

Land adjacent to 115 Sale Road

10 March 2021

This document includes:

Code	Section	Revision	Dated
F10	Brick/ block walling	0	2 Dec 2020
F22	Cast stone ashlar walling/dressings	0	2 Dec 2020
F30	Accessories/ sundry items for brick/ block/ stone walling	0	2 Dec 2020
F31	Precast concrete sills/ lintels/ copings/ features	0	2 Dec 2020
G12	Isolated structural metal members	0	2 Dec 2020
G20	Carpentry/ timber framing/ first fixing	1	21 Jan 2021
H61	Fibre cement slating	0	3 Dec 2020
H65	Single lap roof tiling	0	3 Dec 2020
H71	Lead sheet fully supported roof and wall coverings/ flashings	1	21 Jan 2021
J30	Liquid applied tanking/ damp proofing	0	3 Dec 2020
J40	Flexible sheet waterproofing/ damp proofing	0	3 Dec 2020
J42	Single layer polymeric sheet roof coverings	0	4 Dec 2020
K10	Gypsum board dry linings/ partitions/ ceilings	1	14 Dec 2020
K11	Rigid sheet flooring/ sheathing/ decking/ sarking/ linings/ casings	0	4 Dec 2020
K40	Demountable suspended ceilings	0	4 Dec 2020
L10	Windows/ Rooflights/ Screens/ Louvres	2	1 Feb 2021
L20	Doors/ shutters/ hatches	1	1 Feb 2021
L30	Stairs/ ladders/ walkways/ handrails/ balustrades	0	7 Dec 2020
L40	General glazing	1	1 Feb 2021
M10	Cement based levelling/ wearing screeds	1	8 Mar 2021
M20	Plastered/ Rendered/ Roughcast coatings	0	8 Dec 2020
M40	Stone/ concrete/ quarry/ ceramic tiling/ mosaic	0	8 Dec 2020
M50	Rubber/ plastics/ cork/ lino/ carpet tiling/ sheeting	0	8 Dec 2020
M60	Painting/ clear finishing	0	8 Dec 2020
M61	Intumescent coatings for fire protection of steelwork	0	8 Dec 2020
N10	General fixtures/ furnishings/ equipment	1	1 Feb 2021
N11	Domestic kitchen fittings, furnishings and equipment	0	9 Dec 2020
N13	Sanitary appliances and fittings	0	9 Dec 2020
N15	Internal fire and safety signage systems	0	9 Dec 2020
N25	Permanent access and safety equipment	0	9 Dec 2020
P10	Sundry insulation/ proofing work	2	20 Jan 2021
P12	Fire stopping systems	0	9 Dec 2020

P20	Unframed isolated trims/ skirtings/ sundry items	0	9 Dec 2020
P21	Door/ window ironmongery	0	9 Dec 2020
Q10	Kerbs/ edgings/ channels/ paving accessories	0	10 Dec 2020
Q20	Granular sub-bases to roads/ pavings	0	10 Dec 2020
Q22	Asphalt roads/ pavings	0	10 Dec 2020
Q25	Slab/ brick/ sett/ cobble pavings	0	10 Dec 2020
Q40	Fencing	1	1 Feb 2021
Q50	Site/ street furniture/ equipment	1	1 Feb 2021
R10	Rainwater drainage systems	1	20 Jan 2021
R11	Above ground foul drainage systems	0	10 Dec 2020
Z10	Purpose made joinery	0	10 Dec 2020
Z11	Purpose made metalwork	0	10 Dec 2020
Z12	Preservative/ fire retardant treatment	0	10 Dec 2020
Z20	Fixings and adhesives	0	10 Dec 2020
Z21	Mortars	0	10 Dec 2020
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F10 Brick/ block walling

To be read with Preliminaries/ General conditions.

TYPES OF WALLING

110 CLAY FACING BRICKWORK TO EXTERNAL WALLS

- Bricks: To BS EN 771-1.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Recycled content: None permitted.
 - Special shapes: None.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1:6 cement:lime:sand 4 N/mm² (class M4).
 - Additional requirements: None.
- Bond: Half lap stretcher, with header courses as noted on sections and elevations.
- Joints: Bucket handle.
- Features: None.

315 CLAY COMMON BRICKWORK AS REQUIRED BELOW GROUND, OR IN PARTITIONS FOR COURSING

- Bricks: To BS EN 771-1.
 - Manufacturer: Contractor's choice.
 - Product reference: Submit proposals.
 - Size: 215 x 102 x 65 mm.
 - Mean compressive strength (minimum): manufacturer's declared value.
 - Durability designation: F2 S2.
 - Density:
 - Gross dry: manufacturer's declared value.
 - Net dry: manufacturer's declared value.
 - Water absorption: Not applicable.
 - Configuration: Not applicable.
 - Recycled content: Not applicable.
 - Additional requirements: None.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1:6 cement:lime:sand.
 - Additional requirements: None.
- Bond: Half lap stretcher.

345 CONCRETE COMMON BRICKWORK TO INTERNAL PARTITIONS AND EXTERNAL WALL
INNER LEAF FOR COURSING

- Bricks: To BS EN 771-3.
 - Configuration: Group 1.
 - Compressive strength:
Mean value: 7.3 N/mm².
Characteristic value: 7.3 N/mm².
Category: I.
 - Freeze/ thaw resistance: Suitable for exposed external use below dpc.
 - Water absorption by capillarity: Manufacturer's declared value.
 - Recycled content: None permitted.
 - Work sizes (length x width x height): 215 x 100 x 65 mm.
Tolerance category: D1.
 - Special shapes: None.
 - Additional requirements: None.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1:6 cement:lime:sand.
 - Additional requirements: None.
- Bond: Half lap stretcher.

355 CONCRETE COMMON BLOCKWORK TO EXTERNAL WALLS

- Blocks: To BS EN 771-3.
 - Manufacturer: Submit proposals.
Product reference: Submit proposals.
 - Configuration: Group 1.
 - Compressive strength:
Mean value: 7.3 N/mm².
Characteristic value: 7.3 N/mm².
Category: I.
 - Freeze/ thaw resistance: Suitable for exposed external use below dpc.
 - Thermal properties: Thermal conductivity: 0.57W/mK.
 - Recycled content: Manufacturer's declared value
 - Work sizes (length x width x height): 440 x 100 & 140 x 215mm.
Tolerance category: D1.
 - Special shapes: None.
 - Additional requirements: None.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1:6 cement:lime:sand.
 - Additional requirements: None.
- Bond: Half lap stretcher.

385 ENGINEERING BRICKWORK IN MANHOLES

- Bricks: To BS EN 771-1.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Mean compressive strength: Greater than or equal to 75 N/mm².
 - Category: I.
 - Water absorption: Equal to or less than. 7.5%.
 - Freeze/ thaw category: F2.
 - Active soluble salts content category: S2.
 - Additional requirements: None.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:½:3 cement:lime:sand.
 - Additional requirements: None.
- Bond: English.
- Joints: Flush.

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 perpend: Butted.
- Bond where not specified: Half lap stretcher.
- Vertical joints in brick and concrete block facework: Even widths. Plumb at every fifth cross joint.

535 HEIGHT OF LIFTS IN WALLING USING CEMENT GAUGED OR HYDRAULIC LIME MORTAR

- Quoins and advance work: Rack back.
- Lift height (maximum): 1.2 m above any other part of work at any time.
- Daily lift height (maximum): 1.5 m for any one leaf.

545 LEVELLING OF SEPARATE LEAVES USING CEMENT GAUGED OR HYDRAULIC LIME MORTAR

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

- 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.
- 645 ACCESSIBLE JOINTS NOT EXPOSED TO VIEW
- Jointing: Struck flush as work proceeds.
- 665 POINTING TO BRICKWORK ABOVE DPC
- 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: None.
 - Profile: Bucket handle.
- 671 FIRE STOPPING
- Avoidance of fire and smoke penetration: Fit tightly between cavity barriers and masonry. Leave no gaps.
- 690 ADVERSE WEATHER
- General: Do not use frozen materials or lay on frozen surfaces.
 - Air temperature requirements: Do not lay bricks/ blocks:
 - In cement gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
 - In hydraulic lime:sand mortars when at or below 5°C and falling or below 3°C and rising, 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.

740 FINISHED MASONRY WORK REFERENCE PANELS

- General: Before proceeding to construct the following walling types, construct panels as specified. Give notice when panels are dry.
- Selection of masonry units: Reasonably representative of the average quality of the whole order to be delivered .
- Panel types:
 - Walling type: F10/110 .
 - Location: To be agreed .
 - Size: 1.2 x 1.2 m .
 - Other requirements: Soldier course .

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.

F22 Cast stone ashlar walling/dressings

To be read with Preliminaries/General conditions.

TYPES OF WALLING

110 CAST STONE WINDOW CILLS AND HEADS

- Cast stone units: To BS EN 771-5.
 - Manufacturer: Submit proposals.
Product reference: Submit proposals.
 - Absorption: To BS 1217 Capillary absorption test (CAT).
 - Compressive strength:
Average cube strength (minimum): 35MPa (35 N/mm²).
Single cube strength (minimum): 28MPa (28 N/mm²).
 - Finish: Matching agreed sample offered by contractor's chosen manufacturer.
 - Colour: Matching agreed sample offered by contractor's chosen manufacturer.
- Mortar: As section Z21.
 - Mix: 1:4-5 masonry cement:sand.
 - Sand: To BS EN 13139; crushed stone with grading to approval..
- Bond: built in as work proceeds and subsequently protected.
- Joints: Flush.
 - Width: 10 mm.
 - Pointing: As clause 535.
- Other requirements: None.

GENERAL REQUIREMENTS

220 CONTROL SAMPLES

- Required samples: After finalization of design, one each of the following components: Part of one cill.
- Approval of appearance: Obtain before manufacture of remaining units.
- Identification and storage location: Clearly label and retain at factory for comparison with production units.

255 COMPRESSIVE STRENGTH

- Cube strength: Sampling to BS 1217. Testing to BS EN 12390-1, 2 and 3 as appropriate, with compaction and curing representative of the methods used in production of the cast stone components.

300 REINFORCEMENT

- Non-structural reinforcement: Include to resist shrinkage and handling stresses.
- Carbon steel reinforcement: To BS 4449 and BS 4483 as appropriate.
 - Cutting and bending: To BS 8666.
- Galvanized reinforcement: Galvanizing to BS EN ISO 1461 after cutting.
- Stainless steel reinforcement: To BS 6744, designation 1.4301.
 - Cutting and bending: To BS 8666.
- Condition at time of placement: Clean, free of corrosive pitting, loose materials and substances which adversely affect the reinforcement, mix, or bond between the two.
- Fixing: Accurate and secure. Prevent intrusion of wire or clips into the cover.

