand of ICI Paints/AkzoNobel or equal approved
 - Web: www.duluxtrade.co.uk.
 - Email: john_ashford@ici.com.
 - Product reference: High Gloss
- System code: to be specified .
- Colour: to be specified .

150A WATER BASED PAINT

- Manufacturer: As Dulux Trade, brand of ICI Paints/AkzoNobel or similar approved.
 - Web: www.duluxtrade.co.uk.
 - Email: john_ashford@ici.com.
 - Product reference: Diamond Eggshell Light and Space
- System code: To be specified .
- Colour: To be specified .

160A DECORATIVE WOODSTAIN

- Manufacturer: As Dulux Trade, brand of ICI Paints/AkzoNobel or equal approved.
 - Web: www.duluxtrade.co.uk.
 - Email: john_ashford@ici.com.
 - Product reference: Protective Woodsheen
- System code: To be specified .
- Colour: To be specified .

GENERALLY

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. Allocate to distinct parts or areas of the work.

220 COMPATIBILITY

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

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.
- 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, to 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.
- Oil based stoppers and fillers: Apply after priming.
- Doors, opening windows and other moving parts:
 - Ease, if necessary, before coating.
 - Prime resulting bare areas.

420 FIXTURES AND FITTINGS

- Removal: Before commencing work remove: Coverplates, grilles, wall clocks, and other surface mounted fixtures.
- 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 or other hazardous materials.
 - Significant rot, corrosion or other degradation of substrates.
- Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- 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.

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.

570 UNCOATED MASONRY/ RENDERING

- Loose and flaking material: remove.

580 UNCOATED PLASTER

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

590 UNCOATED PLASTERBOARD

- Depressions around fixings: Fill with stoppers/ fillers

622 ORGANIC GROWTHS

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

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.

720 PRIMING JOINERY

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

730 WORKSHOP COATING OF CONCEALED JOINERY SURFACES

- General: Apply coatings to all surfaces of components.

760 VARNISHING WOOD

- First coat: Thin with white spirit .
 - Brush well in and lay off avoiding aeration.
- Subsequent coats: Rub down lightly along the grain between coats.

780 BEAD GLAZING TO COATED WOOD

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

790 PUTTY GLAZING

- Setting: Allow putty to set for seven days.
- Sealing:
 - Within a further 14 days, seal with an oil based primer.
 - Fully protect putty with coating system as soon as it is sufficiently hard.
 - Extend finishing coats on to glass up to sight line.

800 GLAZING

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

N10 General fixtures/ furnishings/ equipment

To be read with Preliminaries/General conditions.

PRODUCTS

- 110 PURPOSE MADE JOINERY
- Manufacturer: Contractor's choice .
 - Standard: Not applicable .
 - Timber: To BS EN 942.
 - Species: WHITE Oak.
 - Appearance class: Not applicable.
 - Moisture content on delivery: 6 to 10% .
 - Wood based boards: OAK veneer faced plywood manufactured to an approved national standard .
 - Metal: -.
 - Grade: -.
 - Other materials: -.
 - Finishes: As manufactured .
 - Adhesive: To BS 1203 .
 - Fixings: -.
 - Fasteners: -.
 - Joinery workmanship: As section Z10.
 - Metalwork materials and workmanship: As section Z11.
 - Other requirements: -.
- 135 STORAGE AND DISPLAY UNITS
- Item: Cleaners Store Shelving .
 - Manufacturer: Contractors Choice .
 - Product reference: Contractors Choice .
 - Dimensions: 3880 mm long x 400 mm wide x 4 no. .
 - Doors/ Drawers:
 - Material: N/A.
 - Finish/ Colour: white.
 - Outer panels/ Plinths/Shelves:
 - Material: red deal or similar .
 - Finish/ Colour: white.
 - Frames/ Legs: n/a.
 - Finish/ Colour: n/a.
 - Other requirements: -.
- 188 BATHROOM AND WASHROOM EQUIPMENT
- Item: Toilet roll holder and soap dispensers .
 - Manufacturer: Submit for Approval.
 - Product reference: -.
 - Finish/ Colour: Polished stainless steel .
 - Fixing: Plugged and screwed to wall .
 - Other requirements: -.
- 200 WORKTOPS To Toilets/WV's etc
- Manufacturer: Specialist in situitem .
 - Product reference: -.
 - Material: Laminate covered particleboard .
 - Dimensions: As per Architects drawings .
 - Exposed edges: Solid wood .
 - Support: softwood supports on masonry walls .
 - Other requirements: -.
- 242 BLINDS TO WINDOW NO W0.05 TO W0.25 INCLUSIVE
- Standard: To BS EN13120.
 - Type: Vertical roller anti glare fabric .
 - Material: fabric.
 - Finish/ Colour: Cream.
 - Operation: Manual, cord.
 - Operating effort: -.
 - Testing: Not required .
 - Mechanism endurance class: Not required .
 - Accessories/ Other requirements: Straight end .

270 MIRRORS TOILETS

- Material: Class C safety glass to BS 6206 .
- Quality: Free from tarnishing, discoloration, scratches and other defects visible in the designed viewing conditions. Reflection undistorted.
- Size: As indicated on Architects dwgs .
- Backing: Aluminium foil .
- Edges: square.
- Fixing: CP dome top wood screws with polyethylene sleeves and washers .
- Installation: Accurately with sides vertical.

290 MATWELL FRAMES TO 2 NO. FRONT ENTRANCES

- Manufacturer: As Gradus aluminium frame or equal approved .
 - Product reference: UMFA18 or equal approved .
- Material: Aluminium .
 - Finish: brushed.
- Size: recessed.
- Angles: 50 x 50 x 5 mm thick .
 - Corners: Mitred and welded.
 - Angle size: to 17mm high matting .

300 ENTRANCE MATTING TO 2 NO. FRONT ENTRANCES

- Manufacturer: As Forbo or equal approved .
 - Product reference: below 300A .
- Colour: Dark Grey .
- Size: 2000x2000mm & 2200x1000mm .

300A ENTRANCE MATTING TILES

- Manufacturer: as Forbo Flooring Systems UK Ltd. or equal approval
 - Web: www.forbo-flooring.co.uk.
 - Email: info.flooring.uk@forbo.com.
 - Product reference: As Coral Obex Forma or equal approved .
- Type: Coral Obex Forma 16 .
- Colour: 7830 Dark Grey .

EXECUTION**710 MOISTURE CONTENT OF WOOD AND WOOD BASED BOARDS**

- Temperature and humidity: During delivery, storage, fixing and to handover maintain conditions to suit specified moisture contents of timber components.
- Testing: When instructed, test components with approved moisture meter to manufacturer's recommendations.

760 SEALANT BEDDING AND POINTING

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

770 TRIMS

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

COMPLETION**910 GENERAL**

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

920 APPLIANCES

- Test: Ensure that all functions and features work correctly.
- Documentation: Submit guarantees, instruction manuals, etc.

N11 Domestic kitchen fittings, furnishings and equipment

To be read with Preliminaries/ General conditions.

PRODUCTS

- 310 **FITTED BASE UNITS GENERALLY**
- Standard: To BS 6222 -2 and -3, and BS EN 14749.
 - Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
 - Structural performance: To BS 6222-2, test level G.
 - Dimensions: To BS EN 1116.
 - Surface finishes: To BS 6222-3.
 - Doors and drawer fronts:
 - Material: Plastics laminate.
 - Finish and colour: Brilliant white HIGH GLOSS .
 - Edges: Solid wood .
 - Other requirements: Concealed door hinges .
 - Side panels, plinths and shelves:
 - Material: Plastics laminate.
 - Finish and colour: Brilliant white HIGH GLOSS .
 - Edges: Solid wood .
 - Accessories: Legs and plinths .
- 320 **FITTED WALL UNITS GENERALLY**
- Standard: To BS 6222 -2 and -3, and BS EN 14749.
 - Manufacturer: Submit proposal.
 - Product reference: Submit proposal .
 - Structural performance: To BS 6222-2, test level G.
 - Dimensions: To BS EN 1116.
 - Surface finishes: To BS 6222-3.
 - Doors and drawer fronts:
 - Material: Plastics laminate.
 - Finish and colour: Brilliant white HIGH GLOSS .
 - Edges: Solid wood .
 - Other requirements: Concealed door hinges .
 - Side panels and shelves:
 - Material: Plastics laminate.
 - Finish and colour: Brilliant white HIGH GLOSS .
 - Edges: Solid wood .
 - Accessories: None.
- 340 **WORKTOPS TO KITCHEN UNITS**
- Standard: To BS 6222-3.
 - Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
 - Material: Laminate covered particle board type- Formica .
 - Dimensions: 650x40mm .
 - Exposed edges: Stainless steel strip .
 - Support: wood carcass.
 - Other requirements: -.

350 SINKS, TAPS, TRAPS AND WASTES GENERALLY

- Sinks:
 - Standard: To BS EN13310.
 - Manufacturer: submit proposals .
 - Product reference: submit proposals.
 - Configuration: Sink and a half with single drainer .
 - Overall size: 1000 x 600 .
 - Material: Stainless steel .
 - Colour and finish: Brushed steel .
- Tap/ chainstay/ overflow holes: One tap hole, centre. and Overflow hole. .
- Taps: Mixer.
 - Manufacturer: submit proposals .
 - Product reference: submit proposals.
 - Operation: -.
 - Material: Chromed steel .
- Wastes: Plug and chain .
 - Standard: To BS EN 274-1, -2 and -3.
 - Manufacturer: submit proposals .
 - Product reference: submit proposals.
 - Size: To fit sink .
 - Material: Chromed steel .
 - Tail: -.
- Traps: Tubular, P type.
 - Standard: To BS EN 274-1, -2 and -3.
 - Manufacturer: submit proposals .
 - Product reference: submit proposals.
 - Size: To fit waste .
 - Material: Plastic.
 - Depth of seal (minimum): 75 mm.
- Accessories: Support brackets.

