Crowborough Contemplation Building

20 January 2021 (rev 2)

Table of Contents

D20 Excavating and filling

To be read with Preliminaries/General conditions

GENERALLY/THE SITE

150 EXISTING SERVICES, FEATURES AND STRUCTURES

- Services: See section A12 for locations.
- Site features to be retained: See section A12 for details.
- Structures: See section A34 for details of protection.

CLEARANCE/EXCAVATING

168 SITE CLEARANCE

- Timing: Before topsoil stripping, if any.
- General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.
- Treatment: Apply a suitable non-residual herbicide to areas to receive planting.

170 REMOVING SMALL TREES, SHRUBS, HEDGES AND ROOTS

- Identification: Clearly mark trees to be removed.
- Small trees, shrubs and hedges:
  - Cut down.
  - Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
- Safety: Comply with Forest Industry Safety Accord safety leaflets.

180 CHIPPING AND SHREDDING

- Generally: Permitted, remove arisings from site.

220 STRIPPING TOPSOIL

- General: Before beginning general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings/ roads and other areas shown on drawings.
- Depth:
  - Remove to an average depth of 250 mm.
  - Give notice where the depth of topsoil is difficult to determine.
- Handling: Handle topsoil for reuse or sale in accordance with clause 225.
- Around trees: Do not remove topsoil from below the spread of trees to be retained.
- Site storage: Keep separate from excavated sub-soil.

221 TREATING TOPSOIL

- Treatment: Apply a suitable translocated nonresidual herbicide.
- Timing: Not less than two weeks before excavating topsoil.

225 HANDLING TOPSOIL

- Standard: To BS 3882.
- Aggressive weeds:
  - Species: Notify the presence of species included in the Weeds Act, section 2, or the appropriate Wildlife and Countryside Act for the relevant jurisdiction.
  - Give notice: Obtain instructions before moving topsoil.
- Contamination: Do not mix topsoil with:
  - Subsoil, stone, hardcore, rubbish or material from demolition work.
  - Other soil or material containing aggressive weeds, sharps, plastics and non soil forming materials and notifiable animal or plant diseases.
  - Oil, fuel, cement or other substances harmful to plant growth.
  - Other classifications of topsoil.
- Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.

270 FOUNDATIONS GENERALLY

- Give notice if:
  - A natural bearing formation of undisturbed subsoil is not obtained at the depth shown on the drawings.
  - The formation contains soft or hard spots or highly variable material.

280 TRENCH FILL FOUNDATIONS

- Excavation: Form trench down to formation in one operation.
- Safety: Prepare formation from ground level.
- Inspection of formations: Give notice before commencing excavation.
  - Period of notice: Three working days.
- Shoring: Where inspection of formation is required, provide localised shoring to suit ground conditions.
- Concrete fill: Place concrete immediately after inspection and no more than four hours after exposing the formation.

290 FOUNDATIONS IN MADE UP GROUND

- Depth: Excavate down to a natural formation of undisturbed subsoil.
- Discrepancy: Give notice if this is greater or lesser than depth given.

310 UNSTABLE GROUND

- Generally: Ensure that the excavation remains stable at all times.
- Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.
- Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.

330 UNRECORDED FEATURES

- Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.

DISPOSAL OF MATERIALS

410 EXCAVATED TOPSOIL STORAGE

- Storage: Stockpile in temporary storage heaps for dispersal on site.

450 WATER

- Generally: Keep all excavations free from water until:
  - Formations are covered.
  - Below ground constructions are completed.
  - Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
- Drainage: Form surfaces of excavations and fill to provide adequate falls.
- Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

454 GROUND WATER LEVEL, SPRINGS OR RUNNING WATER

- Give notice: If it is considered that the excavations are below the water table.
- Springs/ Running water: Give notice immediately if encountered.

FILLING

510 HAZARDOUS, AGGRESSIVE OR UNSTABLE MATERIALS

- General: Do not use fill materials which would, either in themselves or in combination with other materials or ground water, give rise to a health hazard, damage to building structures or instability in the filling, including material that is:
  - Frozen or containing ice.
  - Organic.
  - Contaminated or noxious.
  - Susceptible to spontaneous combustion.
  - Likely to erode or decay and cause voids.
  - With excessive moisture content, slurry, mud or from marshes or bogs.
  - Clay of liquid limit exceeding 80 and/or plasticity index exceeding 55.
  - Unacceptable, class U2 as defined in the ‘Specification for highway works’, clause 601.

520 FROST SUSCEPTIBILITY

- General: Except as allowed below, fill must be non frost-susceptible as defined in the ‘Specification for highway works’, clause 801.8.
- Test reports: If the following fill materials are proposed, submit a laboratory report confirming they are non frost-susceptible:

  - Fine grained soil with a plasticity index less than 20%.
  - Coarse grained soil or crushed granite with more than 10% retained on a 0.063 mm sieve.
  - Crushed chalk.
  - Crushed limestone fill with average saturation moisture content in excess of 3%.
  - Burnt colliery shale.
- Frost-susceptible fill: May only be used:
  - At depths below the finished ground surface greater than 450 mm.
  - Within the external walls of buildings below spaces that will be heated. Protect from frost during construction.
  - Where frost heave will not affect structural elements.

530 PLACING FILL

- Surfaces of excavations and areas to be filled: Free from loose soil, topsoil, organic material, rubbish and standing water.
- Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.
- Adjacent structures, membranes and buried services:
  - Do not overload, destabilise or damage.
  - Submit proposals for temporary support necessary to ensure stability during filling.
  - Allow 14 days (minimum) before backfilling against in situ concrete structures.
- Layers: Place so that only one type of material occurs in each layer.
- Earthmoving equipment: Vary route to avoid rutting.

610 COMPACTED FILLING FOR LANDSCAPE AREAS

- Fill: Material capable of compaction by light earthmoving plant.
- Filling: Layers not more than 200 mm thick. Lightly compact each layer to produce a stable soil structure.

700 BACKFILLING AROUND FOUNDATIONS

- Under oversite concrete and pavings: Hardcore.
- Under grassed or soil areas: Material excavated from the trench, laid and compacted in 300 mm maximum layers.

710 HARDCORE FILLING

- Fill: Granular material, free from excessive dust, well graded, all pieces less than 75 mm in any direction:
- Permitted materials in any one layer.
  - Test requirements:

    Minimum 10% fines value tested in a soaked condition to BS 812-111 Not required.
    Impact value SZ tested to BS EN 1097-2 Not required.
  - Permitted materials in any one layer:

  - Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
  - Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
  - Crushed non-expansive slag.
  - Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
  - Well-burned non-plastic colliery shale.
  - Natural gravel.
  - Natural sand.
- Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer.

730 BLINDING

- Surfaces to receive sheet overlays or concrete:
  Blind with:
  - Concrete where shown on drawings; or
  - Sand, fine gravel, or other approved fine material applied to fill interstices. Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
- Sand for blinding: To BS EN 12620, grade 0/4 or 0/2 (MP).
- Permissible deviations on surface level: +/-10mm.

D41 Crib walls, gabions and other gravity retaining walls

To be read with Preliminaries/ General conditions.

105A DESIGN AND CONSTRUCTION OF EARTH RETAINING STRUCTURE

- Requirement: Obtain from the structure manufacturer:(WoodBlox)
  - A design and details for the retention structure.
  - A stability check for the earth mass containing the structure.
- Type of structure: Timber retaining wall.
- Structural requirements:
  - Generally: As section B50 or B51.
  - Modifications: None.
  - Design: Complete in accordance with the designated code of practice to satisfy specified performance criteria.
- Other requirements: None.
- Fill/ Backfill:
  - Material: Contractor's choice to suit requirements of retaining structure manufacturer.
  - Compaction: As retaining structure manufacturer's instructions.
- Monitoring of ground conditions during construction: As section B50 or B51.

550 ERECTING TIMBER RETAINING WALLS

- Setting out: To line and level, edges abutting and vertical to front face.
- Installation: as manufacturers recommendations.
  - Embedment below ground level: as manufacturers recommendations.
  - Securement: Not required.
  - Trimming: Not required.
- Tie-backs: as manufacturers recommendations.
- Backfill: Compact in layers maximum 150 mm deep.

E05 In situ concrete construction generally

To be read with Preliminaries/General conditions.

210 CONTRACTOR'S STRUCTURAL DESIGN

- Design responsibility: Foundations and floor slab to Contemplation Building.
- Requirement:
  - Generally: As section B50.
    Modifications: None.
  - Structure: Complete the design and prepare reinforcement drawings and schedules in accordance with the designated code of practice and to satisfy the specified performance criteria.
  - Additional requirements: None.
- Member sizes and locations: Submit proposals.
- Design and production information: As preliminaries.
- Timing of submissions: As Preliminaries section A31..