335 MANUFACTURING ACCURACY

- Standard: To BS 1217, section 8.
- Additional tolerances: +0, -3 mm.

340 MIXES GENERALLY

- Constituent materials and mix design: Achieve constant colour and texture for each finish type.
- Aggregates for facing mixes: Free from particles which may cause 'popouts', or unsightly marking or staining.
- Total chloride ion content (maximum): Cl 0.40.
- Admixtures containing calcium chloride: Do not use.

350 SEPARATE FACING AND BACKING MIXES

- Thickness of facing mix at any point (minimum): 20 mm.
- Distance of reinforcement from the junction of the two mixes (minimum): 10 mm.
- Joining facing and backing mixes: Bond so that they are effectively monolithic.

360 CASTING AND CURING

- Compaction: Thorough.
- Protection: Prevent premature drying out during curing period.
- Immature components: Prevent distortion from movement, vibration, overloading, physical shock, rapid cooling and thermal shock.
- Delivery to site: Not until at least 14 days after casting.

370 QUALITY OF FINISHES

- Appearance standard: As established by samples.

LAYING AND JOINTING

430 ADVERSE WEATHER

- General: Do not use frozen materials and do not lay on frozen surfaces.
- Temperature: Do not lay blocks/ dressings:
 - - In cement gauged mortars when the air temperature is at or below 3°C and falling or below 1°C and rising (unless mortar has a temperature of not less than 4°C when laid and walling is thoroughly protected).
 - - In hydraulic lime:sand mortars when the air temperature is at or below 5°C and falling or below 3°C and rising.
- Freezing conditions: Maintain temperature of the work above freezing until mortar has fully set.
- Precipitation: Protect newly erected walling against rain and snow by covering when precipitation occurs and at all times when work is not proceeding.
- Hot and dry conditions: Prevent newly erected masonry from drying out too rapidly.
- Remedial work: Rake out and replace mortar damaged by frost and where instructed, rebuild damaged work.

490 PUTLOG SCAFFOLDING

- Use: Not permitted.

500 ONE PIECE SILLS/ THRESHOLDS

- Bed joints: Leave open except under:
 - - End bearings.
 - - Masonry mullions.
- Pointing on completion: Mortar to match adjacent work.

535 POINTING

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

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

To be read with Preliminaries/ General conditions

CAVITIES

110 CONCRETE FILL TO BASE OF CAVITY

- Concrete generally: To BS EN 206 and BS 8500-2.
- Concrete type: Standardized prescribed ST2.
 - Workability: High.
- Extent: Maintain 75 mm between top of fill and external ground level and a minimum of 225 mm between top of fill and ground level dpc.
- Placement: Compact to eliminate voids.

120 CLEANLINESS

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

130 PERPEND JOINT WEEP HOLES

- Form: Open perpend joint.
- Locations: Through outer leaf immediately above base of cavity, at cavity trays, stepped dpcs and external openings. 75 mm above top of cavity fill at base of cavity.
- Provision: At not greater than 1000 mm centres and not less than two over each opening.

150 FULL FILL CAVITY INSULATION

- Insulation: Rock wool batts to BS EN 13162.
 - Product certification: British Board of Agreement (BBA) Certified.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Recycled content: Manufacturer's declared value.
- Face size (nominal length x width): 1200 x 455 mm.
- Thickness (nominal): 125 mm.
- Thermal conductivity: Not greater than 0.037 W/(m.K).
- Reaction to fire class: A1.
- Additional requirements: None.
- Placement: Continuous and free of mortar and debris.

160 AIR BRICKS IN EXTERNAL WALLING

- Standard: To BS 493, class 1.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Apertures: Square hole.
- Work sizes: 215 x 140 mm.
- Material/ Colour: Clay.
- Placement: Built in with no gaps at joints.

181 FIRE RATED CAVITY CLOSER

- Manufacturer: Dacatie Building Solutions, product brand of Quantum Profile Systems Ltd.
 - Web: www.dacatie.co.uk.
 - Email: sales@dacatie.co.uk.
 - Product reference: Dacatie TFR1000 / TFR2000 30 Minute Fire Rated Fire Cavity Barrier for window and door reveals
- Type: TFR2000 Cavity Closer 125.

REINFORCING/ FIXING ACCESSORIES

213 CAVITY WALL TIES: FOR ALL CAVITY WALLS

- Manufacturer: Ancon.
 - Web: www.ancon.co.uk.
 - Email: info@ancon.co.uk.
 - Product reference: Staifix RT2 Wall Tie
- Length: 275 mm.
- Material: Stainless steel

225 FIXING TIES IN MASONRY CAVITY WALLS

- Embedment in mortar beds (minimum): 50 mm.
- Placement: Sloping slightly downwards towards outer leaf, without bending. Drip centred in the cavity and pointing downwards.
- Spacing: Staggered in alternate courses.
 - Horizontal centres: 750mm.
 - Vertical centres: 450mm.
- Provision of additional ties: Within 225 mm of reveals of unbonded openings and at the vertical reveals of unsupported masonry.
 - Spacing: In every blockwork course.

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: 750mm.
 - Vertical centres: 450mm.
- 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 blockwork course.

252 WALL HEAD RESTRAINT SLIP TIES

- Manufacturer: Ancon.
 - Web: www.ancon.co.uk.
 - Email: info@ancon.co.uk.
 - Product reference: IHR-V Head Restraint; FHR head Restraint at slab edges.
- Length: to suit 215mm block.
- Material: Stainless steel grade 1.4301 (304)

270 MESHWORK JOINT REINFORCEMENT GENERALLY

- Standard: To BS EN 845-3.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Type: Welded wire truss or ladder type at the direction of the Structural Engineer.
- Material: Austenitic stainless steel - material/ coating reference R1 to BS EN 845-3.
- Width: Approximately 40-50 mm less in width than wall or leaf.
- Placement: Lay on an even bed of mortar in a continuous strip with full laps at angles. Keep back 20 mm from face of external work, 12 mm back from face of internal work and finish joint to normal thickness.
 - Lap length (minimum): to manufacturer's recommendations.

283 SLIP TIES FOR MOVEMENT JOINTS

- Manufacturer: Ancon.
 - Web: www.ancon.co.uk.
 - Email: info@ancon.co.uk.
 - Product reference: Ancon Movement/ Lateral Restraint Slip Ties
- Type: Ancon PPS wall tie.
- Length: 200 mm.
- Material: Stainless steel grade 1.4301 (304)

FLEXIBLE DAMP PROOF COURSES/ CAVITY TRAYS

311 DAMP PROOF COURSE

- Manufacturer: Visqueen.
 - Web: www.visqueen.com.
 - Product reference: Visqueen Zedex High Bond DPC
- Width: 100-600 mm, dependant on location.
- Accessories: Detailing Strip and DPC Jointing Tape.

321 DAMP PROOF COURSE

- Manufacturer: Visqueen.
 - Web: www.visqueen.com.
 - Product reference: Visqueen Polyethylene DPC
- Width: 100-600 mm, dependant on location.
- Accessories: Detailing Strip and DPC Jointing Tape.

340 SITE FORMED FLEXIBLE SHEET CAVITY TRAYS - BITUMEN BASED

- Standard: To BS EN 14967 and BS 6398.
 - Type: Class B (fibre based bitumen) to BS 6398.
- Manufacturer: As DPC manufacturer.
 - Product reference: Submit proposals.
- Additional requirements: None.

345 SITE FORMED FLEXIBLE SHEET CAVITY TRAYS - PLASTICS

- Standard: To BS EN 14909 and BS 6515.
- Material: Ethylene polypropylene.
- Manufacturer: As DPC manufacturer.
 - Product reference: Submit proposals.
- Additional requirements: None.

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

INSTALLATION OF DPCS/ CAVITY TRAYS

- 415 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.
- 425 INSTALLATION OF GROUND LEVEL DPCS
- Joint with damp proof membrane: Continuous and effectively sealed.
- 435 INSTALLATION OF STEPPED DPCS IN EXTERNAL WALLS
- External walls on sloping ground: Install dpcs not less than 150 mm above adjoining finished ground level.
- 445 INSTALLATION OF SILL DPCS
- Form and placement: In one piece and turned up at back when sill is in contact with inner leaf.
- 465 SEALING OF DPCS GENERALLY
- Overlaps and junctions: Seal with Adhesive recommended by dpc manufacturer.
- 475 INSTALLATION OF SITE FORMED CAVITY TRAYS
- Requirements to prevent downward ingress of water:
 - Profiles: To match those shown on drawings. Firmly secured.
 - Joint treatment: Use continuous length wherever possible, otherwise lap at least 100 mm and seal to produce a free draining and watertight installation.
 - Horizontal cavity trays: Support using cavity closer.
 - Sloping cavity trays: Prevent sagging.
 - Cleanliness: Free from debris and mortar droppings.
- 485 INSTALLATION OF CAVITY TRAYS OVER OPENINGS AND OTHER CAVITY BRIDGINGS
- Length: To extend not less than 150 mm beyond ends of lintels/ bridgings.
- 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.

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: Submit proposals.
Product reference: Submit proposals.
 - Placement: Build in as work proceeds with no projections into cavities and to correct depth to receive sealant system.
- Sealant:
 - Designation: ISO 11600-F-25HM.
 - Manufacturer: Submit proposals.
Product reference: Submit proposals.
 - Colour: To match adjoining brickwork.

611 MOVEMENT JOINTS WITH SEALANT TO INTERNAL FACING BLOCKWORK

- Joint preparation and sealant application: As section Z22.
- Filler: Closed cell polyethylene foam.
 - Thickness: To match design width of joint.
 - Manufacturer: Submit proposals.
Product reference: Submit proposals.
 - Placement: Build in as work proceeds with no projections into cavities and to correct depth to receive sealant system.
- Sealant:
 - Designation: ISO 11600-F-25HM.
 - Manufacturer: Submit proposals.
Product reference: Submit proposals.
 - Colour: To match adjoining brickwork.

616 FIRE RESISTING MOVEMENT JOINTS WITHOUT SEALANT TO INTERNAL FACING BLOCKWORK

- Fire resistant filler:
 - Thickness: nom. 15mm.
 - Fire resistance period: 60 mins..
 - Manufacturer: Submit proposals.
Product reference: Submit proposals.
 - Placement: Compress and insert into place in open joint.
 - Adhesives and accessories: Types recommended by filler manufacturer.

650 POINTING IN FLASHINGS

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

- 660 PINNING UP TO SOFFITS
- Top joint of loadbearing walls: Fill and consolidate with mortar.

- 670 HEAD OF NONLOADBEARING WALLS
- Restraints: As clause 252.
 - Fixing: Secure to soffit.
 - Joint filler: compressed mineral fibre.
 - Placement: Full, no gaps.