360 APPLIANCES

- Item: Integrated Refrigerator .
- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Colour and finish: Submit proposals .
- Service connections: Mains electricity .

360A APPLIANCES

- Item: Integrated Disbwasher.
- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Colour and finish: Submit proposals .
- Service connections: Mains electricity .

370 SHELVING TO CLEANERS STORE

- Manufacturer: -.
 - Product reference: -.
- Shelves:
 - Material: Plastics laminate.
 - Finish and colour: Brilliant white .
- Accessories: Support brackets.

390 SEALANT

- Standard: To BS EN ISO 11600, class F20 HM.
- Type: One part silicone .
 - Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- Colour: clear/ white .

EXECUTION**620 INSTALLATION GENERALLY**

- Fixings and adhesives: As section Z20.
- Services: As Engineering Services specification .

630 INSTALLING UNITS AND WORKTOPS

- General: Well fitting, stable and secure.

640 INSTALLING APPLIANCES

- Connections: Provide to electric, gas, and hot and cold water services.

650 INSTALLING SINKS, TAPS AND WASTES

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

660 SEALANT BEDDING AND POINTING

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

670 INSTALLING TRIMS AND MOULDINGS

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

COMPLETION**910 GENERAL**

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

920 APPLIANCE COMMISSIONING

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

N13 Sanitary appliances and fittings

To be read with Preliminaries/ General conditions.

PRODUCTS

- 300 WCS AND CISTERNS Toilets as part of cubicle system
- WC standard: Not applicable .
 - Type: Back to wall, concealed cistern .
 - Pan:
 - Standards: To BS EN 33 and BS EN 997 .
 - Manufacturer: Armitage Shanks or equal approved .
 - Product reference: Ascania back to wall S3026 or equal approved .
 - Material: Vitreous china, white.
 - Seat and cover:
 - Standard: To BS 1254 .
 - Manufacturer: As Pan.
 - Product reference: S4003.
 - Material: Plastics.
 - Finish/ Colour: White.
 - Pan connector:
 - Standard: To BS 5627.
 - Manufacturer: As Pan.
 - Product reference: Contractor's choice .
 - Colour: To match pan .
 - Cistern:
 - Standard: To BS 1125 .
 - Manufacturer: As Pan.
 - Product reference: Contractor's choice .
 - Material: Plastics.
 - Finish/ Colour: To match pan .
 - Flushing arrangement: Plastics diaphragm type float operated valve and siphon, to BS 1212-3 and float to BS 2456.
 - Manufacturer: As Pan.
 - Product reference: Contractor's choice .
 - Operating control: Push button, chrome plated .
 - Water supply connection: Bottom.
 - Flush volume: Dual flush 6 or 4 L .
 - Flush pipe: Concealed.
 - Manufacturer: As Pan.
 - Product reference: Contractor's choice .
 - Material: Plastics, white.
 - Accessories: Domex screws.
- 300C WCS AND CISTERNS to individual WCs, no cubicle system
- Manufacturer: As Armitage Shanks or equal approved
 - Web: www.idealstandard.com.
 - Email: info@thebluebook.co.uk.
 - Product reference: Ascania close coupled WC suite
 - Pan: S3017 Ascania, horizontal outlet
 - Seat and cover: S4003 Ascania
 - Pan connector: S4305 Panekta, finned pattern, to convert horizontal outlet to P trap .
 - Cistern: S3670 Dual flush valve cistern, with internal overflow .
 - Accessories: Domexscrews (pair) S9101 (7550BPR) .
- 311A UNISEX ACCESSIBLE CORNER WC EQUIPMENT PACKAGES (DOCUMENT M)
- Manufacturer: As Armitage Shanks or equal approved.
 - Web: www.idealstandard.com.
 - Email: info@thebluebook.co.uk.
 - Product reference: S6955 Doc M close coupled pack with grab rails and hinged arm support with toilet roll holder
 - Position: Left hand.
 - Colour: White.
 - Accessories: S4305 Panekta outlet connector, finned pattern to convert horizontal outlet WCs to P trap .

311B UNISEX ACCESSIBLE CORNER WC EQUIPMENT PACKAGES (DOCUMENT M)

- Manufacturer: As Armitage Shanks or equal approved.
 - Web: www.idealstandard.com.
 - Email: info@thebluebook.co.uk.
 - Product reference: S6955 Doc M close coupled pack with grab rails and hinged arm support with toilet roll holder
- Position: Right hand .
- Colour: White.
- Accessories: S4305 Panekta outlet connector, finned pattern to convert horizontal outlet WCs to P trap .

315A URINALS AND AUTOFLUSHING CISTERNS

- Manufacturer: As Armitage Shanks or equal approved.
 - Web: www.idealstandard.com.
 - Email: info@thebluebook.co.uk.
 - Product reference: S6110 (UR H) Contour urinal, 670 mm
- Wastes: S8811 1¼" plastics strainer waste, 50 mm unslotted tail .
- Tubular traps: S8970 1½" plastics P trap with 75 mm seal, multi-purpose outlet suitable for plastics and BS copper pipe.
- Cistern: S6216 Conceala, 9.0 litres, with cover, auto syphon and petcock .
- Flushing pipe: S6228 Concealed, metal, for three bowl urinals .
- Accessories: S6120 Vitreous china division, with screw and hanger and S9275 Concealed steel hangers .
- Flushing systems: B8266 Contour 21 push button shower or urinal flushing valve with concealing plate, self closing, non mixing, chromium plated .

335 WASH BASINS General

- Manufacturer: as Armitage Venestra or equal approved .
 - Product reference: see 335A & B .
- Size: -.
- Material: Vitreous china, white.
- Tap/ Chainstay/ Overflowholes:
 - One tap hole, centre;
 - No chainstay hole; and
 - Overflow hole .
- Water supply fittings: Basin mixer tap.
 - Water supply temperature (maximum): User controlled .
 - Flow rate (maximum): 6 L/ min. at 3 bar.
 - Manufacturer: As Wash basin.
 - Product reference: Submit proposals .
 - Operation: Lever handles .
- Wastes: Pop up.
 - Standards: To BS EN 274-1, -2 and -3.
 - Manufacturer: As Wash basin.
 - Product reference: Submit proposals .
 - Size: DN 40.
 - Material: Stainless steel .
 - Tail: Slotted.
- Traps: Bottle.
 - Standards: To BS EN 274-1, -2 and -3.
 - Manufacturer: As Wash basin.
 - Product reference: Contractor's choice .
 - Size: DN 40.
 - Material: Plastics, self colour .
 - Depth of seal (minimum): 75 mm.
- Accessories: Concealed support frame .

335A WASH BASINS

- Manufacturer: As Armitage Shanks or equal approved
 - Web: www.idealstandard.com.
 - Email: info@thebluebook.co.uk.
 - Product reference: S2198 Portman 400 mm Washbasin with single taphole, overflow, no chainstay hole .
- Water supply fittings: B4447 Sandringham SL basin monoblock mixer with pop-up waste, chrome plated .
- Wastes: Pop-up waste .
- Traps: S8910 1¼" Bottle trap, self colour plastics, multi-purpose outlet, 75 mm seal .
- Accessories: pedestals.
 - Sensorflow equipment: Not required.

335B WASH BASINS

- Manufacturer: As Armitage Shanks or equal approved
 - Web: www.idealstandard.com.
 - Email: info@thebluebook.co.uk.
 - Product reference: S2393 Ascania 570 mm semi-countertop basin, centre taphole, with overflow, no chainstay hole.
- Water supply fittings: B4447 Sandringham SL basin monoblock mixer with pop-up waste, chrome plated .
- Wastes: Pop-up waste .
- Bottle traps: S8910 1¼" Bottle trap, self colour plastics, multi-purpose outlet, 75 mm seal .
- Accessories: -.

438 MIRRORS

- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- Material: -.
- Finish/ Colour: -.

458 SOAP DISPENSERS

- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Material: stainless steel .
- Finish/ Colour: brushed.

462 TOILET PAPER HOLDERS stainless steel toilet roll holder

- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Material/ finish: stainless steel .
- Finish/ Colour: brushed.

472 HAND DRIERS to M&E spec & finish below

- Standard: To BS EN 60335-2-23.
- Type: -.
- Manufacturer: -.
- Product reference: -.
- Operation: -.
- Heater power rating: -.
- Enclosure: Stainless steel .
 - Colour: -.
- Fixing arrangement: Surface.
- Ingress protection to BS EN 60529: -.
- Noise level at 1 m (maximum): 65 dB(A).
- Features: -.

482 HAND CLEANSING GEL DISPENSERS 5 no. total.

- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- Material: stainless steel.
- Finish/ Colour: brushed.

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.
- Appliances: Do not use. Do not stand on appliances.
- On completion: Components and accessories working correctly with no leaks.
- Labels and stickers: Remove.

613 COMPATIBILITY OF COMPONENTS

- General: Each sanitary assembly must consist of functionally compatible components, preferably obtained from a single manufacturer.
 - Exceptions: Wastes and traps .

- 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 overstresstiles.
- 650 **INSTALLING WC PANS**
- Floor mounted pans: Screw fix and fit cover caps over screw heads. Do not use mortar or other beddings.
 - Seat and cover: Stable when raised.
- 670 **INSTALLING CISTERNS**
- Cistern operating components: Obtain from cistern manufacturer.
 - Float operated valve: Matched to pressure of watersupply.
 - 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 jointingcompound.
 - Fixing: With resilient washer between appliance and backnut.
- 755 **SEALANT BEDDING AND POINTING**
- Bedding: Bed and point basins to underside of vanity units. .
 - Pointing: Joints between appliances and splashbacks. .