290 ACCURACY OF CONSTRUCTION

- Setting out: To BS 5964-1.
- Geometrical tolerances: To BS EN 13670, Tolerance Class 1.
  - Conflicts: Notwithstanding tolerances specified elsewhere, do not exceed requirements for compliance with the designated code of practice.
  - Substitution of alternative requirements: None.

300 LEVELS OF STRUCTURAL CONCRETE FLOORS

- Tolerances (maximum):
- Level of floor: ±10 mm as measured from nearest temporary bench mark..
- Steps in floor level: Not applicable.

410 IN SITU CONCRETE CONSTRUCTION - SUPERVISION/ CHECKING

- Standard: To BS EN 13670, Execution Class 1.

F10 Brick/ block walling

To be read with Preliminaries/ General conditions.

TYPES OF WALLING

110 CLAY FACING BRICKWORK BELOW DPC

- Bricks: To BS EN 771-1.
  - Manufacturer: Contractor's choice.
    Product reference: Gault Cambridge Buff handmade.
  - Recycled content: Contractor's choice.
  - Special shapes: None.
- Mortar: As section Z21.
  - Standard: To BS EN 998-2.
  - Mix: 1:1:6 cement:lime:sand.
  - Additional requirements: Coloured mortar to match bricks.
- Bond: Half lap stretcher.
- Joints: Bucket handle.
- Features: None.

355 CONCRETE COMMON BLOCKWORK BELOW GROUND

- Blocks: To BS EN 771-3.
  - Manufacturer: Contractor's choice.
    Product reference: Contractor's choice.
  - Configuration: Group 1.
  - Compressive strength:
    Mean value: 3.6 N/mm².
    Characteristic value: 3.6 N/mm².
    Category: I.
  - Freeze/ thaw resistance: Frost resistant.
  - Thermal properties: Thermal resistance: 0.15 m²K/W.
  - Recycled content: Not applicable
  - Work sizes (length x width x height): 440x215x150.
    Tolerance category: D1.
  - Special shapes: None.
  - Additional requirements: None.
- Mortar: As section Z21.
  - Standard: Not applicable.
  - Mix: 1:1:6 cement:lime:sand.
  - Additional requirements: None.
- Bond: Half lap stretcher.

355C CONCRETE COMMON BLOCKWORK BELOW GROUND

- Blocks: To BS EN 771-3.
  - Manufacturer: Contractor's choice.
    Product reference: Contractor's choice.
  - Configuration: Group 1.
  - Compressive strength:
    Mean value: 3.6 N/mm².
    Characteristic value: 3.6 N/mm².
    Category: I.
  - Freeze/ thaw resistance: Frost resistant.
  - Thermal properties: Thermal resistance: 0.15 m²K/W.
  - Recycled content: Not applicable
  - Work sizes (length x width x height): 440x100x215.
    Tolerance category: D1.
  - Special shapes: None.
  - Additional requirements: None.
- Mortar: As section Z21.
  - Standard: Not applicable.
  - Mix: 1:1:6 cement:lime:sand.
  - Additional requirements: None.
- Bond: Half lap stretcher.

WORKMANSHIP GENERALLY

430 CONDITIONING OF CLAY 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.

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.
- Clay block joints:
  - Thin layer mortar: Lay blocks on a full bed.
  - Interlocking perpends: Butted.
- Bond where not specified: Half lap stretcher.

- Vertical joints in brick and concrete block facework: Even widths. Plumb at every fifth cross joint.

560 COURSING BRICKWORK

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

580 LAYING FROGGED BRICKS

- Single frogged bricks: Frog uppermost.
- Double frogged bricks: Larger frog uppermost.
- Frog cavity: Fill with mortar.

635 JOINTING

- Profile: Consistent in appearance.

665 POINTING TO ALL WALLING

- Joint preparation: Remove debris. Dampen surface.
- Mortar: As section Z21.
  - Standard: To BS EN 998-2.
  - Mix: 1:1:6 cement:lime:sand.
  - Additional requirements: Coloured mortar to match bricks.
- Profile: Bucket handle.

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 mortarswhen at or below 5°C and falling or below 3°C and rising, or as manufacturer's/ supplier's recommendations.
  - In thin layer mortar when outside the limits set by the mortar manufacturer.
- Temperature of walling during curing: Above freezing until hardened.
- Newly erected walling: Protect at all times from:
  - Rain and snow.
  - Drying out too rapidly in hot conditions and in drying winds.

ADDITIONAL REQUIREMENTS FOR FACEWORK

710 THE TERM FACEWORK

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

750 COLOUR CONSISTENCY OF MASONRY UNITS

- Colour range: Submit proposals of methods taken to ensure that units are of consistent and even appearance within deliveries.

- Conformity: Check each delivery for consistency of appearance with previous deliveries and with approved reference panels; do not use if variation is excessive.
- Finished work: Free from patches, horizontal stripes and racking back marks.

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 features 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.

790 PUTLOG SCAFFOLDING

- Use: Not permitted in facework.

830 CLEANLINESS

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

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

To be read with Preliminaries/ General conditions

CAVITIES

110 CONCRETE FILL TO BASE OF CAVITY

- Concrete generally: To BS EN 206 and BS 8500-2.
- Concrete type: Designated GEN1.
  - 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.

150 FULL FILL CAVITY INSULATION

- Insulation: Expanded polystyrene (EPS) bead boards to BS EN 13163.
  - Product certification: Not applicable.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Recycled content: Not applicable.
- Face size (nominal length x width): To suit wall tie spacing.
- Thickness (nominal): 50 mm.
- Thermal conductivity: 0.038 W/(m·K).
- Reaction to fire class: A1.
- Additional requirements: None.
- Placement: Continuous and free of mortar and debris.

180 CAVITY CLOSERS TO PLINTH

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Accessories: None.

REINFORCING/ FIXING ACCESSORIES

214 CAVITY WALL TIES GENERALLY

- Standard: To BS EN 845-1.
  - Type: 2 (Masonry general purpose).
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.

- Material/ finish: Austenitic stainless steel - material/ coating reference 1.
- Sizes: 200 mm.
- End types: Asymmetrical deformed plate and flat plate for mortar bedding..
- Embedment length (minimum): 50 mm.
- Movement: Tolerant.
- Additional requirements: None.

228 FIXING TIES IN MASONRY CAVITY WALLS WITH FULL FILL CAVITY INSULATION

- 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: 900.
  - Vertical centres: 450.
- Provision of additional ties:
  - One row to support lowest row of insulation batts.
  - Within 225 mm of reveals of unbonded openings and at the vertical reveals of unsupported masonry.
  - Spacing: In every course.

282 SLIP TIES FOR MOVEMENT JOINTS IN EXTERNAL LEAF

- Standard: To BS EN 845-1.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Material/ finish: Aluminium bronze - material/ coating reference 5.
- Sizes: TBC .
- Shear load capacity: TBC.
- End types: Symmetrical flat plate with slip case.
- Embedment length (minimum): 50 mm.
- Fixing centres: Alternate courses.
- Additional requirements: None.

FLEXIBLE DAMP PROOF COURSES/ CAVITY TRAYS

320 DAMP PROOF COURSES - PLASTICS

- Standard: To BS EN 14909.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Material: Ethylene propylene diene monomer (EPDM).
- Additional requirements: NONE.

INSTALLATION OF DPCS/ CAVITY TRAYS

415 INSTALLATION OF 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.

465 SEALING OF DPCS GENERALLY

- Overlaps and junctions: Seal with Adhesive recommended by dpc manufacturer.

515 DPC/ CAVITY TRAY LEADING EDGE IN FACEWORK - FLUSH

- Treatment at face of masonry: Finish flush and clear of mortar at the following locations: Generally.

560 INSTALLATION OF VERTICAL DPCS GENERALLY

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

570 INSTALLATION OF 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.

580 INSTALLATION OF JAMB DPCS TO BUILT IN TIMBER FRAMES

- Fixing: Securely fastened to back of frame.
  - Fasteners: Galvanized clout nails or staples.

JOINTS

610 MOVEMENT JOINTS WITH SEALANT TO EXTERNAL FACING BRICKWORK

- Joint preparation and sealant application: As section Z22.
- Filler: Closed cell polyethylene foam.
  - Thickness: To match design width of joint.
  - Manufacturer: Contractor's choice.
    Product reference: Contractor's choice.
  - Placement: Build in as work proceeds with no projections into cavities and to correct depth to receive sealant system.
- Sealant:

- Designation: ISO 11600-F-20LM.
- Manufacturer: Contractor's choice.
  Product reference: Contractor's choice.
- Colour: Buff.

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.
- Certification scheme: Programme for the Endorsement of Forest Certification (PEFC) or Sustainable Forestry Initiative (SFI), with Chain of Custody.
  - Other evidence: None.