PROPRIETARY SILLS/ LINTELS/ COPINGS/ DRESSINGS

- 720 SILLS
- Standard: To BS 5642-1.
 - Material: Precast concrete.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Dimensions: As shown on drawings.
 - Finish: Smooth.
 - Mortar for bedding/ jointing: Cement gauged as section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1:6 cement:lime:sand.
 - Additional requirements: None.
 - Joints: Flush.
 - Bedding one-piece sills: Leave bed joints open except under end bearings and masonry mullions. On completion, point to match adjacent work.

- 725 CAST STONE SILLS LAID IN CEMENT GAUGED MORTAR
- Standard: To BS 1217.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Dimensions: As shown on drawings.
 - Finish/ colour: To match sample.
 - Mortar for bedding/ jointing: Cement gauged as section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1:6 cement:lime:sand.
 - Additional requirements: None.
 - Joints: Flush.
 - Bedding one-piece sills: Leave bed joints open except under end bearings and masonry mullions. On completion, point to match adjacent work.

- 735 PRECAST CONCRETE LINTELS
- Standard: To BS EN 845-2.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Types: Single.
 - Sizes: As advised by Structural Engineer.
 - Additional requirements: As advised by Structural Engineer.
 - Placement: Bed on mortar used for adjacent work.
 - Bearing length (minimum): 150 mm.

756 PREFABRICATED STEEL LINTELS

- Manufacturer: IG Lintels.
 - Web: www.iglintels.com.
 - Email: sales@iglintels.com.
 - Product reference: Cavity Wall 100 mm Inner Leaf
- Type: L1/S, length appropriate to opening.
- Material: Galvanized steel.
- Length: As schedule.

760 COPING UNITS

- Standard: To BS 5642-2.
- Material: Precast concrete.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Dimensions: As shown on drawings to be prepared.
- Finish: Smooth.
- Mortar for bedding/ jointing: Cement gauged as section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1:6 cement:lime:sand.
 - Additional requirements: None.
- Joints: Full and finished flush.
- Placement: Lay on a full bed of mortar, to line and level.

765 CAST STONE COPING UNITS LAID IN CEMENT GAUGED MORTAR

- Standard: To BS 1217.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Dimensions: As shown on drawings to be prepared.
- Finish/ colour: To match sample.
- Mortar for bedding/ jointing: Cement gauged as section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1:6 cement:lime:sand.
 - Additional requirements: None.
- Joints: Full and finished flush.
- Placement: Lay on a full bed of mortar to line and level.

MISCELLANEOUS ITEMS

840 OPENINGS FOR FRAMES

- Formation: Use accurate, rigid templates to required size.

850 WALL PLATES

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

F31 Precast concrete sills/ lintels/ copings/ features

To be read with Preliminaries/ General conditions.

TYPES OF COMPONENT

105 PRECAST LINTELS

- Concrete: Components manufacturer's 'proprietary' concrete.
 - Identity: Manufacturer's mix reference.
- Conformity: To BS 8500-2 and the recommendations of BS 8500-1, Annex A.4 for the specified exposure class.
 - Evidence: Submit third party certification from a UKAS accredited laboratory.
- Exposure class: XC3 and XC4.
- Reinforced components: Submit proposals for type of reinforcement and cover.
- Matching sample for finish to visible faces: As reference sample.
- Other requirements: None.

106 PRECAST SILLS

- Concrete: Components manufacturer's 'proprietary' concrete.
 - Identity: Manufacturer's mix reference.
- Conformity: To BS 8500-2 and the recommendations of BS 8500-1, Annex A.4 for the specified exposure class.
 - Evidence: Submit third party certification from a UKAS accredited laboratory.
- Exposure class: XC3 and XC4.
- Reinforced components: Submit proposals for type of reinforcement and cover.
- Matching sample for finish to visible faces: As reference sample.
- Other requirements: None.

107 PRECAST COPINGS

- Concrete: Components manufacturer's 'proprietary' concrete.
 - Identity: Manufacturer's mix reference.
- Conformity: To BS 8500-2 and the recommendations of BS 8500-1, Annex A.4 for the specified exposure class.
 - Evidence: Submit third party certification from a UKAS accredited laboratory.
- Exposure class: XC3 and XC4.
- Reinforced components: Submit proposals for type of reinforcement and cover.
- Matching sample for finish to visible faces: As reference sample.
- Other requirements: None.

125 SUBSTITUTION OF PROPRIETARY CONCRETE FOR DESIGNATED CONCRETE

- Concrete: Component manufacturer's 'proprietary' concrete.
- Substitution: Submit proposals for each substitution, including:
 - Identity of concrete: Manufacturer's mix reference.
 - Performance: Limiting values for w/c ratio, cement/ combination content or, alternatively the Exposure class to BS 8500, to which concrete conforms.
 - Reinforcement: Type and cover.
 - Evidence of performance: Third party certification by body from a UKAS accredited laboratory.

140 CONCEALED PRECAST LINTELS

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

GENERAL REQUIREMENTS

210 MOULDS

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

220 CONCRETE GENERALLY

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

250 REINFORCEMENT

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

260 CASTING AND CURING

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

FAIR FACED COMPONENTS

310 CONTROL SAMPLES

- Required samples: After finalization of design, one each of the following components: Lintel and Sill.
- Approval of appearance: Obtain before manufacture of remaining units.
- Identification and storage location: Clearly label and retain at factory for comparison with production units

330 MIXES FOR VISIBLE FACED COMPONENTS

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

341 CONDITIONS FOR SEPARATE FACING AND BACKING MIXES

- Difference in cement content: Not greater than 80 kg/m³.
- Thickness of facing mix: 10 mm greater than maximum aggregate size, minimum 25 mm.
- Location of reinforcement: Minimum 20 mm away from the interface between mixes.
- Compaction of facing and backing mix: Carry out to create monolithic construction.

350 QUALITY OF FINISHES

- Appearance standard: As established by samples.

370 COVER ON VISIBLE FACES

- Spacers: Not permitted.
- Proposed method statement: Submit.

380 CONSISTENCY OF PRODUCTION METHODS

- Production methods: To remain consistent for each matching type of finish.
 - Finish appearance: To remain within the range of variation indicated by the samples submitted.
- Changes to production methods: If variations are proposed for components of the same finish, submit evidence that there will be no difference in appearance.

INSTALLATION

420 LAYING

- Mortar for bedding and jointing: As section Z21.
 - Type: Factory made to BS EN 998-2.
 - Mix: 1:1:6 cement: lime:sand.
 - Packing: If required use slate.
- Bedding components: On full bed of mortar.
- Removal of marks, stains and extraneous mortar on visible faces: Rubbing not permitted.

440 ONE-PIECE SILLS/ THRESHOLDS

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

G12 Isolated structural metal members

To be read with Preliminaries/ General conditions.

PRODUCTS

320 STEEL MEMBERS

- Steel: To BS EN 10025-2 and BS EN 10210-1.
 - Grade: S275JR internally, S275J0 externally.
 - Section properties and dimensions:
 - To BS EN 10055;
 - To BS EN 10056;
 - To BS EN 10210-2; and
 - To BS EN 10365.
 - Surface condition: Free from heavy pitting and rust, burrs, sharp edges and flame cutting dross.

340 BOLT ASSEMBLIES

- Designation: Refer to Structural Engineer.
- Property class: Refer to Structural Engineer.
- Size: Refer to Structural Engineer.
- Nuts and washers: Material grade and finish to suit bolts.
- Coating applied by manufacturer: Galvanized.
- Other requirements: Diameter of washers in contact with timber faces to be minimum 3 times bolt diameter, with a thickness not less than 0.25 times bolt diameter.

FABRICATION

510 FABRICATION OF STEEL MEMBERS

- Cuts and holes: Accurate and neat.
- Welding: Metal arc method to BS EN 1011-2.
 - Welded joints: Fully fused, with mechanical properties not less than those of the parent metal.
 - Site welding: Obtain approval.
- Joints: Location and layout of fastenings as drawing by Structural Engineer.

EXECUTION

610 INSTALLATION

- Accuracy: Members positioned true to line and level using, if necessary, steel packs of sufficient area to allow full transfer of loads to bearing surfaces.
- Fixing: Use washers under bolt heads and nuts.
 - Tapered washers: Provide under bolt heads and nuts bearing on sloping surfaces. Match taper to slope angle and align correctly.

650 SHOP PRIMING GENERALLY

- Preparation: To BS EN ISO 12944-4. Remove fins, burrs, sharp edges and weld spatter and clean out crevices.
 - Surface finish: Blast cleaned to BS EN ISO 8501-1, grade Sa 2½.
 - Prepared surfaces: Keep in a dry atmosphere and apply first coating without delay.
- Priming:
 - Primer: Zinc phosphate epoxy.
Number of coats: Two.
Dry film thickness (minimum): as manufacturer's standard.
 - Application: To BS EN ISO 12944-7.
- Other requirements: Confirm that proposed primer is suitable for use on hand cleaned steel and Overcoat ends of beams built into solid external walls with high build bituminous paint. Extend coating 150mm from face of wall onto exposed steelwork.

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:
 - UK Timber Procurement Policy Category A evidence certification scheme.;
 - Forest Stewardship Council (FSA);
 - Grown in Britain (GiB); or
 - Programme for the Endorsement of Forest Certification (PEFC).
 - 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 JOISTS, PURLINS & 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: C16.
- Treatment:
 - Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8.
Design service life: 40 years.
 - Flame retardant treatment: Flame retardant impregnation to NBS section Z12 and Wood Protection Association Commodity Specification FR3, Type EXT.

- 270 UNGRADED SOFTWOOD FOR INTERNAL NONSTRUCTURAL USE
- Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
 - Surface finish: Planed all round.
 - Treatment:
 - Preservative treatment: None required.
Design service life: 40 years.
 - Flame retardant treatment: Flame retardant impregnation to NBS section Z12 and Wood Protection Association Commodity Specification FR1, Type EXT.
- 275 WOOD TRIM FOR EAVES FASCIA AND BARGEBOARDS
- Species: Contractor's choice.
 - Standard: To BS 1186-3.
 - Class: 2.
 - Treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C5.
 - Design service life: 40 years.
 - Fixing: Two 50 mm lost head nails to each support.
 - Other requirements: Undercut bottom edge of boards to form drip.
- 311 NON-STRUCTURAL PLYWOOD FOR PARAPET GUTTER BOARDS AND SOFFITS
- Standard: To an approved national standard.
 - Thickness: as noted on detailed drawings.
 - Appearance class to BS EN 635: III.
 - Use class to BS EN 335: Use class 4.
 - 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: 40 years.
 - Flame retardant treatment: None required.
- 312 NON-STRUCTURAL PLYWOOD FOR INTERNAL USE AND AS CONCEALED PATRESSES
- Standard: To an approved national standard.
 - Thickness: as noted on detailed drawings.
 - Appearance class to BS EN 635: III.
 - Use class to BS EN 335: Use class 4.
 - 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: 40 years.
 - Flame retardant treatment: Flame retardant impregnation to NBS section Z12 and Wood Protection Association Commodity Specification FR1, Type EXT.