N14 General internal signage systems

To be read with Preliminaries/ General conditions.

GENERAL

110 SIGNAGE SYSTEM - MODULAR DOOR DESIGNATION

- System manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Layout and dimensions: As schedule ??? .
- Lettering:
 - Language: English .
 - Font: Times new Roman .
 - Colour: Manufacturer's standard range .
 - Size: 150 mm .
- Symbols and graphics: Manufacturer's standard range .
 - Colour: Manufacturer's standard range .
 - Size: Manufacturer's standard range .
- Background colour: Manufacturer's standard range .
- Sign type: Stainless steel letters .
 - Inserts: Submit proposals .
 - Manufacturing process: Manufacturer's standard .
- Supports/ Fixings: Door mounted, screw fixed .
- Accessories: Not required .

SYSTEM PERFORMANCE

210 GENERAL REQUIREMENTS

- Signage system: Complete to BS 559, including facing information, components, inserts, accessories and fixings necessary to complete the system.
 - Comply with the requirements of: Fire strategy report and Wayfinding strategy .
- Geometric shapes, colours and layout: In accordance with BS 8501.
- Design standard for disabled people: In accordance with BS 8300.
- Proposals: Submit drawings, schedules, technical information, calculations and manufacturer's literature.

280 DESIGN LIFE OF SIGNAGE SYSTEM

- Duration: 10 years .
 - Subject to reasonable wear and tear.
- Condition of use: Subject to regular maintenance.

290 SIGNAGE SAMPLES

- Sign type: Signage system .
 - Action: Submit labelled samples.
 - Conformity: Retain samples on site for the duration of the contract or until instructed to remove.
 - Delivered product: To conform with labelled samples.

PRODUCTS

305 PRODUCTS GENERALLY

- Standard: To BS 559.

360 STAINLESS STEEL PLATES

- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Component thickness: 6 mm, 2 mm facing on 4 mm backing panel .
- Grade: Manufacturer's standard .
- Finish: 1K/ 2K Satin polished to BS EN 10088-2 .
- Perimeters: Radiused corners .

EXECUTION

610 FIXING SIGNS GENERALLY

- Installation: To BS 559.
 - Secure, plumb and level.
- Strength of fasteners: Sufficient to support all live and dead loads.
- Fasteners and or adhesives: As section Z20.
- Fixings showing on surface of sign: Must not detract from the message being displayed.

620 FIXING SIGNS FOR THE VISUALLY IMPAIRED

- Protection of users:
 - Fasteners for tactile/ Braille signs must not have sharp edges or protrusions that would cause confusion or injury to users.

COMPLETION

910 DOCUMENTATION

- Submit:
 - Manufacturer's maintenance instructions.
 - Guarantees, warranties, test certificates, record schedules and log books.

N15 Internal fire and safety signage systems

To be read with Preliminaries/ General Conditions.

GENERAL

110 FIRE SIGNAGE SYSTEMS FOR ESCAPE ROUTE

- System manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Layout and dimensions: Submit proposals .
 - Language: English
- Sign type: Stainless steel plate .
 - Manufacturing process: Submit proposals .
- Supports/ Fixings: Wall projected .
- Accessories: Not required .

120 SAFETY SIGNAGE SYSTEMS - MANDATORY ACTION

- System manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Layout and dimensions: Submit proposals .
 - Language: English
- Sign type: Stainless steel sheet .
 - Manufacturing process: Manufacturer's standard .
- Supports/ Fixings: Wall mounted, screw fixed .
- Accessories: Not required .

SYSTEM PERFORMANCE

210 GENERAL REQUIREMENTS

- Signage system design:
 - Complete to: BS 559 and BS ISO 16069.
 - Comply with the requirements of: Fire Strategy Report .
- Proposals: Submit drawings, schedules, technical information, calculations and manufacturer's literature.

240 SIGNAGE SYSTEM SPECIFICATION

- Content: Signs including facing information, components, inserts, accessories and fixings necessary to complete the system.
- Geometric shapes, colours and layout: To BS 5499-1.
 - Font: Helvetica medium.
- Escape route: In accordance with BS 5499-4 and BS ISO 16069
- Safety meaning: In accordance with BS 5499-5.
- Water safety: In accordance with BS 5499-11.

280 DESIGN LIFE OF FIRE SIGNAGE SYSTEM

- Duration: 15 years .
 - Subject to reasonable wear and tear.
- Condition of use: Subject to regular maintenance.

290 SIGNAGE SAMPLES

- Sign type: Fire .
 - Action: Submit labelled samples.
 - Conformity: Retain samples on site for the duration of the contract or until instructed to remove.
 - Delivered products: To conform with labelled samples

PRODUCTS

305 INTERNAL SIGNAGE PRODUCTS GENERALLY

- Standard: To BS 559.
- Colorimetric and photometric properties: To BS5378-2.

340 STAINLESS STEEL PLATE FOR ESCAPE ROUTE SIGNS

- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Component thickness: 6 mm, 2 mm facing on 4 mm backing plate .
- Finish: Self-finished .
- Perimeters: Radiused corners .

EXECUTION**610 FIXING SIGNS GENERALLY**

- Installation: To BS 559.
 - Secure, plumb and level.
- Fasteners and adhesives: As section Z20.
- Strength of fasteners: Sufficient to support live and dead loads.
- Fasteners for external signs: Corrosion resistant material or with a corrosion resistant finish. Isolate dissimilar metals to avoid electrolytic corrosion.
- Fixings showing on surface of sign: Must not detract from the message being displayed.

COMPLETION**910 DOCUMENTATION**

- Submit:
 - Manufacturer's maintenance instructions.
 - Guarantees, warranties, test certificates, record schedules and logbooks.

N17 Portable fire fighting systems

To be read with Preliminaries/ General Conditions.

GENERAL

- 110 PORTABLE FIRE EXTINGUISHER SYSTEM To Kitchen
 - Type: Foam .
 - Capacity: 6 L.
 - Supports: Fixing bracket .
- 150 FIRE BLANKET SYSTEM To Kitchen
 - Type: Heavy duty .
 - Size: Contractor's choice .
 - Supports: Mounting brackets .

SYSTEM PERFORMANCE

- 220 COLOUR CODING
 - Portable fire extinguishers: Colour code in accordance with BS 7863.

PRODUCTS

- 330 FOAM EXTINGUISHERS
 - Standard: To BS EN 3-10.
 - Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- 410 FIRE BLANKETS - LIGHT DUTY
 - Standard: To BS EN 1869.
 - Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- 420 FIRE BLANKETS - HEAVY DUTY
 - Standard: To BS 7944.
 - Type: Contractor's choice .
 - Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .

EXECUTION

- 610 INSTALLING PORTABLE FIRE EXTINGUISHERS
 - Mounting height above finished floor level: Bracket fixed at 1 m .
- 650 INSTALLING FIRE BLANKETS
 - Mounting height above finished floor level: Contractor's choice .

COMPLETION

- 910 CLEANING
 - Protective wrappings: Remove.
 - Cleaning: Clean off and wipe down container finishes.
- 930 TRAINING
 - Training: Submit instruction manuals or supply other appropriate resources to train the users of the building in the safe and appropriate use of the fire extinguishers and fire blankets.
 - Fire brigade: Submit contact details.

P10 Sundry insulation/ proofing work

SUNDRY INSULATION/ PROOFING WORK

To be read with Preliminaries/ General conditions.

TYPES OF INSULATION

- 109 INSULATION UNDER NEW CONCRETE FLOOR See section E20
 Manufacturer: [As Xtratherm or equal approved].
 - Product reference: [As Xtratherm HyFloor T&G Floor Insulation or equal approved].
 Material: [RIGID PIR].
 Recycled content: [Contractor's choice].
 Thickness: [150mm to give 0.24/m²k].
 Installation requirements:
 - Installation standard: [To BS5803-5].
 - Joints: Butted T&G joints, no gaps. Laid staggered with a break bonded pattern and fitted tightly at edges and around any service penetrations.
 - 25mm as Xtratherm perimeter insulation around external and internal wall/floor junctions.
- 110 EAVES ROOF VENTILATORS FOR EXISTING ROOFS
 • Manufacturer: Contractor's choice .
 - Product reference: -.
 • Eaves free air space (minimum): As recommended in BRE Report 262.
- 125 INSULATION LAID BETWEEN CEILING TIES/ JOISTS
 • Manufacturer: As Xtratherm or equal approved .
 - Product reference: As Xtratherm or equal approved .
 • Material: Mineral wool to BS EN 13162 .
 • Recycled content: Contractor's choice .
 • Thickness: 400 mm.
 • Installation requirements:
 - Installation standard: To BS5803-5.
 - Joints: Butted, no gaps.
 - Insulation at perimeter: Carried over wall plates.
 - Eaves ventilation: Unobstructed.
 - Service holes: Sealed, and debris removed before laying insulation.
 - Electric cables overlaid by insulation: Sized accordingly.
 - Water cistern platforms: required & also insulation for access to water tank .
- 135 INSULATION LAID ACROSS CEILING TIES/ JOISTS
 • Manufacturer: As Xtratherm or equal approved .
 - Product reference: As Xtratherm or equal approved .
 • Material: Mineral wool to BS EN 13162 .
 • Recycled content: Contractor's choice .
 • Thickness: 400 mm.
 • Installation requirements:
 - Installation standard: To BS5803-5.
 - Insulation widths: Widest practical.
 - Laid direction: At right angles to ties/ joists.
 - Joints: Butted, no gaps.
 - Insulation: Fitted neatly around rafter ends and extended over wall plates.
 - Service holes: Sealed, and debris removed before laying insulation.
 - Eaves ventilation: Unobstructed.
 - Electric cables overlaid by insulation: Sized accordingly.
 - Water cistern platforms: required & also insulation for access to water tank .