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 'DG'.
- Timber wet graded and specified for installation at higher moisture contents: Graded at an average moisture content above 20% and unmarked.
- Structural timber members cut from large graded sections: Regraded to approval and marked accordingly.

PRODUCTS

210 STRUCTURAL SOFTWOOD (GRADED DIRECT TO STRENGTH CLASS) FOR RAFTERS

- Grading standard: To, BS EN 14081-1 and BS 4978, or other suitable national equivalent and so marked.
- Strength class to BS EN 338: C27.
- Treatment:
  - Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8.
    Design service life: 30 years.
  - Flame retardant treatment: None required.

260 STRUCTURAL HARDWOOD (STRENGTH CLASS NOT SPECIFIED) FOR STRUCTURAL USE GENERALLY

- Species: European oak.
- Grading standard: To the appropriate BS EN 14081-1-compliant standard.
  - Grade: Temperate hardwoods:.
- 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.
  - Flame retardant treatment: None required.

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: Sawn.
- Treatment:
  - Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8.
    Design service life: 20 years.
  - Flame retardant treatment: Flame retardant impregnation to NBS section Z12 and Wood Protection Association Commodity Specification FR1, Type INT1.

311 NON-STRUCTURAL PLYWOOD FOR EAVES FASCIA AND SOFFIT

- Standard: To an approved national standard.
- Thickness: 12.5mm.
- Appearance class to BS EN 635: I.
- Use class to BS EN 335: Sub class 3.1.
- Bond quality to BS EN 314-2: Class 3.
- Finish: Sanded.
- Edges: Square.
- Treatment:
  - Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C11.
    Design service life: 30 years.
  - Flame retardant treatment: None required.

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.

420 WARPING OF TIMBER

- Bow, spring, twist and cup: Not greater than the limits set down in BS EN 14081-1 and BS 4978 for softwood, or BS EN 14081-1 and 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:
  - General: Avoid if possible.
  - Sizes: Minimum needed to accommodate services.
  - Position: Do not locate near knots or other defects.
  - In same joist: Minimum 100 mm apart horizontally.
  - Notches in joists:
    Position: Locate at top. Form by sawing down to a drilled hole.
    Depth (maximum): 0.15 x joist depth.
    Distance from supports: Between 0.1 and 0.2 x span.
  - Holes in joists:
    Position: 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.
- Scarf joints, finger joints and splice plates: Do not use without approval.

440 PROCESSING TREATED TIMBER

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

450 MOISTURE CONTENT

- Moisture content of wood and wood based products at time of installation: Not more than:

  - Covered in generally unheated spaces: 24%.
  - Covered in generally heated spaces: 20%.
  - Internal in continuously heated spaces: 20%.

510 PROTECTION

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

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.

580 FRAMING ANCHORS

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Material/ finish: Stainless steel.
- Fasteners: Galvanized or sherardized square twist nails.
  - Size: Not less than size recommended by anchor manufacturer.
- Fixing: Secure using not less than the number of nails recommended by anchor manufacturer.

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.

760 TEMPORARY BRACING

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

770 ADDITIONAL SUPPORTS

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

780 WALL PLATES

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

784 JOISTS GENERALLY

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

795 TRIMMING OPENINGS

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

820 VERTICAL RESTRAINT STRAPS

- Type: Twisted.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Material/ finish: Stainless steel.
- Size:
  - Cross-section: Not less than 30 x 5 mm.
  - Length: Overall length 1500 mm: end of strap 900 mm below underside of wall plate; twisted immediately beneath joist/ trussed rafter; bent over top of joist/ trussed rafter and extending 100 mm down far side.
- Centres: Not more than 1.2 mm.
- Fixing:
  - To timber members with not less than 30 x 3.5 mm galvanized square twist nails.
  - To masonry with not less than five 50 mm x 12 gauge sherardized screws evenly spaced, with at least one screw located within 150 mm of the bottom end of each strap.

830 LATERAL RESTRAINT STRAPS

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Material/ finish: Stainless steel.
- Size: Not less than 30 x 5 mm cross-section, 150 mm cranked end and 1200 mm long.

- Fixing: To top of joists/ rafters/ ties at not more than 1.2 m centres and as shown on drawings.
  - Ensure that cranked end is in tight contact with cavity face of wall inner leaf and is not pointing upwards.
- Straps spanning joists/ rafters/ ties running parallel to wall: Fix noggings and packs tightly beneath straps.
  - Size of noggings and packs: Not less than three quarters of joist/ rafter/ tie depth and not less than 38 mm thick.
  - Notching: Notch joists so that straps fit flush with surface. Do not notch rafters/ ties.
- Fasteners: Not less than four 50 mm x 8 gauge sherardized countersunk screws per strap, evenly spread..

H21 Timber weatherboarding

To be read with Preliminaries/ General conditions.

111 HORIZONTAL TIMBER WEATHERBOARDING ABOVE DPC

- Substrate: Plywood sheathing on sw framing.
- Breather membrane: As clause 130.
- Battens:
  - Size: 25x37mm.
  - Centres: 400 mm.
  - Fixing: 50 mm x 10 gauge stainless steel c/s screws at 450 mm centres..
- Boarding:
  - Standard: To BS EN 14915.
  - Quality of timber (exposed surfaces): To BS 1186-3, Class 2.
  - Species: European Oak.
  - Profile: Rebated feather edge.
  - Finished face dimension (overall width): 150mm.
  - Finished thickness: 19 mm.
  - Moisture content at time of fixing: 13-19 %.
  - Treatment: Preservative impregnation.
    Standard: To NBS section Z12 and Wood Protection Association Commodity Specification FR5.
    Type: EXT.
  - Service life: 30 years.
  - Method of fixing to each support: Twice nailed with 50 mm stainless steel lost head annular ring shank nails.
- Other requirements: Undercut bottom edge of lowest boards to form drip.

130 BREATHER MEMBRANE

- Standard: To BS EN 13859-2.
- Material: Reinforced polyethylene.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Installation: Fix carefully and neatly to provide a complete barrier to water, snow and wind blown dust. Extend membrane below lowest timber member and into reveals of openings.
  - Laps: Horizontal: 100 mm. Vertical: 150 mm and staggered, to shed water away from substrate.
  - Fasteners: Galvanized, sherardized or stainless steel large head nails or stainless steel staples.

135 BATTENS/ COUNTERBATTENS

- Timber: Regularized softwood free from decay, insect attack (except ambrosia beetle damage) and with no knots wider than half the section width.
- Preservative treatment: Organic solvent..
  - Standard: To NBS section Z12 and Wood Protection Association Commodity Specification C6.
  - Type: Organic solvent.
- Moisture content: Not exceeding 20% at time of fixing.

140 FIXING BATTENS/ COUNTERBATTENS TO MASONRY

- Setting out: In straight, vertical lines.
- Batten/ Counterbatten length (minimum): 1200 mm.
- Installation: Fastener heads to finish flush with or slightly below batten face.

141 FIXING BATTENS/ COUNTERBATTENS TO FRAMING/ SHEATHING

- Setting out: In straight, vertical lines at centres coincident with vertical framing members.
- Batten/ Counterbatten length (minimum): 1200 mm.
- Installation: Where sheathing is provided, fix through sheathing into framing. Fastener heads to finish flush with or slightly below batten face.

145 TREATED TIMBER

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

150 SURFACE TREATMENT

- Finishing system: Before fixing boards, apply first coat of specified system to all surfaces. Apply liberally to end grain.

160 FIXING BOARDING

- General: Fix boards securely to give flat, true surfaces free from undulations, lipping, splits, hammer marks and protruding fasteners.
- Movement: Allow for movement of boards and fixings to prevent cupping, springing, excessive opening of joints or other defects.
- Heading joints: Position centrally over supports and at least two board widths apart on any one support.
- Nail heads: Punch below surfaces that will be seen in the completed work.

H60 Plain roof tiling

To be read with Preliminaries/General conditions.

TYPES OF TILING

110 CLAY ROOF TILING WITH COUNTERBATTENS To Contemplation Building

- Substrate: Rafters at 600 mm centres.
- Pitch: 45°.
- Underlay: Vapour permeable underlay to BS EN 13859, Class W1.
  - Recycled content: Contractor's choice.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): 100 mm.
- Counterbattens:
  - Size: 38 x 38 mm.
  - Fixing: 65 x 3.35 mm galvanized annular ring shank nails.
- Battens:
  - Size: 38 x 25 mm.
  - Fixing: 65 x 3.35 mm galvanized annular ring shank nails.
- Tiles: To BS EN 1304.
  - Manufacturer: Contractor's choice.
    Product reference: Contractor's choice.
  - Pattern: None.
  - Colour: Brown.
  - Size: 265 x 165 mm.
  - Head-lap (minimum): 65 mm.
  - Fixing:
    Fixing of local areas: Two nails per tile in every course.
    Fixing of general areas: Two nails per tile in every course.
- Accessories: None.