350 TRUSSED RAFTERS

- Design and fabrication standard: To BS EN 14250.
- Manufacturer: A firm currently registered under a third party quality assurance scheme.
- Truss system: Agrément certified .
- Ancillary components to be supplied by the truss fabricator: Gable ladders .
- Treatment: Organic solvent type as section Z12 and BWPDA Commodity Specification C8 .

WORKMANSHIP GENERALLY

401 CROSS-SECTION DIMENSIONS OF STRUCTURAL SOFTWOOD AND HARDWOOD

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

402 CROSS-SECTION DIMENSIONS OF NON-STRUCTURAL SOFTWOOD

- Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
- Maximum permitted deviations from finished sizes: As stated in BS EN 1313-1:
 - Clause 6 for sawn sections.

420 WARPING OF TIMBER

- Bow, spring, twist and cup: Not greater than the limits set down in BS EN 14081-1, BS 4978 and BS EN 844 for softwood.

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.

520 EXPOSED END GRAIN PROTECTION

- Components: Seal exposed end grain of the following before delivery to site:
 - External timber components.
- Sealer: Clear end grain sealer.

530 PAINTED FINISHES

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

540 CLEAR FINISHES

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

550 EXPOSED TIMBER

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

JOINTING TIMBER

570 JOINTING/ FIXING GENERALLY

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

580 FRAMING ANCHORS

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Material/ finish: Galvanized low carbon 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.

ERECTION AND INSTALLATION

721 EXPANSION ANCHORS

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Size: appropriate to location and duty.
- Material/ finish: Passivated, zinc plated carbon steel.
- Spacing/ edge distance (minimum): Spacing 450mm, edge distance 25mm.
 - Obtain instructions if specified spacing or edge distance cannot be achieved.
- Installation holes: Drilled to diameter and depth recommended by manufacturer. Clean and free from dust.
- Installation/ tightening: To manufacturer's instructions.

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.

786 JOISTS ON HANGERS

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

791 PROPRIETARY JOIST HANGERS GENERALLY.

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Material/ finish: Hot-dip galvanized steel plate.
- Size: To suit joist, design load and crushing strength of supporting construction.

795 TRIMMING OPENINGS

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

821 RESTRAINT STRAPS

- Manufacturer: Expamet Building Products.
 - Web: www.expamet.co.uk.
 - Email: sales@expamet.net.
 - Product reference: Restraint Straps
- Type: Heavy Duty (HD).
- Length: in accordance with site requirements.

831 LATERAL RESTRAINT STRAPS

- Manufacturer: Expamet Building Products.
 - Web: www.expamet.co.uk.
 - Email: sales@expamet.net.
 - Product reference: Restraint Straps
- Type: Heavy Duty (HD).
- Length: in accordance with site requirements.

840 STRUTTING TO FLOOR JOINTS

- Type: One of the following:
 - Herringbone strutting: At least 38 x 38 mm softwood.
 - Solid strutting: At least 38 mm thick softwood and at least three quarters of joist depth.
 - Proprietary metal strutting: Of approved type.
- Fixing: Between joists as follows:
 - Joist spans of 2.5 to 4.5 m: One row at centre span.
 - Joist spans over 4.5 m: Two rows equally spaced.
 - Strutting must not project beyond top and bottom edges of joists.
- Outer joists: Blocked solidly to perimeter walls.

901 EAVES SOFFIT VENTILATORS

- Manufacturer: Timloc Building Products.
 - Web: www.timloc.co.uk.
 - Email: sales@timloc.co.uk.
 - Product reference: 1141 Push in Soffit Vent.
- Type: Circular push-in
- Vent spacing: 160 mm
- Equivalent continuous eaves airway: 10 mm

H61 Fibre cement slating

To be read with Preliminaries/General conditions.

TYPES OF SLATING

105 ROOF SLATING GENERALLY

- Substrate: Rafters at 450 mm centres, or as noted elsewhere on drawings.
- Pitch: 30° and 45°.
- Underlay: Vapour permeable underlay as clause 235.
 - Recycled content: as manufacturer's standard.
 - Direction: Parallel to eaves.
 - Heap-lap (minimum): 100 mm.
- Battens:
 - Size: 50 x 25 mm.
 - Fixing: 65 x 3.35 mm galvanized annular ring shank nails.
- Slates: To BS EN 492, type NT (nonasbestos).
 - Manufacturer: Etex (Exteriors) UK Ltd.
 - Web: www.cedral.world/en-gb/.
 - Product reference: Cedral Rivendale.
 - Shape: Rectangular.
 - Colour: Blue-black.
 - Size: 600 x 300 mm.
 - Headlap (minimum): 100 mm.
 - Fixing: Two nails each slate.
- Accessories: None.

SLATING GENERALLY

210 BASIC WORKMANSHIP

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

235 VAPOUR PERMEABLE UNDERLAY

- Manufacturer: A. Proctor Group
 - Web: www.proctorgroup.com
 - Email: contact@proctorgroup.com.
 - Product reference: Roofshield.
- Standard: To BS EN 13859-1.
 - Reaction to fire: Class E or better.
 - Water vapour transmission (minimum): 0.013 m.
 - Resistance to water penetration: Class W1.
 - Tensile strength (minimum): no less than MD 390 N/50mm-1; CD 230 N/50mm.
 - Tear resistance (minimum): no less than MD 230 N; CD 275 N.
 - Other BS EN 13859 characteristics: Manufacturer's standard.
- Weight (mass per unit area): 185g/m².
- Resistance to wind uplift: Greater than 1600 N/m².

240 UNDERLAY

- 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: Fully factory pre-graded in accordance with BS 5534.
 - Moisture content at time of fixing and covering (maximum): 22%.
- Preservative treatment: As section Z12 and Wood Protection Association Commodity Specification C8.
 - Type: Water based organic.

265 BATTEN FIXING

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

275 SLATE FIXING

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

290 MORTAR BEDDING/POINTING

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

ROOF SLATING EDGES/ JUNCTIONS/ FEATURES

305 GENERALLY

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

325 FIRE SEPARATING WALLS

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

355 VENTILATED EAVES WITH SEPARATED GRILLES/ TRAYS

- Fascia grilles:
 - Manufacturer: as clause G20/901.
 - Product reference: as clause G20/901.
- Ventilator trays:
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Fix to provide free passage of air over insulation.
- Underlay support: 12 mm plywood, as section G20.
 - Continuous to prevent water retaining troughs.
- Gutter: Dress underlay or underlay support tray to form drip into gutter.
- Undercourse and first course slates: Fix with tails projecting 50 mm over gutter or to centre of gutter, whichever dimension is the lesser.

455 MORTAR BEDDED VERGES WITH NAILED UNDERCLOAK

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

505 DRY CAPPED HIPS

- Underlay: Lay courses over hip.
 - Overlaps (minimum): 150 mm.
- Dry hip fixing battens: Manufacturers standard.
- Roof slates: Cut and fix closely at hip.
- Dry hip cappings:
 - Product reference: Redland Dry Hip System.
 - Fixing: Screw to hip fixing battens.
 - Joints in length: Apply sealant strip.
 - Bottom hip cappings: Shape neatly to align with corner of eaves.

606 VALLEY TROUGHS

- Manufacturer: Timloc Building Products.
 - Web: www.timloc.co.uk.
 - Email: sales@timloc.co.uk.
 - Product reference: Universal valley trough

615 METAL VALLEYS

- Underlay: Cut to rake. Dress over tilting fillets to lap onto metal valley. Do not lay under metal.
- Roof slates: Cut double width slates adjacent to valley to fit neatly.
 - Valley width between slates: 100 mm.

660 SIDE ABUTMENTS

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

705 DRY VENTILATED CAPPED RIDGES

- Underlay: Provide air gap at apex.
- Top slating battens: Position and fix to suit fixing of ridge cappings.
- Dry ridge cappings:
 - Product reference: Redland Half Round Rosemary Ridge with ventilation kit.
 - Fixing: Screw to top slating battens.
 - Joints in length: Face away from prevailing wind. Apply sealant strip.
- Ridge terminals:
 - Product reference: not applicable.

772 DRY VENTILATED CAPPED MONO-RIDGES

- Underlay: Provide air gap at apex.
- Top slating battens: Position and fix to suit fixing of mono-ridge cappings.
- Dry mono-ridge cappings:
 - Product reference: Redland half round Monoridge tiles with ventilation kit.
 - Fixing: Screw to top slating battens and ridge board.
 - Joints in length: Apply sealant strip.

H65 Single lap roof tiling

To be read with Preliminaries/ General conditions.

TYPES OF TILING

115 CONCRETE ROOF TILING GENERALLY

- Substrate: Rafters at 450mm.
- Pitch: 30° and 45°.
- Underlay: Vapour permeable underlay as clause 235.
 - Recycled content: as manufacturer's standard.
 - Direction: Parallel to eaves.
 - Head-lap (minimum): 100mm.
- Battens:
 - Size: 50 x 25 mm .
 - Fixing: 65 x 3.35 mm galvanized annular ring shank nails.
- Tiles: To BS EN 490, interlocking.
 - Manufacturer: Forticrete Ltd.
 - Web: www.forticrete.co.uk
 - Email: roofingtechnical@forticrete.com.
 - Product reference: Gemini.
 - Colour: Slate grey.
 - Size: 270mm x 337mm.
 - Recycled content: Manufacturer's standard.
 - Head-lap: Min. 80mm, max. 95mm.
 - Fixing:
 - Fixing of local areas: Nail every tile.
 - Fixing of general areas: Nail every tile.
- 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 accessories: As recommended by tile manufacturer.
- Gutters and pipes: Keep free of debris. Clean out at completion.

235 VAPOUR PERMEABLE UNDERLAY

- Manufacturer: A. Proctor Group
 - Web: www.proctorgroup.com
 - Email: contact@proctorgroup.com.
 - Product reference: Roofshield.
- Standard: To BS EN 13859-1.
 - Reaction to fire: Class E or better.
 - Water vapour transmission (minimum): 0.013 m.
 - Resistance to water penetration: Class W1.
 - Tensile strength (minimum): no less than MD 390 N/50mm-1; CD 230 N/50mm.
 - Tear resistance (minimum): no less than MD 230 N; CD 275 N.
 - Other BS EN 13859 characteristics: Manufacturer's standard.
- Weight (mass per unit area): 185g/m².
- Resistance to wind uplift: Greater than 1600 N/m².