140 INSULATION FITTED BETWEEN RAFTERS

- Manufacturer: as 140A or equal approved .
 - Product reference: as 140A.
- Material: Rigid PIR.
- Facing: Metal foil.
- Recycled content: Contractor's choice .
- Thickness: 125MM.
- Installation requirements:
 - General: Insulation to be friction fitted between rafters with no gaps.
 - Joints: Butted, no gaps.
 - Fasteners: Used where necessary to retain insulation and/ or preventslumping.
 - Vapour control facing (if specified): Fit insulation with facing on warm side. Staple overlap (if provided) to underside of rafters; tape joints between adjacent overlaps using vapour impermeable adhesive tape.
 - Air space above insulation: Not restricted.
 - Eaves ventilation:Unobstructed.

140A RIGID POLYISOCYANURATE FOAM BOARD INSULATION

- Manufacturer: Xtratherm UK Ltd.
 - Web: www.xtratherm.com.
 - Email: info@xtratherm.com.
 - Product reference: Thin-R XTRLOC Rafterloc

148 INSULATION FIXED UNDER RAFTERS

- Manufacturer: as Xtratherm UK Ltd. or equal approved .
 - Product reference: Thermal liner XT/TL composite Polysio and plasterboard panel .
- Thickness: 62.5mm .
- Number of layers: One.
- Installation requirements:
 - Fixing: Secure to underside of rafters, with vapour control facing (if provided) on warmside.
 - Fasteners: as recommended by Manufacture .
 - Fixing centres: as recommended by Manufacturer .
 - Joints: Butt or overlap, as recommended by insulation manufacturer, with no gaps. Seal with vapour impermeable adhesive tape.
 - Air space above insulation: Not restricted.
 - Eaves ventilation:Unobstructed.

170 INSULATION TO LOFT ACCESS HATCHES

- Manufacturer: To provide access from hatch to tank and over hatch-as Xratherm Loft Walk-R .
 - Product reference: Loft Walk-R.
- Material: PIR & Chipboard.
- Recycled content: Contractor's choice .
- Thickness: 75mm insulation plus 18mm chipboard .
 - Laying: Cut to fit, with no gaps, and fix securely.
- Edges of hatch: Sealed with an approved compressible draught excluder.

190 INSULATION FITTED BETWEEN STUDS

- Manufacturer: as Moy Isover at 190A or equal approved .
 - Product reference: Isover Steel Frame Infill Batt .
- Material: Mineral wool to BS EN 13162 .
 - Facing: Metal foil laminate .
- Recycled content: Contractor's choice .
- Thickness: 50 mm.
- Installation requirements:
 - Joints: Butted, no gaps.
 - Fasteners: Use where necessary to retain insulation and/ or preventslumping.

190A INSULATION

- Manufacturer: Saint-Gobain Isover.
 - Web: www.isover.co.uk.
 - Email:helen.tunncliffe@saint-gobain.com.
 - Product reference: Isover Steel Frame Infill Batt
- Thickness: 50 mm.
- Face size: 1200 x 600 mm

410 FLEXIBLE CAVITY BARRIERS

- Manufacturer: Contractor's choice .
 - Product reference: -.
- Material: Wired glass wool batts .
- Fire resistance rating: To BS 476-20, 30/15 integrity/ insulation .
- Installation requirements:
 - Spacing: Installed in voids so the maximum unobstructed dimension in any direction is 20m.
 - Fixing: Secure at perimeters and joints with no gaps, to provide a complete barrier to smoke and flame.

420 SLEEVED MINERAL WOOL SMALL CAVITY BARRIERS

- Manufacturer: as 420A below or equal approved .
 - Product reference: Isover Cavity Barrier .
- Material: Mineral wool sleeved in polyethylene with flanges.
- Fire resistance rating: To BS 476-20, 30/15 integrity/ insulation .
- Size: width of cavity x 300mm .
- Installation requirements:
 - Fasteners: Staples at maximum 150 mm centres.
 - Vertical barriers: Fixed by both flanges.
 - Horizontal barriers: Fixed by upper flange only.
 - Joints and intersections: Butted, with barriers compressed along full length to give complete seal.

420A SLEEVED MINERAL WOOL SMALL CAVITY BARRIERS

- Manufacturer: Saint-Gobain Isover.
 - Web: www.isover.co.uk.
 - Email: helen.tunncliffe@saint-gobain.com.
 - Product reference: Isover CavityBarrier
- Cavity Sizes: 50 mm - 65 mm.
- Available Heights: 1.2 m x 300 mm .

430A WIRED MINERAL WOOL SMALL CAVITY BARRIERS

- Manufacturer: Rockwool Ltd.
 - Web: www.rockwool.co.uk.
 - Email: info@rockwool.com.
 - Product reference: Rockwool CavityBarrier
- Material: Wired mineral wool with foil face .
- Form: Single layer 60 mm, foil faced Fire Barrier with overlapped joints .
- Base fixing: Rockwool angle system .

440A FIRE PROTECTION OVER FIRE RESISTING WALLS IN ROOF VOID WHERE TRUSS OCCURS

- Manufacturer: As Rockwool Ltd. or equal approved
 - Web: www.rockwool.co.uk.
 - Email: info@rockwool.com.
 - Product reference: AS Rockwool Cavity Barrier or equal approved
- Material: Wired mineral wool .
- Form: 2 layers of 50 mm Fire Barrier, with staggered vertical joints - one layer to each side of truss .
- Base fixing: Rockwool angle system .

440B FIRE PROTECTION OVER FIRE RESISTING WALLS IN ROOF VOID WHERE NO TRUSS OCCURS

- Manufacturer: As Rockwool Ltd. or equal approved
 - Web: www.rockwool.co.uk.
 - Email: info@rockwool.com.
 - Product reference: As Rockwool Cavity Barrier or equal approved
- Material: Wired mineral wool with foil face .
- Form: Single layer 60 mm, foil faced Fire Barrier with overlapped joints .
- Base fixing: Rockwool angle system .

P12 Fire stopping systems

To be read with Preliminaries/ General conditions.

GENERAL

- 110 FIRE STOPPING SYSTEM TO INDIVIDUAL SERVICE PENETRATIONS
- Penetration seal/ Gap filler: Contractor's choice .
- 130 FIRE STOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS -
- Fire resistance: 30 minute.
 - Penetration seal: Pipe collar - concealed intumescent .
 - Size: To match wall thickness .
 - Capping sealant: Contractor's choice .
 - Colour: Not applicable.
- 140 FIRE STOPPING SYSTEM TO MULTIPLE SERVICES PENETRATIONS -
- Fire resistance: 30 minute.
 - Bulkhead barrier:
 - Material: Mineral wool intumescent coated rigid batts .
 - Thickness: 60mm.
 - Number of layers: One.
 - Framing: Not required.
 - Finish: Not applicable .
 - Capping sealant: Fire resisting silicone .
 - Colour: Not applicable.
- 150 LOOSE FIRE STOPPING packing over Fire wall to corridor
- Fire resistance: 30 minute.
 - Penetration seal: Mineral wool .
 - Size: Contractor's choice .

SYSTEM PERFORMANCE

- 240 FIRE PERFORMANCE -
- Resistance to fire: To BS 476-20 and -22, 30 minutes integrity and insulation .
 - Reaction to fire: In accordance with Building Regulations, Class 0 .
 - Smoke resistance:
 - Air leakage rate (maximum): Not applicable .

PRODUCTS

- 305 PRODUCT CERTIFICATION
- Certification: For products specified generically, submit evidence of compliance with the specification.
 - Acceptable evidence: Agrément certificate .
- 335 INTUMESCENT FOAM
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- 338 INTUMESCENT MASTIC
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- 350 INTUMESCENT PUTTY
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- 390 SEALANT - FIRE RESISTING SILICONE
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .

EXECUTION**620 WORKMANSHIP GENERALLY**

- Gaps: Seal gaps between building elements and services, to provide fire resistance and resist the passage of smoke.
- Adjacent surfaces: Prevent overrun of sealant or mortar on to finished surfaces.

660 APPLYING INTUMESCENT FOAM

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

690 APPLYING INTUMESCENT PUTTY

- Sequence: Install putty after services are permanently installed.
- Loose dust and combustible materials: Remove from the opening.

730 FIXING PIPE COLLARS

- Collar fixing: Adhesive .
- Gap around collar: Seal with intumescent foam .
- Length of wraps: Not applicable .

745 APPLYING SEALANTS GENERALLY

- Application: As section Z22.

COMPLETION**910 CLEANING**

- Masking tapes: Remove.
- Cleaning: Clean off splashes and droppings. Wipe down finishes.