TILING GENERALLY

210 BASIC WORKMANSHIP

- General: Fix tiling 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 tiling accessories: As recommended by tile 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, use an external grade (UV resistant) underlay or a proprietary eaves support product.
- 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: In accordance with BS 5534, clause 4.11.1.
  - Permissible characteristics and defects: Not to exceed limits in BS 5534, Annex D.
  - Grading: Factory pre-graded with site checked for grading to take account of knots, wane, fissures and splits.
  - Moisture content at time of fixing and covering (maximum): 22%.
- Preservative treatment: As section Z12 and Wood Protection Association Commodity Specification C8.
  - Type: Contractor's choice.

259 COUNTERBATTENS ON RAFTERS

- Fixing: Into rafters at not more than 300 mm centres.

265 BATTEN FIXING

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

275 TILE FIXING

- Setting out: Lay tiles to a half lap bond with joints slightly open. Align tails.
- Ends of courses: Use tile and a half tiles to maintain bond and to ensure that cut tiles are as large as possible.
- Top and bottom courses: Use eaves/tops tiles to maintain gauge.
- Perimeter tiles:
  - Verges, abutments and each side of valleys and hips: Twice nail end tile in every course.
  - Eaves and top edges: Twice nail two courses of tiles or clip as appropriate.

- Fixings for tiles: Nails/clips recommended by tile manufacturer.

280 LOCAL AND GENERAL FIXING AREAS

- Definitions:
  - Local areas: Bands of tiling around all edges or obstructions of each plane of the roof. Calculate extent of each band in accordance with BS 5534, section 5 and Annex H.
  - General areas: Remaining areas of roof tiling.

290 MORTAR BEDDING/ POINTING

- Mortar: As section Z21, 1:3 cement:sand, with plasticizing admixtures permitted.
  - Bond strength providing resistance to uplift: In accordance with BS 5534.
- Weather: Do not use in wet or frosty conditions or when imminent.
- Preparation of tiles and accessories to be bedded: Wet and drain surface water before fixing.
- Appearance: Finish neatly as work proceeds and remove residue.

ROOF TILING EDGES/ JUNCTIONS/ FEATURES

305 GENERALLY

- Fittings and accessories: As recommended by tile manufacturer, do not improvise.
  - Exposed fittings and accessories: To match tile colour and finish.
- Cut tiles: Cut only where necessary, to give straight, clean edges.
- Flashings: Fix with or immediately after tiling. Form neatly.

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 tiles: Fix with tails projecting 50 mm over gutter or to centre of gutter, whichever dimension is the lesser.

625 CURVED PLAIN TILE VALLEYS

- Underlay: Lay strips not less than 600 mm wide centred on valleys. Overlap with general roof underlay.
- Curved valley tiles:
  - Product reference: Contractor's choice.
- Roof tiles: Cut adjacent tiles to fit neatly.

740 MORTAR BEDDED AND MECHANICALLY FIXED RIDGES

- Underlay: Lay courses over ridge.
  - Overlap (minimum): 100 mm.
- Ridge tile fixing battens: as manufacturers recommendations.
- Ridge tiles:
  - Manufacturer: Contractor's choice.

Product reference: Contractor's choice.

- Bedding: On mortar continuous to edges and solid to joints.
- Fixing: Secure all ridge tiles to ridge boards or supplementary ridge battens with self-sealing non-ferrous fixings.
- Gable end ridge tiles: Fill ends with mortar and slips of tiles finished flush.

- Ridge terminals:
  - Manufacturer: N/A.

    Product reference: N/A.

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 PLASTICS OR RUBBER SHEET DAMP PROOFING

- Substrate: Soft blinded hardcore.
- Standard: To BS EN 13967.
  - Designation: Type A.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice, Agrément certified.
- Thickness/ Gauge: 1200.
- Recycled content: Not permitted.
- Joints:
  - Surface to be joined: Clean and dry beyond full width of joint.
  - Laps (minimum): End and side, 150 mm..
  - Sealing: Continuous mastic strip between overlaps; edge of top sheet sealed with jointing tape..

120A LOOSE LAID PLASTICS OR RUBBER SHEET SEPERATION LAYER

- Substrate: INSULATION BOARD.
- Standard: To BS EN 13967.
  - Designation: Type A.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice, Agrément certified.
- Thickness/ Gauge: 500.
- Recycled content: Not permitted.
- Joints:
  - Surface to be joined: Clean and dry beyond full width of joint.
  - Laps (minimum): End and side, 150 mm..
  - Sealing: Continuous mastic strip between overlaps; edge of top sheet sealed with jointing tape..

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.

345 COLD APPLIED BONDING COMPOUNDS

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

350 ANGLES IN BONDED DAMP PROOFING/ TANKING

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

365 JUNCTIONS WITH FLUSH DPCS/ CAVITY TRAYS

- Adjoining surfaces: Clean and dry.
- Preparation of adjacent 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: Mastic tape.

370 PREFORMED COLLARS FOR PIPES, DUCTS, CABLES, ETC.

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Sealing: Fully bond to penetrations and sheeting using double-sided jointing tape.
- Completed junctions: Impervious.

L20 Doors/ shutters/ hatches

To be read with Preliminaries/ General conditions.

GENERAL

112 TIMBER PROCUREMENT

- Timber (including timber for wood-based products): Obtained from well-managed forests and/ or plantations in accordance with:
  - The laws governing forest management in the producer country or countries.
  - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
- Documentation: Provide either:
  - Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
  - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.
- Certification scheme: Programme for the Endorsement of Forest Certification (PEFC) or Sustainable Forestry Initiative (SFI), with Chain of Custody.
  - Other evidence: None.

120 NON-FIRE RESISTING PEDESTRIAN DOORS/ DOOR ASSEMBLIES/ DOORSETS

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

PRODUCTS

250 WOOD PANELLED DOORS EXTERNAL

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Wood species: Oak.
- Preservative treatment: Required.
- Finish as delivered: Full factory finish.
- Glazing/ Infill details: Not applicable.
  - Manifestation: Not applicable.
  - Beading: Not required.
- Thermal performance (U-value maximum): 2.2 W/m²K.

- Other requirements: None.

330 WOOD DOOR FRAMES AND ARCHITRAVES and EXTERNAL

- Materials: Generally to BS EN 942.
  - Species: European oak.
  - Appearance class: J10.
- 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: 13-19%.
- Finish as delivered: Full stain system, as section M60.
- Perimeter seals: EPDM weatherseal.
- Thermal performance: 2.2 W/m²K.
- Fixing: Plugged and screwed as section Z20.

530 SLIDING FOLDING EXTERNAL DOORS TO MAIN FRONTAGE

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Performance: Thermal: 2.2 w/ M² k.
- Arrangement: biparting opening.
  - Track system: Top hung track system.
- Door leaf: glazed leaves as drawing CDS-CRB-SML-100-rev 01.
  - Finish as delivered: factory finished.
  - Glazing/ Infill details: As drawing CDS-CRB-SML-100-rev 01 .
    Manifestation: Required.
- Operation: Manual.
- Ironmongery: Brushed graphite internal and external handles.
- Other requirements: None.

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.

770 DAMP PROOF COURSES ASSOCIATED WITH BUILT IN WOOD FRAMES

- Method of fixing: To backs of frames using galvanized clout nails.

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.

820 SEALANT JOINTS

- Sealant:
  - Manufacturer: Contractor's choice .
    Product reference: Contractor's choice .
  - Colour: Brown .
  - 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.

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 with centre line 250 mm below centre line of top hinge .
- Hinges for fire resisting doors: Positioned in accordance with door leaf manufacturer's recommendations.

L30 Stairs/ ladders/ walkways/ handrails/ balustrades

To be read with Preliminaries/ General conditions.

PRELIMINARY INFORMATION/ REQUIREMENTS

107 COMPLETION OF DESIGN FOR External Ramp and Stairs

- Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
  - Standard: External walkways to BS 8300-1.
- Structural requirements: As section B50.
- Additional requirements: None.
- Design and production information: As Preliminaries section A31.
- Timing of submissions: As Preliminaries section A31.

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.
- Certification scheme: Sustainable Forestry Initiative (SFI), with Chain of Custody.
  - Other evidence: None.