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 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: Fully factory pre-graded in accordance with BS 5534.
 - Moisture content at time of fixing and covering (maximum): 22%.
- Preservative treatment: As section Z12 and Wood Protection Association Commodity Specification C8.
 - Type: Water based organic .

265 BATTEN FIXING

- Setting out: Align parallel to ridge in straight horizontal lines to the gauge of the tile. 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 each course with tails aligned.
- Ends of courses: Use special tiles to maintain bond and to ensure that cut tiles are as large as possible.
- Fixing: Mechanically fix all tiles.
 - Nail fixed tiles: Use nails recommended by tile manufacturer. Fix through every hole.
 - Clip fixed tiles: Use clips recommended by tile manufacturer.

280 LOCAL AND GENERAL FIXING AREAS

- Definitions:
 - Local areas: Bands of tiling around 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.

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.

325 FIRE SEPARATING WALLS

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

355 VENTILATED EAVES - SEPARATED GRILLES/ TRAYS

- Fascia grilles:
 - Manufacturer: as clause G20/901.
 - Product reference: as clause G20/901.
- Ventilator trays:
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Fix to provide free passage of air over insulation.
- Underlay support: 12 mm plywood.
 - Continuous to prevent water retaining troughs.
- Gutter: Dress underlay or underlay support tray to form drip into gutter.
- Eaves filler units for profiled tiles: Fix to close underside of first course tiles.
- First course tiles: Fix with tails projecting 50 mm over gutter or to centre of gutter, whichever dimension is the lesser.

365 EAVES

- Underlay support: 12 mm plywood.
 - Continuous to prevent water retaining troughs.
- Gutter: Dress underlay or underlay support tray to form drip into gutter.
- Eaves filler units for profiled tiles: Fix to close underside of first course tiles.
- First course tiles: Fix with tails projecting 50 mm over gutter or to centre of gutter, whichever dimension is the lesser.

455 MORTAR BEDDED VERGES WITH NAILED UNDERCLOAK

- Underlay: Carry over full width of verge.
- Undercloak: Fibre cement sheet.
 - Position: Over underlay, level with underside of tiling battens, sloping towards verge.
 - Projection: 38-50 mm beyond face of Barge board.
 - Fixing: Nails.
- Tiling battens: Carry onto undercloak by not less than 50 mm.
- Verge clips: Fix to every tiling batten.
- Verge tiles:
 - Bedding: Flush with undercloak on 75 mm wide bed of mortar.
 - Fixing: Nails. Do not displace or crack mortar.

505 DRY HIPS

- Underlay: Lay courses over hip.
 - Overlaps (minimum): 150 mm.
- Dry hip fixing battens: Manufacturer's standard.
- Roof tiles: Cut and fix closely at hip.
- Dry hip tiles:
 - Manufacturer: Redland.
Product reference: Dry Hip System.
 - Accessories: refer to manufacturer.

606 VALLEY TROUGHS

- Manufacturer: Timloc Building Products.
 - Web: www.timloc.co.uk.
 - Email: sales@timloc.co.uk.
 - Product reference: Universal valley trough

615 METAL VALLEYS

- Underlay: Cut to rake. Dress over tilting fillets to lap onto metal valley. Do not lay under metal.
- Roof tiles: Cut adjacent tiles to fit neatly.
 - Bedding: On mortar on fibre cement undercloaks laid loose each side of valleys.
 - Valley width between tiles: 100 mm.

660 SIDE ABUTMENTS

- Underlay: Turn up not less than 100 mm at abutments.
- Abutment tiles: Cut as necessary. Fix close to abutments.

700 DRY VENTILATED RIDGES

- Underlay: Provide air gap at apex.
- Dry ridge fixing battens: Position and fix to suit fixing of ridge cappings.
- Dry ridge tiles:
 - Manufacturer: Redland.
Product reference: Half Round Rosemary Ridge with ventilation kit.
 - Accessories: not applicable.
- Ridge terminals:
 - Manufacturer: not applicable.
Product reference: not applicable .

770 DRY VENTILATED MONO-RIDGES

- Underlay: Provide air gap at apex.
- Dry mono-ridge tiles:
 - Manufacturer: Redland.
Product reference: Half round Monoridge tiles with ventilation kit.
 - Accessories: not applicable.

H71 Lead sheet fully supported roof and wall coverings/ flashings

To be read with Preliminaries/ General conditions.

TYPES OF LEADWORK

Note: Use of lead sheet may be considered inappropriate for building location. In this instance a lead replacement material shall be submitted to the Contract Administrator for consideration and approval. All clauses below may be considered as appropriate for the chosen alternative material (with the exception of patination oils) unless otherwise advised by material manufacturer.

150 LEAD SHEET FULLY SUPPORTED COVERING TO DORMERS

- Main roof covering: As worksection H61 or H65.
- Covering system: Rolled lead sheet welted seam.
- Fire performance:
 - Dormer cheek: As clause 201.
 - Dormer roof: Not applicable.
 - Inner lining/ cavities: As clause 203.
 - Cavity fire barriers: Not applicable.
- Insurance and warranties: Not required.
- Air and vapour control layer:
 - Manufacturer: Novia Ltd.
 - Web: www.novia.co.uk.
 - Email: sales@novia.co.uk.
 - Product reference: Polybit Building Paper .
- Insulation: 140mm Mineral board to BS EN 13162.
- Sarking, roof boarding or sheathing: 18 mm OSB sheathing to BS EN 300 - type 3.
- Membrane: Vapour-permeable sheet to BS 13859-1.
- Substrate: Marine grade plywood on studs.
 - Preparation: Not required.
- Sheet underlay: Building paper to BS 1521, Class A1.
- Type of lead: Rolled to BS EN 14783.
 - Thickness: 1.75 or 1.80 mm (Code 4).
- Pretreatment: Apply thin coating of patination oil to underside of lead and allow to dry before laying.
- Joints in top/ sill: None.
- Joints in cheeks: Vertical welted seams.
- Intermediate fixings in cheeks: Brass cup and screw with lead-welded diamond shaped cap.

201 FIRE PERFORMANCE OF EXTERNAL WALL

- Wall covering: Reaction to fire: To BS EN 13501-1, Class A1.
- Substrate: Reaction to fire: To BS EN 13501-1, Class A1..
- Additional requirements: None.

203 FIRE PERFORMANCE OF INNER LINING/ CAVITIES

- Reaction to fire/ spread of flame: To BS EN 13501-1, Class A1.

- 230 VALLEY GUTTER LINING TO SLATE/ TILE ROOFS
- Sheet underlay: Building paper to BS 1521, Class A1.
 - Type of lead: Rolled to BS EN 12588.
 - Thickness: 1.75 or 1.80 mm (Code 4).
 - Pretreatment: Apply thin coating of patination oil to underside of lead and allow to dry before laying.
 - Laying: Over and beyond tilting fillets.
 - Lengths: Not more than 1500 mm.
 - Cross joints: Lapped not less than 150 mm.
 - Fixing: Welt edges. Nail top edge of each sheet. Dress bottom end neatly into eaves gutter.
- 250 WEATHERING TO SMALL CANOPIES
- Substrate: Plywood on rafters.
 - Sheet underlay: Building paper to BS 1521, Class A1.
 - Type of lead: Rolled to BS EN 12588.
 - Thickness: 1.75 or 1.80 mm (Code 4).
 - Joints: Welted.
 - Spacing: 1500 mm.
 - Edge details: Welted drip at front, upstand at rear with tuck in.
 - Fixing: Lead clips at 500 centres.
 - Accessories: None.
- 440 SOAKERS AND STEP FLASHINGS AT LEAN-TO SIDE ABUTMENT
- Lead soakers:
 - Thickness: 1.75 or 1.80 mm (Code 4).
 - Dimensions:
 - Length: Slate/ tile gauge + lap+ 25 mm.
 - Upstand: Not less than 75 mm.
 - Underlap: Not less than 100 mm.
 - Fixing: By roofer.
 - Lead step flashings:
 - Thickness: 1.75 or 1.80 mm (Code 4).
 - Dimensions:
 - Lengths: Not more than 1500 mm.
 - End to end joints: Laps of not less than 100 mm.
 - Cover: Overlap to soaker upstands of not less than 65 mm.
 - Fixing: Lead wedges at every course.
- 450 STEP AND COVER FLASHINGS AT LEAN-TO SIDE ABUTMENT
- Lead:
 - Thickness: 1.75 or 1.80 mm (Code 4).
 - Dimensions:
 - Lengths: Not more than 1500 mm.
 - End to end joints: Laps of not less than 100 mm.
 - Upstand: Not less than 85 mm.
 - Cover to roof: Not less than 150 mm.
 - Fixing: Lead wedges at every course and clips at not more than 500 mm centres along free edge.

GENERAL REQUIREMENTS/ PREPARATORY WORK

510 WORKMANSHIP GENERALLY

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

515 LEAD-WELDING

- In situ lead-welding: Not permitted.

520 LEAD SHEET

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

610 SUITABILITY OF SUBSTRATES

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

640 TIMBER FOR USE WITH LEADWORK

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

650 LAYING SHEET UNDERLAY

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

FIXING LEAD

705 HEAD FIXING LEAD SHEET

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

710 FIXINGS

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

JOINTING LEAD

810 FORMING DETAILS

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

880 WELTED JOINTS

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

970 PATINATION OIL

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Location: all lead locations.
- Application: As soon as practical, apply a smear coating to lead, evenly in one direction and in dry conditions.

J30 Liquid applied tanking/ damp proofing

To be read with Preliminaries/General conditions

TYPES OF TANKING/ DAMP PROOFING

111 BITUMEN SOLUTION COATING

- Manufacturer: RIW.
 - Web: www.riw.co.uk.
 - Email: technical@riw.co.uk.
 - Product reference: RIW LAC®
- Application: Two coats
- Coverage per coat (maximum): First coat: 1.7 m²/litre, second coat: 2.5 m²/litre
- Binding: Not required
- Reinforcement: Sheetseal 226

EXECUTION

205 SUITABILITY OF SUBSTRATE

- Substrates generally:
 - Smooth, even textured, clean, dry and frost free.
 - Within tolerances for level and surface regularity.
 - Vertical and horizontal surfaces: Correctly prepared and free from irregularities.
- Curing period for concrete substrates (minimum): 7 days.
- Moisture content and stability of substrate: Must not impair integrity of finished tanking/ damp proofing.
- Preliminary work: Complete including:
 - Chases.
 - External angles.
 - Formation of upstands and kerbs.
 - Movement joints.
 - Penetrations/ Outlets.