P20 Unframed isolated trims/ skirtings/ sundry items

To be read with Preliminaries/ General conditions

- 110 **SOFTWOOD WINDOW BOARDS & SKIRTINGS**
- Quality of wood and fixing: To BS 1186-3.
 - Species: European redwood .
 - Class: C16.
 - Moisture content at time of fixing: 10-14% .
 - Preservative treatment: Not required .
 - Fire rating: Class 0 as defined in Building Regulations .
 - Profile: Bevelled and as per joinery details respectively .
 - Finished size: 25mm deep and as 1:50 Section drawings- T200, 201, 202 .
 - Finish as delivered: Prepared and primed, as section M60 .
 - Fixing: Plugged, screwed and pelleted .
- 260 **WOOD VENEERED GENERALLY**
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
 - Fire rating: Class 0 as defined in Building Regulations .
 - Veneer species: American white oak .
 - Finished thickness: as drawings .
 - Edges: Hardwood lipping to match veneer .
 - Support/ Fixing: Pinned and glued to softwood grounds .
- 420 **BRACKET SUPPORTS FOR SHELVES**
- Material: Stainless steel .
 - Finish: Brushed.
 - Colour: -.
 - Size: 250 mm.
 - Fixing: Plugged and screwed to substrate .

EXECUTION

- 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: Butt joints, unless shown otherwise .
 - Position and level: To be agreed where not detailed.

P21 Door/ window ironmongery

To be read with Preliminaries/ General conditions.

PRE-TENDER

10 QUANTITIES AND LOCATIONS

- Quantities and locations of ironmongery are in the ironmongery schedule .
- Fixing: As sections L10 and L20.

GENERAL

122 IRONMONGERY FROM LISTED PROPRIETARY RANGES

- Source: One only of the following manufacturers/ suppliers and ranges: as KCC contract range all disabled accessible or equal approved .
- Notification: Submit details of selected range, manufacturer and/ or supplier.
- Principal material/ finish: Satin stainless steel, grade 1.4401 (316) .
- Items unavailable within selected range: Submit proposals.

170 IRONMONGERY FOR FIRE DOORS

- Relevant products: Ironmongery fixed to, or morticed into, the component parts of a fire resisting door assembly.
- Compliance: Ironmongery included in successful tests to BS 476-22 or BS EN 1634-1 on door assemblies similar to those proposed.
 - Certification: Submit CERTIFIRE certificates .
- Melting point of components (except decorative non functional parts): 800°C minimum.

180 CATEGORY OF DUTY FOR DOOR IRONMONGERY

- Standard: To DD 171.
 - Category of duty of doors: Heavy duty .
 - General: Durability of ironmongery components to be compatible with stated category of duty of each door leaf.
 - Exclusions: Ironmongery with specific duty or 'category of use' defined elsewhere.
- Documentation: Before placing orders with suppliers submit documentation showing product compliance with stated category of duty.

DOOR HANGING DEVICES

315 PERFORMANCE SPECIFICATION FOR SINGLE AXIS DOOR HINGES as Ironmongery Schedule

- Standard: To BS EN 1935.
 - Hinges to doors on escape routes and fire/ smoke control doors: CE marked.
- Minimum classification grades:
 - Category of use: 3 .
 - Durability: 7 .
 - Test door mass: 2.
 - Suitability for use on fire/ smoke doors: 1 .
 - Safety: 1.
 - Corrosion resistance: 2.
 - Security - Burglar resistance: 1 .
 - Hinge grade: 6 .
- Type: As schedule .
- Size: 102 x 76 mm .
- Material/ finish: Satin stainless steel, grade 1.4301 (304) .
- Other requirements: - .

WINDOW HANGING DEVICES

370 WINDOW HINGES All external windows

- Manufacturer: As recommended by Window Manufacturer .
 - Product reference: - .
- Type: As required by notes indicated on drawings .
- Size: As recommended by Window Manufacturer .
- Material/ finish: Satin stainless steel, grade 1.4301 (304) .

DOOR OPERATING DEVICES**412 PERFORMANCE SPECIFICATION FOR OVERHEAD DOOR CLOSERS as Ironmongery Schedule**

- Standard: To BS EN1154.
 - Door closing devices to fire/ smoke control doors: CE marked.
- Minimum classification grades:
 - Category of use: 3 .
 - Durability: 8.
 - Door closer power size: Adjustable 3-6 .
 - Suitability for use on fire/ smoke doors: 1 .
 - Safety: 1.
 - Corrosion resistance: - .
- Type: Face fixed .
- Other functions: Back check and delayed closing .
- Casing finish: stainless steel .
- Operational adjustment:
 - Variable power: Matched to the sizes and weights of doors.
 - Latched doors: Override latches and/ or door seals when fitted.
 - Unlatched doors: Hold shut under normal working conditions.
 - Closing against smoke seals of fire doors: Positive. No gaps.

452 PERFORMANCE SPECIFICATION FOR FLOOR SPRINGS As Ironmongery Schedule

- Standard: To BS EN1154.
 - Door closing devices to fire/ smoke control doors: CE marked.
- Minimum classification grades:
 - Category of use: 3 .
 - Durability: 8.
 - Door closer power size: Adjustable 3-6 .
 - Suitability for use on fire/ smoke doors: 1 .
 - Safety: 1.
 - Corrosion resistance: 2.
- Other functions: As schedule .
- Material/ finish: Satin stainless steel .
- Operational adjustment:
 - Variable power: Matched to size, weight and location of doors.
 - Latched doors: Override latches and/ or door seals when fitted.
 - Unlatched doors: Hold shut under normal working conditions.

DOOR SECURING DEVICES**525 PERFORMANCE SPECIFICATION FOR DOOR LOCKS AND LATCHES as Ironmongery Schedule**

- Standard: To BS EN12209.
- Minimum classification grades:
 - Category of use: 3.
 - Durability: -.
 - Door mass and closing force: 4.
 - Suitability for use on fire/ smoke doors: 1.
 - Safety: 0.
 - Corrosion resistance and temperature: -.
 - Security and drill resistance: 4.
 - Field of door application: -.
 - Type of key operation and locking: -.
 - Type of spindle operation: -.
 - Key identification requirement: -.
- Backset: 57 mm.
- Material/ finish: Stainless steel faceplate .
- Keying: In master keyed suite .

572 PERFORMANCE SPECIFICATION FOR EMERGENCY EXIT DEVICES as Ironmongery Schedule

- Standard: To BS EN179.
 - Emergency exit devices for locked doors on escape routes: CE marked.
- Minimum classification grades:
 - Category of use: 3.
 - Durability: 7 .
 - Door mass: 5 .
 - Suitability for use on fire/ smoke doors: 1 .
 - Safety: 1.
 - Corrosion resistance: 3.
 - Security: 3 .
 - Projection of operating element: 1 .
 - Type of operation: B: Push pad operation .
- Material/ finish: Satin stainless steel .
- Additional requirements: Security alarmed .

578 PERFORMANCE SPECIFICATION FOR PANIC EXIT DEVICES as Ironmongery Schedule

- Standard: To BS EN1125.
 - Panic exit devices for locked doors on escape routes: CE marked.
- Minimum classification grades:
 - Category of use: 3.
 - Durability: 7 .
 - Door mass: 5 .
 - Suitability for use on fire/ smoke doors: 1 .
 - Safety: 1.
 - Corrosion resistance: 3.
 - Security: 2.
 - Projection of bar: 1 .
 - Type of bar operation: A: Push bar operation .
- Material/ finish: Satin stainless steel .
- Additional requirements: Security alarmed .

584 PERFORMANCE SPECIFICATION FOR DOOR BOLTS as Ironmongery Schedule

- Standard: To BS EN12051.
- Minimum classification grades:
 - Category of use: 3 .
 - Number of test cycles: 3.
 - Door mass: - (no classification).
 - Fire safety: 1 .
 - Safety in use: 0 .
 - Corrosion resistance: 3.
 - Security: 2 .
- Type: Flush lever .
- Size: As schedule .
- Material/ finish: Satin stainless steel, grade 1.4301 (304) .
- Additional requirements: None .

DOOR FURNITURE**622 PERFORMANCE SPECIFICATION FOR LEVER HANDLE SETS as Ironmongery Schedule**

- Standard: To BS EN1906.
- Minimum classification grades:
 - Category of use: 3 .
 - Durability: 6 .
 - Door mass: - (no classification).
 - Fire resistance: B .
 - Safety: 0 .
 - Corrosion resistance: 3.
 - Security: 2 .
 - Type of operation: - .
- Style: As schedule .
- Size: As schedule .
- Material/ finish: Satin stainless steel, grade .
- Mounting: As schedule .
- Additional requirements: None .

651 PERFORMANCE SPECIFICATION FOR PULL HANDLES as Ironmongery Schedule

- Standard: To BS 8424.
- Minimum classification grades:
 - Category of use: 3.
 - Durability: 2.
 - Door mass: - (no classification).
 - Suitability for use on fire/ smoke doors: 1.
 - Safety: 1.
 - Corrosion resistance: 3.
- Shape: As schedule.
- Diameter: 25 mm.
- Distance between centres: As schedule.
- Material/ finish: Satin stainless steel, grade 1.4401 (316).
- Mounting: As schedule.
- Additional requirements: -.

670 PUSH PLATES as Ironmongery Schedule

- Manufacturer: as KCC or equal approved .
 - Product reference: - .
- Size: As schedule .
- Material/ finish: Satin stainless steel, grade 1.4401 (316) .
- Mounting: As schedule .
- Additional requirements: Screw heads colour matched to plate .

690 KICK PLATES as Ironmongery Schedule

- Manufacturer: as KCC or equal approved .
 - Product reference: - .
- Size: As schedule .
- Material/ finish: Satin stainless steel, grade 1.4401 (316) .
- Mounting: As schedule .
- Additional requirements: Screw heads colour matched to plate .

710 ESCUTCHEONS as Ironmongery Schedule

- Manufacturer: as KCC or equal approved .
 - Product reference: - .
- Material/ finish: Satin stainless steel, grade 1.4401 (316) .
- Keyhole type: As schedule .
- Usage: As schedule .