COMPONENTS

270 STAIRS TO EXTERNAL ENTRANCE

- Component material, grade, finish as delivered:
  - Treads: Limestone treads.
    Slip resistance value of integral tread – water wet (minimum): PTV of 40 to BS 7976.
    Slip resistance value of integral nosing – water wet (minimum): PTV of 40 to BS 7976.
    Colour of integral nosing: LRV to BS 8493 contrast of 30 (minimum) with tread. Submit proposals.
  - Risers: Bricks to matrch plinth.
  - Strings: N/A.
  - Newels: Seasoned oak.

  - Guarding: Seasoned Oak.
  - Handrails: Seasoned Oak.
    Lower handrail: Not required.
- Workmanship:
  - Joinery: To section Z10.
  - Metalwork: N/A.
- Other requirements: None.

470 RAMPS TO EXTERNAL FRONTAGE

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Component material, grade and finish as delivered:
  - Flooring: Limestone Flags.
    Slip resistance value of finish - water wet (minimum): PTV of 40 to BS 7976.
  - Guarding: Seasoned Oak.
  - Edge protection: 100 mm as BS 8300-2.
  - Handrails: Seasoned Oak.
    Lower handrail: Not required.
- Workmanship: To section Z10.
  - Joinery: To section Z10.
- Gradients:
  - Going: 1:12.
  - Cross fall: Not applicable.
- Other requirements: None.

550 PURPOSE-MADE BALUSTRADES To External ramp and stairs

- Component material, grade and finish as delivered:
  - Guarding: Hardwood.
  - Handrails: Hardwood.
    Lower handrail: Not required.
- Workmanship:
  - Joinery: To section Z10.
  - Metalwork: Not applicable .
- Other requirements: None.
- Fixing: Anchor fixed to concrete.
  - Centres: 150mm .

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 features (finishes, inserts, nosings and the like): Substrates to be even, dry, sound and free from contaminants. Make good substrate surfaces and prepare/ prime as applied feature manufacturer's recommendations before application.

COMPLETION

910 INSPECTION

- Timing: Two weeks prior to date when Contractor expects work to be practically complete.
- Period of notice (minimum): 5 working days.

L40 General glazing

To be read with Preliminaries/ General conditions.

GENERAL REQUIREMENTS

150 WORKMANSHIP AND POSITIONING GENERALLY

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

152 PREPARATION

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

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.

TYPES OF GLAZING

370A DIRECT PANE FIXED DOUBLE GLAZED UNITS TO BUILDING FRONTAGE

- Surround/ bead: Hardwood.

  - Preparation: Priming/ sealing not required.
    Glazing system: Double glazed 10mm annealed glass.
- Thermal performance (U-value maximum): 1.6 W/m²K.

630 MANIFESTATION TO ENTRANCE DOOR GLAZING AND DIRECT GLAZING

- Design: tbc.
  - Art work: tbc.
  - Media: tbc.
- Technique: tbc.

M60 Painting/ clear finishing

To be read with Preliminaries/ General conditions.

COATING SYSTEMS

110 EMULSION PAINT TO INTERNAL PLASTERED SURFACES

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Surfaces: Plastered walls and ceiling.
  - Preparation: Tape and fill joints.
- Initial coats: As recommended by manufacturer.
  - Number of coats 2.
- Undercoats: As recommended by manufacturer.
  - Number of coats: 1.
- Finishing coats: Matt vinyl .
  - Number of coats: 1.

GENERAL

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.

280A PROTECTION

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

- Cover Oak surfaces while painting to ensure they remain paint free.

PREPARATION

400 PREPARATION GENERALLY

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

- Substrates: Sufficiently dry in depth to suit coating.
- Efflorescence salts: Remove.
- Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
- Surface irregularities: Remove.
- Joints, cracks, holes and other depressions: Fill flush with surface, provide smooth finish.
- Dust, particles and residues from preparation: Remove and dispose of safely.
- Water based stoppers and fillers:
  - Apply before priming unless recommended otherwise by manufacturer.
  - If applied after priming: Patch prime.
- 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 and other surface mounted fixtures .
- Replacement: Refurbishment as necessary, refit when coating is dry.

425 IRONMONGERY

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

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.

760 VARNISHING WOOD

- First coat: Thin with plant oil based thinner.
  - Brush well in and lay off avoiding aeration.
- Subsequent coats: Provide light key along the grain between coats.

770 EXTERNAL DOORS

- Bottom edges: Prime and coat before hanging doors.

P20 Unframed isolated trims/ skirtings/ sundry items

To be read with Preliminaries/General conditions

120 HARDWOOD SKIRTINGS GENERALLY

- Quality of wood and fixing: To BS 1186-3.
  - Species: European oak.
  - Class: 1.
- Moisture content at time of fixing: 9-13%.
- Preservative treatment: Not required.
- Fire rating: Not applicable.
- Profile: Bullnosed.
  - Finished size: 19 x 120 mm.
- Finish as delivered: Sanded.
- Fixing: Plugged, screwed and pelleted at 450mm centres.

120A HARDWOOD FASCIAS

- Quality of wood and fixing: To BS 1186-3.
  - Species: European oak.
  - Class: 1.
- Moisture content at time of fixing: 9-13%.
- Preservative treatment: Not required.
- Fire rating: Not applicable.
- Finished size: 150 X 38 mm.
- Finish as delivered: Sanded.
- Fixing: Plugged, screwed and pelleted at 450mm centres.

510 INSTALLATION GENERALLY

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

P21 Door/ window ironmongery

To be read with Preliminaries/ General conditions.

GENERAL

120 IRONMONGERY RANGE SELECTED BY CONTRACTOR

- Source: Single coordinated range.
- Notification: Submit details of selected range, manufacturer and/ or supplier.
- Principal material/ finish: Polished brass.
- Items unavailable within selected range: Submit proposals.

180 STRENGTH CLASS OR CATEGORY OF DUTY FOR DOOR IRONMONGERY

- Requirement: To BS EN 1192, Class 1.
- 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

310 SINGLE AXIS DOOR HINGES TO TIMBER DOUBLE DOORS

- Standard: To BS EN 1935.
  - Hinges to doors on escape routes and fire/ smoke control doors: CE marked.
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Type: Double ball bearing butt .
- Size: 102 x 76 mm. .
- Material/ finish: Polished brass .
- Hinge grade: Not less than 11. .
- Other requirements: None .

350 DOOR TRACK AND RUNNING GEAR TO BI-FOLD TIMBER DOORS

- Standard: To BS EN 1527.
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Track type: Submit Proposals .
- Category of door: Bifold .
- Opening dimensions: 2100 mm high x 3730 mm wide .
- Accessories: None .
- Operation: Smooth and quiet.

- Safety: Doors not able to come off track when in use.

DOOR OPERATING DEVICES

481 DOOR COORDINATORS TO TIMBER DOUBLE DOORS

- Standard: To BS EN 1158.
  - Door coordinators to fire/ smoke control doors: CE marked.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
  - Material/ finish: Polished brass.
- Application: To all single swing double doors with rebated meeting stiles and fitted with self closers.

DOOR SECURING DEVICES

515 DOOR LOCKS TO ALL EXTERNAL DOORS

- Standard: To BS EN 12209.
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Type: 5 lever mortice lock .
- Backset: 44 mm .
- Material/ finish: Polished brass faceplate .
- Keying: In master keyed suite .

DOOR FURNITURE

610 LEVER HANDLES TO ALL DOORS

- Standard: To BS EN 1906.
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Style: Flat pattern .
- Size: 22 mm diameter .
- Material/ finish: Polished brass .
- Mounting: Sprung rose with hidden screw fixing .
- Additional requirements: None .

710 ESCUTCHEONS TO DOOR LOCKS

- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Material/ finish: Polished brass .
- Keyhole type: Euro profile cylinder .
- Usage: To cylinder locks where no handle backplate is specified to be fitted .

850 THRESHOLD WEATHERSTRIP TO DOOR THRESHOLDS

- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Type: Domed neoprene in low profile metal carrier .
- Size: To suit door .
- Material/ finish: Satin anodized aluminium .

855 WEATHERSTRIP TO DOOR HEAD AND JAMBS TO DOORS

- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Type: Elastomeric compression strip in metal carrier .
- Size: To suit door .
- Material/ finish: Satin anodized aluminium .

P31 Holes, chases, covers and supports for services

To be read with Preliminaries/General conditions.

PRODUCTS

EXECUTION

620 HOLES, RECESSES AND CHASES IN IN SITU CONCRETE

- Cast in: Holes larger than 10 mm diameter, recesses 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.

650 HOLES, RECESSES AND CHASES IN MASONRY

- Locations: To maintain integrity of strength, stability and sound resistance of construction.
- Sizes: Minimum needed to accommodate services.
  - Holes (maximum): 300 mm^2.
- 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 accommodate services.
- Position: Do not locate near knots or other defects.
- Notches and holes in the same joist: Minimum 100 mm apart horizontally.
- Notches in joists:
  - Position: Locate at top. Form by sawing down to a drilled hole.
  - Depth (maximum): 0.15 x joist depth.
  - Distance from supports: Between 0.1 and 0.2 x span.
- Holes in joists:
  - Position: 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.