207 PRIMERS

- Application: Uniform, continuous coverage.

210 COATING APPLICATION

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

260 JUNCTIONS WITH DPCS

- Dpcs: Clean, all edges fully exposed.
- Application: Fully coat dpc and overlap adjacent surfaces by (minimum) 75 mm .

270 BLINDING

- Coatings: not applicable
- Surplus material: Remove when coatings are completely dry.

COMPLETION

310 INSPECTION

- Interim and final inspections: Submit reports.

340 BACKFILLING TO EXTERNAL COATINGS

- Timing: Carry out as soon as possible after tanking and protection are complete.

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

121 LOOSE LAID PLASTICS OR RUBBER SHEET DAMP PROOFING

- Manufacturer: Visqueen.
 - Web: www.visqueen.com.
 - Product reference: Visqueen EcoMembrane®
- Membrane:
 - Thickness: min. 300 µm (1200 gauge).
- Accessories:
 - Double Sided Jointing Tape;
 - Foil Backed Lap Tape;
 - Preformed Pipe Cloak (Top Hat) Units; and
 - Visqueen Zedex CPT High Performance DPC.

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.

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: Bonding compound.

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

- Manufacturer: Visqueen.
 - Web: www.visqueen.com.
 - Product reference: Visqueen Top Hat Units
- Type: Flexible preformed pipe sleeve.
- Diameter: 110 mm and 160mm.

J42 Single layer polymeric sheet roof coverings

To be read with Preliminaries/ General conditions.

TYPES OF ROOF COVERING

110 WARM DECK ROOF COVERING TO CENTRE PORTION OF BUILDING ROOF

- Substrate: Plywood deck.
 - Preparation: Vapour control layer as clause 396 and insulation as clause 425.
- Roof covering system: Polymeric.
 - Manufacturer: Alwitra, Product of ICB (Waterproofing) Ltd.
 - Web: www.icb.uk.com.
 - Email: info@icb.uk.com.
 - Product reference: Evalon VSK Self-Adhered Warm Roof System.
 - Lower protection layer (loose laid): Not required.
 - Air and vapour control layer: As clause 396.
 - Insulation: As clause 425.
 - Separating layer (loose laid): Not required.
 - Waterproof membrane: Vinyl ethylene terpolymer (VET).
 - Width: 1550 mm where appropriate, otherwise 1050mm.
 - Thickness: 1.5 mm + 1.00 mm fleece backing.
 - Colour: Light grey upper surface.
 - Upper protection layer (loose laid): Not required.
- Surface protection: Membrane walkways.
- Accessories: Alwitra vertical rainwater outlet
Alwitra soil vent pipe.

PRODUCTS

330 TIMBER TRIMS, ETC.

- Quality: Planed. Free from wane, pitch pockets, decay and insect attack except ambrosia beetle damage.
- Moisture content at time of covering (maximum): 22%.
- Preservative treatment: As recommended for purpose by waterproof covering manufacturer.

340 PREFORMED SLEEVES

- Type: 0.6 mm galvanized steel flanged sleeve with 0.5 mm unreinforced membrane laminate.
- Manufacturer: Alwitra, Product of ICB (Waterproofing) Ltd.
 - Web: www.icb.uk.com.
 - Email: info@icb.uk.com.
 - Product reference: Alwitra vent stack sleeve.
- Colour: Light grey.
- Size: 110mm dia. x min. 150mm upstand.

370 COVER STRIPS TO JOINTS IN RIGID BOARD SUBSTRATES

- Bitumen membrane: To BS 8747, class S2P3.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Width: 150 mm.

- 396 VAPOUR CONTROL LAYER
- Manufacturer: BMI Icopal.
 - Web: www.icopal.co.uk.
 - Email: sales.admin@bmigroup.com.
 - Product reference: TorchSafe T.A. VCL - Stripes
- 425 MINERAL WOOL (MW) WARM DECK ROOF INSULATION
- Manufacturer: ROCKWOOL Ltd.
 - Web: www.rockwool.co.uk.
 - Email: info@rockwool.com.
 - Product reference: ROCKWOOL Rockfloor Thermal.
 - Standard: To BS EN 13162.
 - Reaction to fire: Manufacturer's standard.
 - Thermal conductivity (minimum): Manufacturer's standard.
 - Thickness: 150 mm.
 - Other BS EN 13162 characteristics: None.
 - Board density: As insulation manufacturer's recommendations for the traffic loading.
 - Recycled content: Submit proposals.
 - Edges: Square.
 - Facing: Glass tissue.
- 485 MEMBRANE WALKWAY
- Manufacturer/ Supplier: As roof membrane.
 - Product reference: Evalon VSK Self-Adhered Warm Roof System.
 - Width: 1050mm.
 - Thickness: 1.5mm.
 - Colour: Dark grey.
 - Finish: as manufacturer's standard
 - Reinforcement: Not required.

EXECUTION GENERALLY

- 510 ADVERSE WEATHER
- General: Do not lay membrane at temperatures below 5°C or in wet or damp conditions unless effective temporary cover is provided over working area.
 - Unfinished areas of roof: Keep dry and protect edges of laid membrane from wind action.
- 520 INCOMPLETE WORK
- End of working day: Provide temporary seal to prevent water infiltration.
 - On resumption of work: Cut away tail of membrane from completed area and remove from roof.

SUBSTRATES/ AIR AND VAPOUR CONTROL LAYERS/ WARM DECK ROOF INSULATION

610 SUITABILITY OF SUBSTRATES

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

640 FIXING TIMBER TRIMS

- Fasteners: Sherardized steel screws.
- Fixing centres (maximum): 400 mm.

660 JOINTS IN RIGID BOARD SUBSTRATES

- Cover strip: Lay centrally over substrate joints before laying air and vapour control layers or coverings. Adhere to substrate with bonding compound along edges only.

670 LAYING AIR AND VAPOUR CONTROL LAYER

- Laying: Loose laid, flat and smooth.
- Side and head laps: 150mm and 150mm respectively. Seal using materials and method as membrane manufacturer's/ supplier's recommendations.
- Upstands, kerbs and other penetrations: Enclose edges of insulation. Fully seal at abutment by bonding or taping.

680 LAYING WARM DECK ROOF INSULATION

- Setting out:
 - Long edges: Fully supported and running at right angles to side laps in single ply membrane.
 - End edges: Adequately supported.
 - Joints: Butted together.
 - End joints: Staggered.
- Attachment: Full bed of cold bitumen bonding compound.
- Mechanical fixing: Not required.
- Completion: Boards must be in good condition, well fitting and secure.

WATERPROOF MEMBRANES/ ACCESSORIES

720 ADHESIVE BONDING OF WATERPROOF MEMBRANE

- Setting out: Perpendicular to the deck direction.
- Attachment: Fully adhered on a continuous even coating of adhesive.
 - Do not wrinkle or stretch.
- Surface condition at completion: Fully sealed, smooth, weatherproof and free draining.

740 ADHESIVE JOINTING OF WATERPROOF MEMBRANE

- Side and end joints:
 - Laps (minimum): 150mm.
 - Preparation: Prime, clean and dry surfaces beyond full width of joint and lap.
 - Sealing: Apply continuous even coverage of adhesive to both surfaces. Mate and roll together. Do not wrinkle or stretch membrane.
- Seam sealant: Even bead of liquid PVC to each joint.
- Condition at completion: Fully sealed, smooth, weatherproof and free draining.

750 TAPE JOINTING OF WATERPROOF MEMBRANE

- Side and end joints:
 - Laps (minimum): 150mm.
 - Preparation: Prime, clean and dry surfaces beyond full width of joint.
 - Sealing: Apply self-adhesive tape. Mate and roll together. Do not wrinkle or stretch membrane.
- Condition at completion: Fully sealed, smooth, weatherproof and free draining.

760 PERIMETER OF MEMBRANE

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

785 ROOF PENETRATIONS THROUGH ELASTOMERIC MEMBRANES

- Roof membrane: Cut around penetrations.
- Flanged sleeve:
 - Type: Form from roof membrane complete with base flange if pre-formed flanged sleeve is unavailable.
 - Installation: Dress over and around penetration.
 - Seating: Flush to roof membrane.
 - Roof membrane overlap to flange (minimum): 75 mm beyond fasteners.
 - Sealing: Adhesive.

SURFACING

850 LAYING MEMBRANE WALKWAYS

- Attachment: Contact bonded.

COMPLETION

910 INSPECTION

- Interim and final roof inspections: Submit reports.

920 ELECTRONIC ROOF INTEGRITY TEST

- Testing authority: Submit proposals.
- Timing of test: Prior to, and on completion of access by other trades.
- Condition of roof prior to testing:
 - Waterproof membrane complete to a stage where integrity can be tested.
 - Surface: Clean.
- Test results and warranty: Submit on completion of testing

940 COMPLETION

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

K10 Gypsum board dry linings/ partitions/ ceilings

To be read with Preliminaries/ General conditions.

TYPES OF DRY LINING

125 METAL STUD PARTITION SYSTEM GENERALLY

- Manufacturer: British Gypsum
 - Web: www.british-gypsum.com.
 - Tel: +44 (0)844 800 1991.
 - Product reference: GypWall Classic
 - Sound insulation: Rw 36 dB.
- Studs:
 - Type: 70 mm Gypframe 70 S 50 'C' studs.
 - Centres: 600 mm.
- Head condition: Gypframe 72 C 50 Floor and Ceiling Channels, fixed to underside of structural steel beam or composite floor deck.
 - Deflection allowance: 15 mm.
- Insulation: Not required.
 - Recycled content: Not applicable.
 - Thickness: Not applicable.
- Resilient layer: Not applicable.
- Linings: 1 x 12.5 mm Gyproc WallBoard to each side.
- Finishing: Taped seamless finish.
 - Primer/ Sealer: One coat of Gyproc Drywall Prime.
 - Accessories: None.
- Other requirements: None.

126 METAL STUD PARTITION SYSTEM ENCLOSING BATHROOMS

- Manufacturer: British Gypsum
 - Web: www.british-gypsum.com.
 - Tel: +44 (0)844 800 1991.
 - Product reference: GypWall Classic
 - Sound insulation: Rw 42 dB.
- Studs:
 - Type: 70 mm Gypframe 70 S 50 'C' studs.
 - Centres: 600 mm.
- Head condition: Gypframe 72 C 50 Floor and Ceiling Channels, fixed to underside of structural steel beam or composite floor deck.
 - Deflection allowance: 15 mm.
- Insulation: Isover APR 1200.
 - Recycled content: Not applicable.
 - Thickness: 25 mm.
- Resilient layer: Not applicable.
- Linings: 1 x 12.5 mm Gyproc WallBoard to dry side, 1 x 12.5 mm Gyproc Moisture Resistant to bathroom side.
- Finishing: Taped seamless finish.
 - Primer/ Sealer: One coat of Gyproc Drywall Prime.
 - Accessories: None.
- Other requirements: None.