720 DOOR STOPS

- Manufacturer: as Ironmongery Schedule .
 - Product reference: - .
- Type: As schedule .
- Usage: As schedule .

811 DOOR MOUNTED COAT HOOKS as Ironmongery Schedule

- Manufacturer: as KCC or equal approved .
 - Product reference: - .
- Type: As schedule .
- Material/ finish: Satin stainless steel, grade 1.4301 (304) .

P31 Holes, chases, covers and supports for services

To be read with Preliminaries/ General conditions.

EXECUTION

- 620 HOLES AND CHASES IN IN SITU CONCRETE
- Cast in: Holes larger than 10 mm diameter and chases.
 - Cutting and drilling:
 - Permitted for holes not larger than 10 mm diameter.
 - Not permitted for holes larger than 10 mm diameter except as indicated on drawings.
- 630 HOLES AND CHASES IN PRECAST CONCRETE
- Cutting and drilling: Not permitted except as indicated on drawings.
- 640 HOLES IN STRUCTURAL STEELWORK
- Cutting and drilling: Not permitted except as indicated on drawings.
- 650 HOLES, RECESSES AND CHASES IN MASONRY
- Locations: To maintain integrity of strength, stability and sound resistance of construction.
 - Sizes: Minimum needed to accommodateservices.
 - Holes (maximum): 300 x 300 mm.
 - Walls of hollow or cellular blocks: Do not chase.
 - Walls of other materials:
 - Vertical chases: No deeper than one third of single leaf thickness, excluding finishes.
 - Horizontal or raking chases: No longer than 1 m. No deeper than one sixth of the single leaf thickness, excluding finishes.
 - Chases and recesses: Do not set back to back. Offset by a clear distance at least equal to the wall thickness.
 - Cutting: Do not cut until mortar is fully set. Cut carefully and neatly. Avoid spalling, cracking and other damage to surrounding structure.
- 670 NOTCHES AND HOLES IN STRUCTURAL TIMBER
- General: Avoid if possible.
 - Sizes: Minimum needed to accommodateservices.
 - Position: Do not locate near knots or other defects.
 - Notches and holes in same joist: Minimum 100 mm apart horizontally.
 - Notches in joists: Locate at top. Form by sawing down to a drilled hole.
 - Depth (maximum): 0.125 x joist depth.
 - Distance from supports: Between 0.07 and 0.25 x span.
 - Holes in joists: Locate on neutral axis.
 - Diameter (maximum): 0.25 x joist depth.
 - Centres (minimum): 3 x diameter of largest hole.
 - Distance from supports: Between 0.25 and 0.4 of span.
 - Notches in roof rafters, struts and truss members: Not permitted.
 - Holes in struts and columns: Locate on neutral axis.
 - Diameter (maximum): 0.25 x minimum width of member.
 - Centres (minimum): 3 x diameter of largest hole.
 - Distance from ends: Between 0.25 and 0.4 of span
- 690 INSTALLING PIPE SLEEVES
- Sleeves: Fit to pipes passing through building fabric.
 - Material: Match pipeline.
 - Size: One or two sizes larger than pipe to allow clearance.
 - Finish: Install sleeves flush with building finish. In areas where floors are washed down, install protruding 100 mm above floor finish.
 - Masking plates: Fit at visible penetrations, including through false ceilings of occupied rooms.

Q25 Slab/ brick/ sett/ cobble pavings

To be read with Preliminaries/ General conditions.

GENERAL**PRODUCTS**

- 315 CONCRETE FLAGS As 315A or equal approved
- Standard: To BS EN1339.
 - Manufacturer: As 315A or equal approved .
 - Product reference: As 315A or equal approved .
 - Recycled content: Contractor's choice .
 - Colour: As 315A or equal approved .
 - Finish: As 315A or equal approved .
 - Nominal sizes: As 315A or equal approved .
 - Arrises: Square.
 - Water absorption and freeze/ thaw resistance class: As 315A or equal approved .
 - Bending strength class: As 315A or equal approved .
 - Abrasion resistance class: As 315A or equal approved .
 - Slip/ Skid resistance: As 315A or equal approved .
 - Breaking load class: As 315A or equal approved .
- 315A CONCRETE PAVING SLAB
- Manufacturer: Tobermore ConcreteProducts Ltd.
 - Web: www.tobermore.co.uk.
 - Email: sales@tobermore.co.uk.
 - Product reference: Mayfair concrete slabs
 - Sizes: 400 x 400 x 40 mm .
 - Colour: Graphite .
- 320 TACTILE FLAGS AND SLABS As 320A&B
- Standard: To DD CEN/TS15209.
 - Material: Precast concrete .
 - Manufacturer: As Tobermore 320A&B or equal approved .
 - Product reference: -.
 - Recycled content: Contractor's choice .
 - Nominal sizes: 400 x 400 mm .
 - Colour: Buff.
- 320A CONCRETE PAVING FLAGS
- to steps at Ramp 1 and 2
 - Manufacturer: Tobermore Concrete Products Ltd.
 - Web: www.tobermore.co.uk.
 - Email: sales@tobermore.co.uk.
 - Product reference: Tactile concrete flags
 - Finish: Hazard warning .
 - Colour: Buff.
- 320B CONCRETE PAVING FLAGS to steps at Ramp 1 and 2
- Manufacturer: Tobermore ConcreteProducts Ltd.
 - Web: www.tobermore.co.uk.
 - Email: sales@tobermore.co.uk.
 - Product reference: Mayfair step flag
 - Finish: textured .
 - Colour: Graphite .
- 435 PRIMER FOR UNDERSIDE OF FLAGS AND SLABS As recommended by manufacturer
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .

440 READY MIXED MORTAR As recommended by paving manufacturer

- Type: As recommended by paving manufacture .
- Standard/ Performance requirements: Not applicable.
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- Consistency: As recommended by paving manufacture .

EXECUTION**620 ADVERSE WEATHER**

- General:
 - Temperature: Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
 - Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.
- Paving with mortar joints and/ or bedding:
 - Protect from frost damage, rapid drying out and saturation until mortar has hardened.
- Paving laid and jointed insand:
 - Stockpiled bedding sand: Protect from saturation.
 - Exposed areas of sand bedding and uncompacted areas of sand bedded paving: Protect from heavy rainfall.
 - Saturated sand bedding: Remove and replace, or allow to dry before proceeding.
 - Laying dry-sand jointed paving in damp conditions: Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

625 LAYING PAVINGS - GENERAL

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

630 LEVELS OF PAVING

- Permissible deviation from specified levels:
 - Generally: ± 6 mm.
- Height of finished paving above features:
 - At gullies: +6 to +10 mm.
 - At drainage channels and kerbs: +3 to +6 mm.

635 REGULARITY OF PAVED SURFACES

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

637 REGULARITY OF PAVED SURFACES

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

650 CEMENTITIOUS BASES AND SUB-BASES

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

655 CONDITION OF SUB-BASES/ BASES BEFORE SPREADING LAYING COURSE

- Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.
- Granular surfaces: Lay and compact so as to be sound, clean, smooth and close-textured enough to prevent migration of bedding/ laying course materials into the sub-base during compaction and use, free from movement under compaction plant and free from compaction ridges, cracks and loose material.
- Prepared existing and new bound bases (roadbases): Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.
- Sub-base/ Roadbase level tolerances: To BS 7533-7, Annex A.
- Levels and falls: Accurate and within the specified tolerances.
- Drainage outlets: Within 0-10 mm of the required finished level.
- Features in sand bedded paving (including mortar bedded restraints and drainage ironwork): Complete to required levels; adequately bed and haunch in mortar.
- Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS7533-4.

735 LAYING CONCRETE SETT PAVING - MORTAR BEDDED

- Laying: Spread and level a bed of mortar. Individually lay and hammer down the setts so that tops are level, leaving joints open.
- Layingcourse:
 - Nominal thickness after compaction: 50 mm.
- Jointing: Fill joints and finish neatly. Clean mortar from face of setts before it sets.
- Joint width (nominal): 5 mm.
 - Recess mortar joints below sett surface by: 3 mm.

Q28 Topsoil and soil ameliorants

To be read with Preliminaries/ General conditions.

PRODUCTS

300 PREPARATION MATERIALS GENERALLY

- Purity: Free of pests and disease.
- Foreign matter: On visual inspection, free of fragments and roots of aggressive weeds, sticks, straw, subsoil, pieces of brick, concrete, glass, wire, large lumps of clay or vegetation, and the like.
- Contamination: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
 - Corrosive, explosive or flammable.
 - Hazardous to human or animal life.
 - Detrimental to healthy plant growth.
- Subsoil: In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
- Objectionable odour: None.
- Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.

320 IMPORTED TOPSOIL FROM A SPECIFIED SOURCE

- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Grade: Within the parameters of 'sandy loam' textural class .
- Source: Contractor's choice.

655 MECHANICAL TOOLS

- Restrictions: Do not use within 100 mm of tree and plant stems.

660 GRADING SUBSOIL

- General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
- Loosening:
 - Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
 - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
 - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Areas of thicker topsoil: Excavate locally.
- Avoid over compaction.

665 SUBSOIL SURFACE PREPARATION

- General: Excavate and/ or place fill to required profiles and levels, as section D20.
- Loosening:
 - Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
 - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
 - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Stones: Immediately before spreading topsoil, remove stones larger than 50 mm.
- Remove from site: Arisings, contaminants and debris and Builders rubble .

685 SURPLUS MATERIALS TO BE REMOVED

- Topsoil: Remove from site excess topsoil.
- Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

700 GRADING OF TOPSOIL

- Topsoil condition: Reasonably dry and workable.
- Contours: Smooth and flowing, with falls for adequate drainage.
 - Hollows and ridges: Not permitted.
- Finished levels after settlement: 25 mm above adjoining paving, kerbs, manholes etc.
- Give notice: If required levels cannot be achieved by movement of existing soil.