710 SEALING ELECTRICAL CABLING FOR AIRTIGHTNESS

- Service: Electrical cabling and fittings.
- Location: Pipe sleeves through walls and floors.
- Sealing material: Silicone sealant.
- Method: Point neatly around pipes..
- Performance requirement: Moisture vapour and airtight and insect ingress.

Q23 Gravel/ Hoggin/ Woodchip/ Resin bound roads/ pavings/ overlays

To be read with Preliminaries/ General conditions.

TYPES OF SURFACING

225B RESIN SURFACE COURSE

- Manufacturer: Addagrip Terraco Ltd.
  - Web: www.addagrip.co.uk.
  - Email: sales@addagrip.co.uk.
  - Product reference: Terrabound Resin Bound Porous Decorative Surfacing
- Chippings: Golden Tan, 6mm.

270 HARD LANDSCAPING MATERIALS SPECIFICATION

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

LAYING

310 TIMBER EDGING

- Softwood board:
  - Size: 150 x 38 mm.
  - Fixing: Galvanized nails into softwood pegs.
- Softwood pegs:
  - Size: 50 x 50 x 600 mm long.
  - Fixing: Drive into ground.
  - Centres: 900 mm.
- Preservative treatment: As section Z12 and WPA Commodity Specification C4, with 15 year desired service life.

315 MATERIALS

- Compatibility: Chippings suitable for use with respective binders/ emulsions/ resin/ epoxy.

325 BLINDING TO SUB-BASE

- Type: Coarse sand.
- Laying: Compact. Seal interstices. Provide free drainage.
- Compacted thickness: 20 mm.

330 HERBICIDE TO PAVING Q23/ 225B

- Type: Suitable for the application, location and conditions of use.
- Weeds and moss: Grub up.
- Application: As section A34, before surfacing.

340 LAYING GENERALLY

- Channels, gullies, etc: Keep clear.
- Finished surfaces:
  - Lines and levels: To prevent ponding.
  - Overall texture: Even.
  - State at completion: Clean.

350 COLD WEATHER WORKING

- Frozen materials: Do not use.
- Freezing conditions: Do not lay pavings.
- Cold bituminous surface dressings: Do not apply when ambient temperature is below 10°C.
- Other dressings or overlays: As manufacturers' recommendations.

360 DRAINAGE FALLS

- Sealed surfaces:
  - Falls and cross falls (minimum): 1:40.
  - Camber (minimum): 1:50.
- Unsealed surfaces (minimum): 1:30.

380 LAYING GRANULAR SURFACES IN PEDESTRIAN AREAS AND CYCLE TRACKS

- Permissible deviation from required levels, falls and cambers (maximum): ±12 mm.
- General: Spread and level in 100 mm maximum layers. As soon as possible compact each layer.
- Dry weather: Lightly water layers during compaction.

390 PROTECTION FROM TRAFFIC AND PLANT

- Paved areas: Restrict access to prevent damage.

R10 Rainwater drainage systems

To be read with Preliminaries/ General conditions.

GENERAL

110 GRAVITY RAINWATER DRAINAGE SYSTEM

- Rainwater outlets: Proprietary.
- Gutters: Copper as section H73.
- Pipework: copper as section H73.
- Below ground drainage: As section R12.
- Disposal: To surface water drainage.
- Controls: Not applicable.
- Accessories: N/A.

SYSTEM PERFORMANCE

210 DESIGN

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

221 COLLECTION AND DISTRIBUTION OF RAINWATER

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

PRODUCTS

315A COPPER GUTTERS

- Standard: To BS 460.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Profile: Half-round.
- Jointing type: Spigot and socket.
- Nominal size: 100.
- Finish as supplied: N/A.
- Brackets: copper.
  - Fixings: Stainless steel screws.
    Size: 40 x 5 mm.
- Accessories:
  - Jointing clips;

  - Leaf guards; and
- Stop ends.

360 SEALANT FOR GUTTERS

- Type: Low modulus silicone sealant.

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 into softwood fascia board.
    Fixing centres: To every rafter.
  - 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.

630 INSTALLING RAINWATER OUTLETS

- Fixing: Secure. Fix before connecting pipework.
  - Method: Screw to timber spacing blocks.
- Junctions between outlets and pipework: Accommodate movement in structure and pipework.

635 FIXING PIPEWORK

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

640 FIXING VERTICAL PIPEWORK

- Bracket fixings: Screwed into timber frame.
- Distance between bracket fixing centres (maximum): 2100 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.

660 JOINTING EXTERNAL PIPEWORK

- Jointing: WELDED.

690 ELECTRICAL CONTINUITY - PIPEWORK

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

COMPLETION

910 GUTTER TEST

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

R12 Below ground drainage systems

To be read with Preliminaries/ General conditions.

GENERAL

110 BELOW GROUND DRAINAGE SYSTEM TO CONTEMPLATION BUILDING

- Surface water and rainwater drainage sources: Rainwater downpipes (nonsiphonic), as section R10.
- Foul drainage sources: N/A.
- Land drainage sources: None .
- Pressure relief drainage sources: None .
- Pipes, bends and junctions: PVC-U - solid wall .
  - Accessories: Submit proposals .
- Manholes, inspection chambers, traps, and separators: Inspection chambers - plastics .
  - Accessories: Submit proposals .
- Disposal: To existing Detention basin.
- Accessories - general: Access covers and frames .

PRODUCTS

312 ADAPTORS TO PLASTICS DRAINAGE RWP's

- Material and standard: Plastics to BS 4660 and Kitemark certified or to BS EN 1401-1 and Kitemark certified.
- Type: DN 100 rainwater pipe to DN 100 plastics.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.

329 PIPES, BENDS AND JUNCTIONS - SUPPLY

- Pipes and fittings: From same manufacturer for each pipeline.

346 PIPES, BENDS AND JUNCTIONS - PVC-U - SOLID WALL - SURFACE WATER DRAINAGE

- Standard: BS EN 1401-1 with flexible joints.
  - Class: Submit proposals.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Recycled content: Contractor's choice.
- Sizes: DN 110.
- Application area code: UD.

401 INSPECTION CHAMBERS - PLASTICS NEW SW

- Standard: To BS EN 13598-1, BS EN 13598-2 or Agrément certified.

- Diameter: 450 mm.
- Manufacturer: Contractor's choice.
- Bases:
  - Product reference: Contractor's choice.
- Shaft units:
  - Product reference: Contractor's choice.
- Access covers and frames:
  - Product reference: Contractor's choice.
  - Loading grades to BS EN 124: Not required.

EXECUTION

611 EXISTING DRAINS

- Setting out: Before starting work, check invert levels and positions of existing drains, sewers, inspection chambers and manholes against drawings. Report discrepancies.
- Protection: Protect existing drains to be retained and maintain normal operation if in use.

613 EXCAVATED MATERIAL

- Turf, topsoil, hardcore, etc: Set aside for use in reinstatement.

616 SELECTED FILL FOR BACKFILLING

- Selected fill: As-dug material, free from vegetable matter, rubbish, frozen soil and material retained on a 40 mm sieve.
  - Compaction: By hand in 100 mm layers.

623 LOWER PART OF TRENCH - GENERAL

- Trench up to 300 mm above crown of pipe: Vertical sides, width as small as practicable.
  - Width (minimum): External diameter of pipe plus 300 mm.

631 TYPE OF SUBSOIL

- General: Where type of subsoil at level of crown of pipe differs from that stated for the type of bedding, surround or support, give notice.

635 FORMATION FOR BEDDINGS

- Timing: Excavate to formation immediately before laying beddings or pipes.
- Mud, rock projections, boulders and hard spots: Remove. Replace with consolidated bedding material.
- Local soft spots: Harden by tamping in bedding material.
- Inspection of excavated formations: Give notice.

661 CLASS O SUPPORT TO BELOW GROUND SW PIPES

- Type of subsoil: TBC.
- Granular material: Submit proposals.

  - Sizes: To Water Industry Specification WIS 4-08-02 (as amended by WIS 4-08-02A, 2008).
- Bedding:
  - Material: Granular, compacted over full width of trench.
  - Thickness (minimum): 100 mm.
- Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
- Initial testing before placing support: Not required.
- Support:
  - Material: Granular.
  - Depth: To slightly above crown of pipe.
  - Compaction: By hand.
- Backfilling:
  - Material and depth: Protective cushion of selected fill to 300 mm above crown of pipe; or
  - Additional granular material, to 100 mm above crown of pipe.
  - Compaction: By hand in 100 mm layers.