127 METAL STUD PARTITION SYSTEM TO SERVICE RISER

- Manufacturer: British Gypsum
 - Web: www.british-gypsum.com.
 - Tel: +44 (0)844 800 1991.
 - Product reference: ShaftWall
 - Sound insulation: Rw 44 dB.
- Studs:
 - Type: 70 mm Gypframe 70 S 50 'C' studs with Gypframe retaining channel.
 - Centres: 600 mm.
- Head condition: Gypframe 72 C 50 Floor and Ceiling Channels, fixed to underside of structural steel beam or composite floor deck.
 - Deflection allowance: 15 mm.
- Insulation: Isover APR 1200.
 - Recycled content: Not applicable.
 - Thickness: 25mm.
- Resilient layer: Not applicable.
- Linings: 2 x 12.5 mm Gyproc FireLine boards to room face, with Gyproc CoreBoard to shaft.
- Finishing: Taped seamless finish.
 - Primer/ Sealer: One coat of Gyproc Drywall Primer.
 - Accessories: None.
- Other requirements: None.

185 WALL LINING SYSTEM (ADHESIVE) TO MASONRY WALLS

- Manufacturer: British Gypsum.
 - Web: www.british-gypsum.com.
 - Email: bgtechnical.enquiries@bpb.com.
 - Product reference: DriLyner BASIC.
- Wall: Concrete blockwork, with additional 6mm render pargetting to internal walls forming party walls between apartments.
- Adhesive method: Dabs, as clause 620.
- Linings: 1 x 12.5 mm Gyproc WallBoard generally, 1 x 12.5 mm Gyproc Moisture Resistant to bathroom linings.
- Finishing: Taped seamless finish.
 - Primer/ Sealer: One coat of Gyproc Drywall Primer.
 - Accessories: None.
- Other requirements: None.

205 LINING ON TIMBER TO DORMER CHEEKS

- Background: Studs at 450mm centres.
- Metal resilient (acoustic) bars: Not required.
- Linings: 1 x 12.5 mm Gyproc WallBoard.
 - Fixing: Screws.
- Finishing: Taped seamless finish.
 - Primer/ Sealer: One coat of Gyproc Drywall Primer.
 - Accessories: None.
- Other requirements: None.

221 PROPRIETARY SUSPENDED CEILING SYSTEM TO GROUND AND FIRST FLOOR AREAS GENERALLY

- Standard: To BS EN 13964.
- Evidence of compliance: All ceilings kits to be CE marked. Submit Declaration of Performance (DoP).
- Ceiling system manufacturer: British Gypsum.
 - Web: www.british-gypsum.com.
 - Email: bgtechnical.enquiries@bpb.com.
 - Product reference: CasoLine MF suspended ceiling system.
- Ceiling:
 - Soffit height above finished floor level: nom. 2400mm, but refer also to drawings.
- Suspension system:
 - Hangers: Gypframe MF8 strap hangers.
 - Top fixings: Gypframe GA1 steel angles, cut and bent, for direct fixing to the soffit, using fixings recommended by beam and block floor manufacturer.
 - Hanger centres: 900mm.
 - Primary grid centres: 900 mm, 1200mm where larger room area permits.
 - Secondary grid centres: 450 mm, 600mm where larger room area permits.
- Linings: 1 x 12.5 mm Gyproc WallBoard, 1 x 12.5 mm Gyproc Moisture Resistant to bathroom linings, 1 x 12.5mm Gyproc SoundBloc if void is consistently less than 100mm.
- Finishing: Taped seamless finish.
- Insulation: Isover general purpose roll.
 - Recycled content: Submit proposals.
 - Thickness: 100mm.
- Access: As required by Mechanical and Electrical Engineer.
- Accessories: None.
- Integrated services fittings: As required by Mechanical and Electrical Engineer.
- Electrical continuity and earth bonding: Required.
- Other requirements: None.

245 CEILING LINING ON TIMBER TO SECOND FLOOR

- Background: Joists at nom. 400/450mm centres.
- Metal resilient (acoustic) bars: Not required.
- Linings: 1 x 12.5 mm Gyproc WallBoard, 1 x 12.5 mm Gyproc Moisture Resistant to bathroom linings.
 - Fixings: Screws.
- Finishing: Taped seamless finish.
 - Primer/ Sealer: One coat of Gyproc Drywall Primer.
 - Accessories: None.
- Other requirements: None.

INSTALLATION

305 GYPSUM BOARDS GENERALLY

- Standard:
 - Gypsum plasterboard to BS EN 520.
 - Fibre reinforced gypsum board to BS EN 15283-2.
 - Evidence of compliance: All sheets to be CE marked. Submit Declaration of Performance (DoP).

335 ADDITIONAL SUPPORTS

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

375 NEW WET LAID BASES

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

435 DRY LININGS GENERALLY

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

445 CEILINGS

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

455 METAL FRAMING FOR PARTITIONS/ WALL LININGS

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

485 SUSPENDED CEILING GRIDS

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

505 INSTALLING MINERAL WOOL INSULATION

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

510 SEALING GAPS AND AIR PATHS

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

530 CAVITY FIRE BARRIERS WITHIN PARTITIONS/ WALL LININGS

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

555 FIRE STOPPING AT PERIMETERS OF DRY LINING SYSTEMS

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

560 JOINTS BETWEEN BOARDS

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

565 VERTICAL JOINTS

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

570 HORIZONTAL JOINTS

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

590 FIXING GYPSUM BOARD TO METAL FRAMING/ FURRINGS

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

610 FIXING GYPSUM BOARD TO TIMBER

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

620 FIXING GYPSUM BOARD WITH ADHESIVE DABS

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

Thickness (mm)	Width (mm)	Dab centres (mm)
9.5 1200	400	
9.5/12.5	900	450
12.5	1200	600
- Adhesive dab dimensions (width x length): At least 50-75 mm x 250 mm.
 - Position of dabs from edges/ ends of boards (minimum): 25 mm.

FINISHING

650 LEVEL OF DRY LINING ACROSS JOINTS

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

670 SEAMLESS JOINTING TO GYPSUM BOARDS

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

725 REPAIRS TO EXISTING GYPSUM BOARD

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

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

To be read with Preliminaries/ General conditions.

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

110 WOOD-BASED SHEETS GENERALLY

- Standard: To BS EN 13986.
 - Evidence of compliance: All sheets to be CE marked. Submit Declaration of Performance (DoP).

125 BATTENED PARTICLEBOARD FLOATING FLOOR TO FIRST AND SECOND FLOORS

- Substrate: Beam and block flooring.
 - Preparation: Screed as clause M20.
- Resilient layer: 15mm layer of LRAC foam type III bonded to underside of each timber batten.
 - Recycled content: Submit proposals.
- Loose laid battens: 50 x 45* mm regularized softwood at 400 mm centres with bonded acoustic layer as above.
 - Additional battens: within 25mm of perimeter.
- Thermal insulation between battens: not applicable.
 - Recycled content: not applicable.
- Air and vapour control layer: Not required.
- Floating substrate: Not required.
- Flooring: Particleboard to BS EN 312, Type P5.
 - Thickness: 22 mm
 - Sound insulation (overall, including concrete deck and ceiling below): as required by Robust Detail ref: E-FC-2.
 - Fire performance: Manufacturer's standard.
 - Edges: Tongued-and-grooved to all edges.
 - Recycled content: Submit proposals.
- Installation:
 - Floors with no vapour control layer: Adhesive fixed to each batten.
 - Setting out of floating substrate (where specified): Long edges running across battens. End joints central over battens and staggered.
 - Setting out of flooring: Long edges running across battens. End joints central over battens and staggered. All joints glued.
 - Flooring laid over floating substrate: Spot bonded to floating substrate. Joints must not coincide.
 - Fixing flooring to each batten:
 - Fasteners: None, boards to be laid in broken bond pattern with joists supporting all joints, with all joints glued.
 - Fixing centres: Not applicable.
- Bonding/ Jointing adhesive: PVA to BS EN 204, class D3.
- Expansion provision:
 - Clear expansion gap around perimeter of floor area and upstands: 5mm, with additional acoustic flanking strip gap infill.
 - Intermediate expansion/ movement joints: As recommended by flooring manufacturer.
 - Other requirements: None.

416 PLYWOOD WALL SHEATHING

- Substrate: Fixed between metal studs within Gypsum board partitions as worksection K10, providing additional fixing and support to wall mounted items.
 - Additional supports: s.w battens fixed within channel depth.
- Manufacturer: Hanson Plywood Ltd.
 - Web: www.hanson-plywood.co.uk .
 - Email: sales@hanson-plywood.co.uk.
 - Product reference: H Birch Plywood
- Face grade: BB/BB.
- Board size: as necessary, cut from 1220 x 2440 mm.
- Thickness: 18 mm.

516 PLYWOOD ROOF DECKING

- Substrate: [Treated s.w. roof joists].
 - Additional supports: [Treated s.w. tilting fillets].
- Manufacturer: Hanson Plywood Ltd.
 - Web: www.hanson-plywood.co.uk .
 - Email: sales@hanson-plywood.co.uk.
 - Product reference: H Performance Plywood
 - Board size: 1220 x 2440 mm.
- Thickness: 21 mm.
- Setting out: Long edges running across supports. End joints central over joists and staggered.
- Fixing:
 - Fasteners: 50 mm x 8 gauge wood screws into pilot holes.
 - Fixing centres:
 - Along each support: 25 mm from each long edge and at maximum 300mm centres between.
 - Around perimeter of roof area: Maximum 150mm centres.
- Expansion provision:
 - Clear expansion gap around perimeter of roof area and upstands: 10 mm.
 - Intermediate expansion/ movement joints: As recommended by decking manufacturer.

WORKMANSHIP

910 INSTALLATION GENERALLY

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

925 BATTENS FOR FLOATING FLOORS

- Timber quality: Free from decay, insect attack (except ambrosia beetle damage) and with no knots wider than half the width of the section.
- Preservative treatment: As section Z12 and Wood Protection Association Commodity Specification C8.
 - Type/ Desired service life: Organic solvent Type FN/ 60 years.
- Moisture content at time of laying (maximum): 16%.

930 ADDITIONAL SUPPORTS

- Additional studs, noggings/ dwangs (Scot) and battens:
 - Provision: In accordance with board manufacturer's recommendations and as follows:
 - Tongue and groove jointed rigid board areas: To all unsupported perimeter edges.
 - Butt jointed rigid board areas: To all unsupported edges.
 - Size: Not less than 50 mm wide and of adequate thickness.
 - Treatment (where required): As for adjacent timber supports.
- Additional floor supports.
 - Type: as manufacturer's guidance.
 - Acoustic batten cradles.
 - Counterbattens.