705 HANDLING TOPSOIL

- Aggressive weeds: Give notice and obtain instructions before moving topsoil.
- Plant: Select and use plant to minimize disturbance, trafficking and compaction.
- Contamination: Do not mix topsoil with:
 - Subsoil, stone, hardcore, rubbish or material from demolition work.
 - Other grades of topsoil.
- Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.
- Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit -.

710 SPREADING TOPSOIL

- Temporary roads/ surfacing: Remove before spreading topsoil.
- Layers:
 - Depth (maximum): 150 mm.
 - Gently firm each layer before spreading the next.
- Depths after firming and settlement (minimum): 450 mm.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

715 LOOSE TIPPING OF TOPSOIL

- General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

720 FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

- Above adjoining paving or kerbs: 30 mm.
- Below dpc of adjoining buildings: Not less than 150 mm .
- Shrub areas: Higher than adjoining grass areas by 50mm.
- Within root spread of existing trees: Unchanged.
- Adjoining soil areas: Marry in.
- Thickness of turf or mulch: Included.

Q30 Seeding/ turfing

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/REQUIREMENTS

- 115 **SEEDED AND TURFED AREAS**
- Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.
 - Appearance: A closely knit, continuous ground cover of even density, height and colour.
- 120 **CLIMATIC CONDITIONS**
- General: Carry out the work while soil and weather conditions are suitable.

PREPARATION

- 280 **FINAL CULTIVATION**
- Timing: After grading and fertilizing.
 - Seed bed: Reduce to fine, firm tilth with good crumb structure.
 - Depth: 25mm.
 - Surface preparation: Rake to a true, even surface, friable and lightly firmed but not over compacted.
 - Remove surfacestones/earth clods exceeding:
 - General areas: 30 mm.
 - Fine lawn areas: 10 mm.
 - Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

SEEDING

- 310 **GRASS SEED FOR ALL GRASSED AREAS**
- Mixture: 35% Chewings fescue, 35% Slender red fescue, 20% Smooth stalked meadow grass, 10% Brown top bent.
 - Application rate: 10-20 g/m².
- 590 **CLEANLINESS**
- Soil and arisings: Remove from hard surfaces.
 - General: Leave the works in a clean, tidy condition at Completion and after any maintenance operations.

Q40 Fencing

To be read with Preliminaries/ General conditions.

FENCING SYSTEMS

340 STEEL VERTICAL BAR FENCING

- Manufacturer: Contractor's choice .
 - Product reference: to match existing .
- Standard: To BS 1722-9.
- Height: to match existing.
- Verticals: to match existing.
- Centres of verticals: to match existing .
- Posts: to match existing .
 - Finish: to match existing .
 - Colour: to match existing .
- Centres of posts (maximum): 2.8 m.
- Method of setting posts/ stays/ legs: to match existing .
- Accessories: As drawing T207 and signage .
- Conformity: Submit manufacturer's and installer's certificates, to BS 1722-9.

EXECUTION

710 INSTALLATION GENERALLY

- Set out and erect:
 - Alignment: Straight lines or smoothly flowing curves.
 - Tops of posts: Following profile of the ground.
 - Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.
 - Fixings: All components securely fixed.

720 SETTING POSTS IN CONCRETE

- Standard: To BS 8500-2.
- Mix: Designated concrete not less than GEN1 or Standard prescribed concrete not less than ST2.
- Alternative mix for small quantities: 50 kg Portland cement to 150 kg fine aggregate to 250 kg 20 mm nominal maximum size coarse aggregate, medium workability.
- Admixtures: Do not use.
- Holes: Excavate neatly and with vertical sides.
- Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.
- Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

790 SITE PAINTING

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

COMPLETION

910 CLEANING

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

920 FIXINGS

- All components: Tighten.
 - Timing: Before handover.

Q41 Barriers/ guardrails

To be read with Preliminaries/ General conditions.

TYPES OF BARRIERS/ GUARDRAILS**240 HANDRAIL SYSTEMS TO ENTRANCE STAIRS AND RAMPS**

- System manufacturer: Contractor's choice .
- Material: Carbon steel .
 - Cross section: As drawing T206- T210.
 - Finish: Undercoat, primer and paint, as section M60 .
- Height above ground surface (to upper surface of handrail):
 - Upper handrail: As drawing T206- T210 .
 - Lower handrail: As drawing T206- T210 .
- Accessories: None.

INSTALLATION**405 COMPETENCE**

- Operatives: Contractors must employ competent operatives.
- Qualifications: Submit certification of training.
 - UKAS Sector Scheme 2A sub categories: Not required .
 - UKAS Sector Scheme 2C sub categories: Not required .

420 ALIGNMENT

- Erection: Fences/ barriers to present a flowing alignment. Tops of posts to follow ground profile.
- Tolerance: ± 30 mm of prescribed alignment and, within any 10 m length, ± 15 mm from the straight or required radius.

430 ERECTION GENERALLY

- Protection: Coat all internal and external surfaces of aluminium and steel posts below and up to 150 mm above ground level, with two coats of bituminous paint to BS 6949 type 2, unless other applied surface finish is specified.
- Prevention of electrolytic corrosion: Isolate dissimilar metals.
- Steel components: Do not drill, cut or weld after galvanizing.

490 DAMAGE REPAIR TO GALVANIZED SURFACES

- Areas of repair: Minor damage, including fixings and fittings.
 - Total area of repair not to exceed 0.5% of total surface area.
 - Each area not to exceed 1000 mm².
- Renovation: Use low melting point zinc alloy repair rods or powders or at least two coats of zinc-rich paint to BS 4652.

510 PREPARATION FOR SITE PAINTING

- Preparation and application: As soon as possible after installation of barriers/ guardrails.

Q50 Site/ street furniture/ equipment

To be read with Preliminaries/ General conditions.

190 BOLLARDS

- Manufacturer: As Townscape Products Polymer Bollards .
- Product reference: -.
- Material: Steel.
- Finish as delivered: 2 pack polyurethane to Ral colour to be specified .
- Colour: to be specified .
- Height above ground: 1000 mm.
- Special features: White reflective band, 150 mm high at top of bollard .
- Method of fixing: Root, 300 mm below ground, set in concrete base .

190A POLYMER BOLLARDS

- Manufacturer: TownscapeProducts Ltd.
- Web: www.townscape24.com.
- Email: sales@townscape-products.co.uk.
- Product reference: PolymerBollards
- Type: to be specified .
- Accessories: to be specified .

INSTALLATION**510 CONCRETE FOUNDATIONS GENERALLY**

- Standard: To BS8500-2.
- Concrete: As per Engs Spec.
- Admixtures: Do not use.
- Foundation holes: Neat vertical sides.
- Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

515 SETTING COMPONENTS IN CONCRETE

- Holes: 250 x 250 x minimum 300 mm deep .
- Components: Accurately positioned and securely supported.
- Concrete fill: Fully compacted as filling proceeds.
- Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.
- Temporary component support: Maintain undisturbed for minimum 48 hours.

R10 Rainwater drainage systems

To be read with Preliminaries/ General conditions.

GENERAL

110 GRAVITY RAINWATER DRAINAGE SYSTEM

- Rainwater outlets: Proprietary .
- Gutters: PVC-U.
- Pipework: PVC-U, external .
- Below ground drainage: To Civil Engineers Spec .
- Disposal: To surface water drainage .
- Controls: As section S90.
- Accessories: Sealant for gutters .

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 noisenuisance.

230 DESIGN PARAMETERS - GENERAL

- Roof and gutter construction and finish: uPVC.
- Design rate of rainfall: As BS EN 12056-3, National Annex NB.2.
 - Category: 2.
- Design life of building: 30 years .
- Available capacity of existing below ground drainage (maximum): Refer to Civil Eng Spec.

PRODUCTS

350 PVC-U GUTTERS

- Standard: To the relevant parts of BS EN 607 and BS EN 1462, Kitemark certified.
- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Recycled content: Submit proposals .
- Profile: Box.
- Nominal size: 125 mm.
- Colour: Black.
- Brackets: Galvanized steel top rafter type .
 - Fixings: Stainless steel screws .
 - Size: 30 x 4 mm .
- Accessories: Gutter stop ends .

420 PVC-U PIPEWORK - EXTERNAL

- Standard: To BS EN 12200-1, Kitemark certified.
- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Recycled content: Submit proposals .
- Section: Square.
- Nominal size: DN110.
- Colour: Black.
- Brackets: PVC-U clips, black .
 - Fixings: Stainless steel screws .
 - Size: as required by external insulation thickness and manufacturer .
- Accessories: Rainwater heads and Rainwater shoes .

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: Watertight.
- Brackets: Securely fixed.
 - Fixings: Screwed to rafter feet.
 - Fixing centres: 450 mm.
 - Additional brackets: Where necessary to maintain support and stability, provide at joints in gutters and near angles and outlets.
- Roofing underlay: Dressed into gutter.

615 SETTING OUT EAVES GUTTERS - TO FALLS

- Setting out: To true line and even gradient to prevent ponding or backfall. Position high points of gutters as close as practical to the roof and low points not more than 50 mm below the roof.
- Outlets: Align with connections to below ground drainage.

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: Screwed into masonry through external insulation.
- Distance between bracket fixing centres (maximum): 900 mm.

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.

700 ACCESS FOR TESTING AND MAINTENANCE

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

COMPLETION

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

R11 Above ground foul drainage systems

To be read with Preliminaries/ General conditions.