680 CONCRETE SURROUND FOR PIPE RUNS NEAR FOUNDATIONS

- Class Z surround: Provide in locations where bottom of trench is lower than bottom of foundation and as follows (horizontal clear distance between nearest edges of foundations and pipe trenches):
  - Trenches less than 1 m from foundations: Top of concrete surround not lower than bottom of foundation.
  - Trenches more than 1 m from foundations: Top of concrete surround not lower than D mm below bottom of foundation, where D mm is horizontal distance of trench from foundation, less 150 mm.

683 LAYING PIPELINES

- Laying pipes: To true line and regular gradient on even bed for full length of barrel with sockets (if any) facing up the gradient.
- Ingress of debris: Seal exposed ends during construction.
- Timing: Minimize time between laying and testing.

685 JOINTING PIPELINES

- Connections: Durable, effective and free from leakage.
- Junctions, including to 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.
- Allowance for movement: Provide and maintain appropriate clearance at ends of spigots as fixing and jointing proceeds.
- Jointing material: Do not allow to project into bore of pipes and fittings.

697 INSTALLING FLEXIBLE COUPLINGS

- Ends of pipes to be joined: Cut cleanly and square.
- Outer surfaces of pipes to be joined: Clean and smooth. Where necessary, e.g. on concrete or iron pipes, smooth out mould lines and/ or apply a cement grout over the sealing area.
- Clamping bands: Tighten carefully to make gastight and watertight seals.

705 INITIAL TESTING OF PIPELINES

- Before testing:
  - Cement mortar jointing: Leave 24 h.
  - Solvent welded pipelines: Leave 1 h.
- Method: Block open ends of pipelines to be tested and pressurise. Air test short lengths to BS EN 1610.

715 BACKFILLING TO PIPELINES

- Backfilling above top of surround or protective cushion: Material excavated from trench, compacted in layers 300 mm (maximum) thick.
- Heavy compactors: Do not use before there is 600 mm (total) of material over pipes.

720 BACKFILLING UNDER ROADS AND PAVINGS

- Backfilling from top of surround or protective cushion up to formation level: Granular sub-base material, laid and compacted in 150 mm layers.

728 LAYING WARNING MARKER TAPES

- Installation: During backfilling, lay continuously over pipelines.
- Depth: 300-400 mm.
  - Pipelines deeper than 2 m: Lay an additional tape 600 mm above the top of the pipeline.

741 INSTALLING INSPECTION CHAMBERS - PLASTICS

- Bedding:
  - Material: Granular - manufactured, size 4/10 to BS EN 13242.
  - Thickness (minimum): 150 mm.
- Surround:
  - Material: Concrete.
  - Thickness (minimum): 150 mm.
- Backfilling: Granular material - manufactured, size 4/10 to BS EN 13242, to 100 mm above crown of pipes, then selected fill.
  - Compaction: By hand in 100 mm layers.
- Concrete collar:
  - Material: Not required.
  - Thickness (minimum): Not required.
  - Width (minimum): Not required.
- Seating: Not required.

759 LAYING PREFORMED PLASTICS CHANNELS, BRANCHES AND BENCHING

- Main channel: Bed solid in 1:3 cement:sand mortar.
  - Branches: Connect to main channel at or slightly above invert level, but not higher than half channel level, so that discharge flows smoothly in direction of main flow.
  - Connecting angles more than 45° to direction of flow: Use three-quarter section channel bends.
- Bedding: 1:3 cement:sand mortar. Use clips or ensure adequate mechanical key.
- Benching:
  - Material: Concrete.
  - Profile: Rise vertically from top of main channel to a level not lower than soffit of outlet pipe, then slope upwards at 10% to walls.
  - Topping:

    Material: 1:3 Cement:sand mortar.

    Application: Before benching concrete has set, and with dense smooth uniform finish.

771 INSTALLING OUTFALLS

- Pipe outflow invert (minimum): Seasonal peak level or 150 mm above normal water level, whichever is the higher.
- Pipe surround and backfill to the last 2 m run of drain: Excavated subsoil, rammed home.

773 INSTALLING ACCESS COVERS AND FRAMES

- Seating: Not required.
- Bedding and haunching of frames: Continuously.
  - Material: 1:3 cement:sand mortar.
  - Top of haunching: 30 mm below surrounding surfaces.
- Horizontal positioning of frames:
  - Centred over openings.
  - Square with joints in surrounding paving.
- Vertical positioning of frames:
  - Level; or
  - Marry in with levels of surrounding paving.
- Permissible deviation in level of external covers and frames: +0 to -6 mm.

776 EXPOSED OPENINGS IN INSPECTION CHAMBERS, ACCESS POINTS, FITTINGS AND EQUIPMENT

- General: Fit purpose made temporary caps. Protect from site traffic.

COMPLETION

901 REMOVAL OF DEBRIS AND CLEANING

- Preparation: Lift covers to manholes, inspection chambers and access points. Remove mortar droppings, debris and loose wrappings.

  - Timing: Before cleaning, final testing, CCTV inspection if specified, and immediately before handover.
- Cleaning: Thoroughly flush pipelines with water to remove silt and check for blockages. Rod pipelines between access points if there is any indication that they may be obstructed.
- Washings and detritus: Do not discharge into sewers or watercourses.
- Covers: Securely replace after cleaning and testing.

941 WATER TESTING OF MANHOLES AND INSPECTION CHAMBERS

- Timing: Before backfilling.
- Standard:
  - Exfiltration: To BS EN 1610.
    Method: Testing with water (method W).
  - Infiltration: No identifiable flow of water penetrating the chamber.

T90 Heating systems - domestic

To be read with Preliminaries/ General conditions.

GENERAL

110A HEATING SYSTEM CEILING MOUNTED INFRARED RADIANT HEATERS

- Heat source: Electric.
- Insulation: Submit design and cost proposals.
- Heat emitters: Ceiling mounted.
- System control: wall mounted switch.
- Completion: Documentation.

SYSTEM PERFORMANCE

210 DESIGN CEILING MOUNTED INFRARED RADIANT HEATING SYSTEM

- Design: Complete the design and detailing of the heating system.
- Proposals: Submit drawings (showing equipment positions and pipeline routes), technical information, calculations and manufacturer's literature.

EXECUTION

COMPLETION

840 DOCUMENTATION

- Manufacturers' operating and maintenance instructions: Submit for equipment and controls.
- System operating and maintenance instructions: Submit for the system as a whole giving optimum settings for controls.
- Record drawings: Submit drawings showing the location of circuits and operating controls.

U90 General ventilation - domestic

To be read with Preliminaries/ General conditions.

PRODUCTS

350A DOOR TRICKLE VENTILATORS to all doors

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Type: Frame mounted.
- Size: Submit proposals.
- Free area: Submit proposals.
- Colour: Submit proposals.
- Finish: Submit proposals.
- Accessories: Flyscreen.

V90 Electrical systems - domestic

To be read with Preliminaries/General conditions.

GENERAL

110 LOW VOLTAGE SUPPLY

- Nature of current: Alternating.
- Phase: Three.
- Voltage: 230 V.
- Source: Local electricity distribution company.
- Metering: EXISTING METER ON SITE.
- Accessories: n/a.

131 LV CABLING FROM UKPN GRP ENCLOSURE TO CONTEMPLATION BUILDING

- Cable: Submit design and cost proposals.

132 CONTAINMENT FINAL CIRCUITS

- Type: Rigid conduit.
- Appearance: Concealed.
- Rewireable installation: Required.

SYSTEM PERFORMANCE

210 DESIGN OF LOW VOLTAGE ELECTRICAL INSTALLATION GENERALLY

- Design and detailing: Complete for the electrical installation.
- Standards: In accordance with BS 7671 and the requirements of the Electricity Distributor.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

280 EARTHING AND BONDING DESIGN

- Design: Complete the design of the earthing and bonding systems.
- Earthing, main bonding, supplementary bonding and protective conductors: In accordance with BS 7430.
- Requirements: Submit proposals.

PRODUCTS

310 PRODUCTS GENERALLY

- Standard: In accordance with BS 7671.
- CE marking: Required.

320 DISTRIBUTION BOARDS

- Standards: To BS EN 61439-1 and BS EN 61439-3.

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Third party certification: ASTA certified.
- Rated operational voltage (Ue): Submit proposals.
- Rated operational frequency: Submit proposals.
- Rating: Submit proposals.
- Number of phases: Three.
- Incoming devices: Submit proposals.
- Number of outgoing ways: Submit proposals.
- Outgoing devices: Submit proposals.
- Enclosure:
  - Ingress protection to BS EN 60529: Submit proposals.
  - Material: Submit proposals.
- Accessories: Flush mounting kit.

410 CABLES GENERALLY

- Approval: British Approvals Service for Cables (BASEC) certified.
- Cable sizes not stated: Submit proposals and calculations.

430 ELECTRICAL ACCESSORIES

- Standards:
  - Generally: To BS 5733.
  - Switches: To BS EN 60669-1.
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Finish: Polished Brass .
- Mounting: Surface.

510 LUMINAIRES DOWNLIGHTS

- Standard: To BS EN 60598-1.
  - Approval: Kitemark certified.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Material: Submit proposals.
- Colour: Submit proposals.
- Mounting: Submit proposals.
- Lamp: Submit proposals.
  - Wattage: Submit proposals.

511 LAMPS GENERALLY

- Standards:
  - Compact fluorescent lamps: To BS EN 60901 and BS EN 61199.

- High pressure mercury lamps: To BS EN 60188 and BS EN 62035.
- High pressure sodium lamps: To BS EN 62035.
- Light emitting diodes (LEDs): To BS EN 62031.
- Metal halide lamps: To BS EN 62035.
- Tubular fluorescent lamps:
  - Single-capped lamps: To BS EN 60901 and BS EN 61199.
  - Double-capped lamps: To BS EN 60081 and BS EN 61195.
- Tungsten halogen lamps: To BS EN 60432-2 and BS EN 60357.

- Manufacturer: As recommended by luminaire manufacturer.
  - Lamps of the same type and rating: Same manufacturer.

515 LUMINAIRE SUPPORTING COUPLERS

- Standards: To BS 6972 and BS 7001.

580 EARTHING AND BONDING EQUIPMENT

- Earth electrodes: In accordance with BS 7430.
- Electrode type: Submit proposals.
- Earth clamps: To BS 951.

EXECUTION

610 ELECTRICAL INSTALLATION GENERALLY

- Standard: In accordance with BS 7671.

615 INSTALLING CONNECTION TO INCOMING SUPPLY

- Main switchboard/ distribution board: Connect to main incoming metering equipment.
- Nature of connection: Liaise with the DNO to ensure the correct size, quantity and type of cable is provided for connection to their equipment.

635 INSTALLING CABLES DIRECTLY IN THE GROUND

- Cables: Lay on newly prepared bedding.
- Cable bedding: 75 mm of sand.
- Cable pulling: Prevent kinks and twisting of the cable.
- Installation method: Submit proposals.
- Cable formation within trench: Space cables apart by at least half the cable diameter.
- Cables below roads and hard-standings: Duct and derate if longer than 10 m. Extend ducts 1 m each side of hardstanding.
- Cable marker tape: Lay at a distance of 250 mm above each underground cable and cable duct.
- Backfilling: 75 mm of sand over cables, then as-dug material.

640 INSTALLING CABLES ENTERING BUILDINGS FROM BELOW GROUND

- Pipeducts: Seal at both ends.
- Proposals: Submit drawings.

665 INSTALLING CONDUIT IN CONCRETE

- Fixing: Fix conduit securely to reinforcement. Fix boxes to formwork to prevent displacement.
- Concrete cover to conduit (minimum): 30 mm.
- Draw wires: Install to all conduit runs and confirm integrity immediately after the concrete pour.

670 INSTALLING TRUNKING/ DUCTING SYSTEMS

- Positioning: Accurate with respect to equipment served and parallel with other services, and where relevant, floor level and other building lines.
- Access: Provide space encompassing cable trunking to permit access for installing and maintaining cables.
- Jointing:
  - Number of joints: Minimize.
  - Lengths of trunking/ ducting: Maximize.
  - Steel systems: Mechanical couplings. Do not weld. Fit a copper link at each joint to ensure that satisfactory electrical continuity is maintained between the separate sections of trunking, equipment and accessories.
- Movement: Fix securely. Restrain floor mounted systems during screeding.
- Junctions and changes of direction: Proprietary jointing units.
- Cable entries: Fit grommets, bushes or liners.
- Internal fire barriers: Provide to maintain integrity of fire compartment.
- Protection: Fit temporary blanking plates. Prevent ingress of screed and other extraneous materials.
- Service outlet units: Fit when cables are installed.

680 CABLE ROUTES

- Cables generally: Conceal wherever possible.
  - Concealed cable runs to wall switches and outlets: Align vertically or horizontally with the accessory.
- Exposed cable runs: Submit proposals.
  - Orientation: Straight, vertical and/ or horizontal and parallel to walls.
- Distance from other services running parallel: 150 mm minimum.
  - Heating pipes: Position cables below.

685 INSTALLING CABLES

- General: Install cables neatly and securely. Protect against accidental damage, adverse environmental conditions, mechanical stress and deleterious substances.
- Timing: Do not start internal cabling until building enclosure provides permanently dry conditions.
- Jointing: At equipment and terminal fittings only.
- Cables passing through walls: Sleeve with conduit bushed at both ends.
- Cables surrounded or covered by thermal insulation: Derate accordingly.

690 INSTALLING CABLES IN PLASTER

- Protection: Cover with galvanized steel channel nailed to substrate.

700 INSTALLING CABLES IN ACCESSIBLE ROOF SPACES

- Cables running across ceiling joists: Fix to timber battens which are secured to joists.

720 INSTALLING ELECTRICAL ACCESSORIES AND EQUIPMENT

- Location: Submit proposals.
- Arrangement: Coordinate with other wall or ceiling mounted equipment.
- Positioning: Accurately and square to vertical and horizontal axes.
- Alignment: Align adjacent accessories on the same vertical or horizontal axis.
- Mounting: Recessed.
- Mounting heights (finished floor level to underside of equipment/ accessory): Socket outlets 450 mm. Light switches 1200 mm..
- Accessory face plates: Free from any traces of plaster, grout and paint or similar.

725 FINAL CONNECTIONS

- Size: Determine.
- Cable: Heat resisting white flex.
- Length: Allow for equipment removal and maintenance.

760 EQUIPMENT LABELLING

- Electrical equipment: Install labels indicating purpose.
- Voltage warning notices:
  - Location: Apply to equipment in a position where it can be seen prior to gaining access to live parts when the voltage within exceeds 230 V.
  - Format: To BS EN ISO 7010, functional reference number, W012, include warnings of the voltage present.
- Distribution boards and consumer units: Card circuit chart within a reusable clear plastic cover. Fit to the inside of each unit. Include typed information identifying the outgoing circuit references, their device rating, cable type, size, circuit location and details. Label each outgoing way corresponding to the circuit chart.
- Sub-main cables: Label at both ends with circuit reference using proprietary cable marker sleeves.

765 ENGRAVING

- Metal and plastic accessories: Engrave, indicating their purpose.
- Emergency lighting test key switches: Describe their function.
- Multigang light switches: Describe the luminaire arrangement.

COMPLETION

810 FINAL FIX

- Accessory faceplates, luminaires and other equipment: Fit after completion of building painting.

820 CLEANING

- Electrical equipment: Clean immediately before handover.
- Equipment not supplied but installed and electrically connected: Clean immediately before handover.

830 INSPECTION AND TESTING GENERALLY

- Standard: In accordance with BS 7671.
- Notice before commencing tests (minimum): 24 hours.
- Labels and signs: Fix securely before system is tested.
- Certificates: Submit.
  - Number of copies: 2 .

880 DOCUMENTATION

- Timing: Submit at practical completion.
- Contents:
  - Full technical description of each system installed.
  - Manufacturers' operating and maintenance instructions for fittings and apparatus including relamping instructions for luminaire types. Identify hazardous lamps that require specialist disposal.
  - Recommended frequency of testing and inspection, both for electrical safety and for matters such as the corrosion and security of lighting columns and luminaire fixings.
  - Manufacturers' guarantees and warranties.
  - As-installed drawings showing circuits and their ratings and locations of fittings and apparatus.
  - List of normal consumable items.

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, thicknessed, planed, ploughed, etc.
- Surfaces exposed by minor cutting and/ or drilling: Treat as recommended by main treatment solution manufacturer.

140 MOISTURE CONTENT

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

250 FINISHING

- Surfaces: Smooth, even and suitable to receive finishes.
  - Arrises: Eased unless shown otherwise on drawings.

- End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.

Z20 Fixings and adhesives

To be read with Preliminaries/ General conditions.

PRODUCTS

310 FASTENERS GENERALLY

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

320 PACKINGS

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

340 MASONRY FIXINGS

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

350 PLUGS

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

390 ADHESIVES GENERALLY

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

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.

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.

LIME: SAND MORTARS

310 LIME: SAND MORTAR MIXES

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

320 SAND FOR LIME: SAND MASONRY MORTARS

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

360 MAKING LIME: SAND MORTARS GENERALLY

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

Z22 Sealants

To be read with Preliminaries/General conditions.

PRODUCTS

310 JOINTS GENERALLY

- 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.