GENERAL

115 ABOVE GROUND FOUL DRAINAGE SYSTEM

- Sanitary and floor drainage outlets: Sanitary fittings as section N13 .
- Waste pipework: MUPVC or PVC-C .
- Discharge stack and branch pipework: PVC-U.
- Separate ventilating pipework: PVC-U.
- Accessories: as required and to External Insulation Manufacturers Recommendations for fixing details .
- Disposal: To below ground drainage as section R12 .

SYSTEM PERFORMANCE

210 DESIGN

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

220 COLLECTION AND DISTRIBUTION OF FOUL WATER

- General: Quick, quiet and complete, self-cleansing in normal use, without blockage, crossflow, backfall, leakage, odours, noise nuisance or risk to health.
- Pressure fluctuations in pipework (maximum): ± 38 mm water gauge.
- Water seal retained in traps (minimum): 25 mm.

PRODUCTS

365 PVC-U PIPEWORK - FOR DISCHARGE STACKS AND BRANCHES

- Standard: To BS EN 1329-1, Kitemark certified.
 - Weather resistance, connectors to WC pans, opening dimensions of access fittings, design of swept fittings, stand off dimensions of pipe and fitting brackets and requirements for adaptors and plugs: To BS 4514.
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice.
- Nominal size: DN 110.
- Colour: Black.
- Brackets: Plastics pipe clips, colour to match pipes .
 - Fixings: as recommended by External Insulation Manufacturers Recommendations .
 - Size: as recommended by External Insulation Manufacturers Recommendations .
- Accessories: -.

375 AIR ADMITTANCE VALVES

- Standard: To BS EN 12380 or Agrément certified.
- Minimum air flow rate: To BS EN 12056-2.
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .

380 GREASE TRAPS AND CONVERTERS

- Standards: In accordance with BS EN 1825-1 and to BS EN 1825-2 and Kitemark or Agrément certified.
- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Accessories: Filters.

390 RODDING EYES EXTERNALLY

- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- Body material: PVC-U.
- Cover type: Flush.
- Cover material: PVC-U.

EXECUTION

601 INSTALLATION GENERALLY

- Standard: To BS EN 12056-5.
- Components: From the same manufacturer for each type of pipework.
- 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.
- Concealed or inaccessible surfaces: Decorate before starting work specified in this section.
- Protection:
 - Purpose made temporary caps: Fit to prevent ingress of debris.
 - Access covers, cleaning eyes and blanking plates: Fit as the work proceeds.

605 PIPE ROUTES

- General: The shortest practical, with as few bends as possible.
 - Bends in wet portion of soil stacks: Not permitted.
 - Routes not shown on drawings: Submit proposals before commencing work.

610 FIXING PIPEWORK

- Pipework: Fix securely plumb and/ or true to line. Fix discharge stack pipes at or close below socket collar or coupling.
- 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 load bearing support not less than every storey level. Tighten fixings as work proceeds so that every storey is self supporting.
- Wall and floor penetrations: Isolate pipework from structure, e.g. with pipe sleeves.
 - Masking plates: Fix at penetrations if visible in the finished work.
- Expansion joint sockets: Fix rigidly to the building.
- Fixings: Allow the pipe to slide.

615 FIXING VERTICAL PIPEWORK - MUPVC OR PVC-C

- Bracket fixings: Screwed into masonry through external insulation .
- Distance between bracket fixing centres (maximum): 900 mm .

620 FIXING LOW GRADIENT PIPEWORK - MUPVC OR PVC-C

- Bracket fixings: Screwed into masonry through external insulation .
- Distance between bracket fixing centres (maximum): 500 mm .

630 JOINTING PIPEWORK - GENERALLY

- General: Joint with materials, fittings and techniques that will make effective and durable connections.
- Jointing differing pipework systems: With adaptors intended for the purpose.
- Cut ends of pipes: 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: Do not allow it to project into bore of pipes and fittings.
- Surplus flux, solvent jointing materials and cement: Remove from joints.

680 ELECTRICAL CONTINUITY

- Joints in metal pipes with flexible couplings: Make with clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

695 DISCHARGE AND VENTILATING STACKS

- Terminations: Perforated cover or cage that does not restrict airflow.
 - Material: Metal.

700 INSTALLING AIR ADMITTANCE VALVES

- Position: Vertical, above flood level of highest appliance served and clear of insulation materials (other than the manufacturer's insulating cover).
- Connection to discharge stack: Allow removal for rodding, e.g. ring seal.
- Roof spaces and other unheated locations: Fit manufacturer's insulating cover.

705 ACCESS FOR TESTING AND MAINTENANCE

- General: Install pipework with adequate clearance to permit testing, cleaning and maintenance, including painting where necessary.
- Access fittings and rodding eyes: Position to avoid obstruction.

COMPLETION**900 TESTING GENERALLY**

- Dates for testing: Give notice.
 - Period of notice (minimum): 2 working days.
- Preparation:
 - Pipework: Securely fixed and free from obstruction and debris.
 - Traps: Filled with cleanwater.
- Testing:
 - Supply clean water, assistance and apparatus.
 - Do not use smoke to trace leaks.
- Records: Submit a record of tests.

915 PREHANDOVER CHECKS

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

920 SUBMITTALS

- Manufacturer's instructions for grease traps: Handover at completion.

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 unless shown otherwise.
 - 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.
 - 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, thickened, 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.

210 LAMINATED PLASTICS VENEERED BOARDS/ PANELS

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

220 WOOD VENEERED BOARDS/ PANELS

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

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.

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.

320 STEEL LONG AND FLAT PRODUCTS

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

330 STEEL PLATE, SHEET AND STRIP

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

340 HOT ROLLED STEEL PLATE, SHEET AND STRIP

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

350 COLD ROLLED STEEL PLATE, SHEET AND STRIP

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

360 COATED STEEL FLAT PRODUCTS

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

370 STEEL STRUCTURAL HOLLOW SECTIONS (SHS)

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

380 OTHER STEEL SECTIONS

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

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

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.

FINISHING

- 710 FINISHING WELDED AND BRAZED JOINTS VISIBLE IN COMPLETE WORK
- Standard: To BS EN ISO 8501-3.
 - Preparation grade: P1.
 - 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.
- 760 ZINC AND CADMIUM PLATING OF IRON AND STEEL SURFACES
- Zinc plating: To BS EN ISO 2081.
 - Cadmium plating: To BS EN ISO 2082.

COMPLETION

- 920 COMPLETION
- Protection: Remove.
 - Cleaning and maintenance: Carry out in accordance with procedures detailed in fabricators' guarantees.

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.
 - Operatives: Preferably WPA trained .
- 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 Wood Protection Association (WPA) publication 'Industrial wood preservation specification and practice'.

130 PRESERVATIVE TREATMENT SOLUTION STRENGTHS/ TREATMENT CYCLES

- General: Select to achieve specified service life and to suit treatability of specified wood species.

210 FIRE RETARDANT TREATMENT

- Solution type: Dry interior .
 - Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice.
 - Application: Vacuum + 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 redried slowly at temperatures not exceeding 65°C to minimize distortion and degradation.

610 MAKING GOOD TO PRESERVATIVE TREATMENT ON-SITE

- Preservative solution: Compatible with off-site treatment.
- Application: In accordance with preservative manufacturer's recommendations.

620 MAKING GOOD TO FIRE RETARDANT TREATMENT ON-SITE

- Fire retardant: Compatible with off-site treatment.
- Application: In accordance with fire retardant manufacturer's recommendations.

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.

330 NAILED TIMBER FASTENERS

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

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.

360 ANCHORS

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

370 WOOD SCREWS

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

380 MISCELLANEOUS SCREWS

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

390 ADHESIVES GENERALLY

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

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.

620 FIXING THROUGH FINISHES

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

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.

650 NAILED TIMBER FIXING

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

660 SCREW FIXING

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

670 PELLETED COUNTERSUNK SCREW FIXING

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

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.

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 of or distort components being fixed.
- 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 EN13139.
 - 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 EN998-2.
 - Lime: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
 - Pigments for coloured mortars: To BS EN 12878.
- 135 SITE MADE LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS
- Permitted use: Where a special colour is not required and in lieu of factory made ready-mixed material.
 - Lime: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
 - Mixing: Thoroughly mix lime with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least 16 hours before using.
- 160 CEMENTS FOR MORTARS
- Cement: To BS EN 197-1 and CE marked.
 - Types:
 - Portland cement, CEM I.
 - Portland limestone cement, CEM II/A-L or CEM II/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 II/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 glycol and any admixture containing calcium chloride.
- 190 RETARDED READY TO USE CEMENT GAUGED MORTAR
- Standard: To BS EN998-2.
 - Lime for cement:lime:sand mortars: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
 - Pigments for coloured mortars: To BS EN 12878.
 - Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
 - Retempering: Restore workability with water only within prescribed time limits.

200 STORAGE OF CEMENT GAUGED MORTAR MATERIALS

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

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.

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.
- Joints not fit to receive sealant: Submit proposals for rectification .

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

- Manufacturer: Obtain from one only of the following: as 120A.
- 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.

120A POWDER MANUFACTURER

- Manufacturer: Valspar Powder Coatings Ltd.
 - Web: www.synthapulvin.co.uk.
 - Email: synthapulvin@valspar europe.com.
 - Product reference: SynthaPulvin

210 WORKING PROCEDURES

- Comply with the following standards.
 - Aluminium components: To BS 6496 or BS EN 12206-1.
 - Steel components: To BS EN 13438.
 - Safety standards: To British Coatings Federation 'Code of safe practice - Application of thermosetting powder coatings by electrostatic spraying'.

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 or 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 coating: 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 powdercoating.
 - 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.

540 COMPLETION

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