940 BOARD MOISTURE CONTENT AND CONDITIONING

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

960 FIXING GENERALLY

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

980 OPEN JOINTS

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

990 ACCESS PANELS

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

K40 Demountable suspended ceilings

To be read with Preliminaries/General conditions.

TYPES OF CEILING SYSTEM

116 SUSPENDED CEILING

- Manufacturer: Knauf.
 - Web: www.knauf.co.uk.
 - Email: technical@knauf.co.uk.
 - Product reference: Corridor F30.
- Perforations: Regula (R), plain.
- Size: 400 x 1200-2400 x 9.5mm.
- Length: as noted on drawings.

COMPONENTS

245 STANDARDS

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

271 BOARDS

- Manufacturer: Knauf.
 - Web: www.knauf.co.uk.
 - Email: technical@knauf.co.uk.
 - Product reference: Corridor F30
- Perforations: Plain Regular (R).
- Length: 400 x 1200-2400 x 9.5mm.
- Access: Consult Knauf Danoline for details.

EXECUTION

305 SETTING OUT

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

315 PROTECTION

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

325 INSTALLING HANGERS

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

335 INSTALLING PERIMETER TRIMS

- Jointing: Neat and accurate, without lipping or twisting.
- External and internal corners: Mitre joints generally. Overlap joints at internal corners are not acceptable.
 - Intermediate butt joints: Minimize. Use longest available lengths of trim. Align adjacent lengths.
- Fixing: Fix firmly to perimeter wall, edge battens or other building structure.
 - Fasteners: submit proposals.
 - Fixing centres: 450 mm.

375 BOARD CEILING SYSTEMS

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

390 OPENINGS IN CEILING MATERIALS

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

395 INTEGRATED SERVICES

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

401 CEILING-MOUNTED LUMINAIRES

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

411 MECHANICAL SERVICES

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

415 INSTALLING INSULATION

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

421 CEILING SYSTEMS INTENDED FOR FIRE PROTECTION

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

COMPLETION

505 TOOLS

- Access tools: At Completion supply one set of the following: Consult Knauf Danoline for details.

530 SPARES

- General: At Practical Completion supply the following: 10% additional tiles for ceiling system K40/116.

L10 Windows/ Rooflights/ Screens/ Louvres

To be read with Preliminaries/ General conditions.

GENERAL

110 EVIDENCE OF PERFORMANCE

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

115 TIMBER PROCUREMENT

- Timber (including timber for wood based products): Obtained from well managed forests and/or plantations in accordance with:
 - The laws governing forest management in the producer country or countries.
 - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
- Documentation: Provide either:
 - Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
 - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.
- Certification scheme: Contractor's choice in accordance with UK Government timber procurement policy (UKTPP), i.e. FSC, GiB or PEFC.
 - Other evidence: UK Government Timber procurement policy (UKTPP) Category B evidence

PRODUCTS

381 PVC-U WINDOWS

- Standard: Agrément certified.
- Colour/ Texture: White.
- Exposure category to BS 6375-1/ Design wind load: min. 1600 Pa.
- Operation and strength characteristics: To BS 6375-2 and to be compliant with and certified to BS PAS 24 Secured by Design requirements.
- Reinforcement: Carbon steel sections with corrosion resistant coating matching requirements of hot dip zinc coated conforming to BS EN 10346.
- Thermal performance (U-value maximum): 1.2 W/m²K or better.
- Fire resistance: Manufacturer's standard.
- Glazing details: 4-20-4 argon filled sealed double glazing units generally, but with external pane of laminated glass rated as P1A under EN 356 to all ground floor glazing units.
 - Beading: Internal.
- Ironmongery/ Accessories:
 - Key operated locking handle;
 - Horizontal friction pivot;
 - Restrictor limited to 100mm projection on ground floor; or
 - Trickle ventilator.
- Fixing: min. 4no. galvanised steel straps, internally returned and fixed to internal masonry leaf, or as required by Secured by Design requirements.

461 FIXED ROOFLIGHT

- Manufacturer: Glazing Vision Ltd.
 - Web: www.glazingvision.co.uk.
 - Email: sales@glazingvision.co.uk.
 - Product reference: GV Flushglaze (Double Glazed) Rooflight.
- Size: 1100 x 1100mm to achieve 900 x 900mm clear internal opening.
- Type: Square.
- Colour/ finish: Qualicoat approved polyester powder coated, RAL9005.
- Kerb:
 - Height: 150mm.
 - Thickness: 75mm.
- Accessories: Kerb cover extrusion and Ritec Clearshield 'easy clean' glass treatment.

481 CENTRE PIVOT ROOF WINDOW

- Manufacturer: VELUX Company Ltd.
 - Web: www.velux.co.uk.
 - Email: sales@velux.co.uk.
 - Product reference: GGU manually operated, white polyurethane, centre-pivot roof window
- Roof pitch: 30°.
- Window:
 - Code: GGU MK04.
- Finish:
 - Internal frame and sash: White polyurethane – Code 0
 - External cladding: Painted aluminium – code 8 – colour.
- Glazing: 7021U.
- Blinds, Awning and Shutter:
 - Type: Blackout blind – Code DKL.
 - Colour: Not applicable.
 - Operation: Manual.
- Energy efficiency installation collars: Insulation Collar – Code BDX 2000F.
- Flashing: EDJ.
- Accessories: 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: Stack vertical or near vertical on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

730 PRIMING/ SEALING

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

740 CORROSION PROTECTION

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

750 BUILDING IN

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

755 PVC-U WINDOW INSTALLATION

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

765 WINDOW INSTALLATION GENERALLY

- Installation: Into prepared openings.
- Gap between frame edge and surrounding construction:
 - Minimum: 3mm.
 - Maximum: 10mm.
- Distortion: Install windows without twist or diagonal racking.

766 LOCATION OF OPENABLE WINDOWS IN NATURALLY VENTILATED BUILDINGS

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

783 FIXING OF PVC-U FRAMES

- Standard: As section Z20.
- Fasteners: 25 x 3 x 150 mm galvanized carbon steel frame cramps.
 - Spacing: When not predrilled or specified otherwise, position fasteners 150-250 mm from ends of each jamb, adjacent to each hanging point of opening lights, but no closer than 150 mm to a transom or mullion centre line, and at maximum 600 mm centres.

810 SEALANT JOINTS

- Sealant:
 - Manufacturer: Submit proposals.
Product reference: Submit proposals.
 - Colour: White.
 - Application: As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.

820 IRONMONGERY

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

L20 Doors/ shutters/ hatches

To be read with Preliminaries/ General conditions.

GENERAL

110 EVIDENCE OF PERFORMANCE

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

112 TIMBER PROCUREMENT

- Timber (including timber for wood-based products): Obtained from well-managed forests and/or plantations in accordance with:
 - The laws governing forest management in the producer country or countries.
 - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
- Documentation: Provide either:
 - Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
 - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.
- Certification scheme:
 - UK Timber procurement policy Category A evidence certification scheme.;
 - Forest Stewardship Council (FSA);
 - Grown in Britain (GiB); or
 - Programme for the Endorsement of Forest Certification (PEFC).
 - Other evidence: UK Timber procurement policy Category B evidence: Completed supply chain information within attached proforma.

115 FIRE RESISTING AND SMOKE CONTROL PEDESTRIAN DOORS/ DOOR ASSEMBLIES/ DOORSETS

- CE marked fire resisting doorsets: To BS EN 16034 and in conjunction with BS EN 13241 and BS EN 14351-1 (and eventually prEN 14351-2).
- Door products: As defined in BS EN 12519.
- Evidence of fire performance: Provide certified evidence, in the form of a product conformity certificate, directly relevant fire test report or engineering assessment, that each door/ door assembly/ doorset supplied will comply with the specified requirements for fire resisting and/ or smoke control if tested to BS 476-22, BS EN 1634-1, BS EN 1634-3 or is CE marked to BS EN 16034. 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 European product standard (hEN), national product standard and/ or third party certification rating.

- 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 European product standard, national product standard and/ or third party certification rating.
- 150 SITE DIMENSIONS
- Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
 - Designated items: uPVC entrance and french doorsets.

PRODUCTS

- 410 WOOD DOORSETS FD30S FIRE RESISTING AND SMOKE CONTROL APARTMENT FRONT DOORS
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Door leaf:
 - Core: Solid laminated softwood.
 - Thickness: 44 mm.
 - Facings: Interior grade plywood.
 - Lippings: Concealed lippings to long edges.
 - Finish as delivered: min. primer and undercoat, as section M60.
 - Frame and architraves:
 - Type: softwood, internal.
 - Wood species: European redwood.
 - Finish as delivered: min. primer and undercoat, as section M60.
 - Preservative treatment: Not required.
 - Glazing/ Infill details: Not applicable.
 - Manifestation: Not applicable.
 - Beading: Not applicable.
 - Ironmongery: as a minimum, but to comply with Secured by Design recommendations
 - min 3no. hinges per leaf
 - lever handle to inside with key operation to outside, linked to multipoint locking mechanism to opening stile
 - dog bolts to hinge stile
 - 150° door viewer.
 - Perimeter seals: Fire and smoke seal.
 - Thermal performance (U-value maximum): Manufacturer's standard.
 - Other requirements: Doorset to be compliant with and certified to BS PAS 24, SPS 201 or LPS 1175 SR2.
 - Fixing: min. 4no. galvanised steel straps, internally returned and fixed to internal masonry leaf, or as required to satisfy the requirements of Secured by Design.

411 WOOD DOORSETS FD30S FIRE RESISTING AND SMOKE CONTROL CIRCULATION
ROUTE DOORS

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Door leaf:
 - Core: Solid laminated softwood.
 - Thickness: 44 mm.
 - Facings: Interior grade plywood.
 - Lippings: Concealed lippings to long edges.
 - Finish as delivered: min. primer and undercoat, as section M60.
- Frame and architraves:
- Type: softwood, internal.
 - Wood species: European redwood.
 - Finish as delivered: min. primer and undercoat, as section M60.
- Preservative treatment: Not required.
- Glazing/ Infill details: 7mm Pilkington Pyrodur Plus 30-104 or similar where noted on door schedules.
 - Manifestation: Not applicable.
 - Beading: screw fixed hardwood beads, compliant with fire door certification.
- Ironmongery: To comply with Secured by Design recommendations to DM.07 otherwise, as noted on door schedules.
- Perimeter seals: Fire and smoke seal.
- Thermal performance (U-value maximum): Manufacturer's standard.
- Other requirements: DM.07 doorset to be compliant with and certified to BS PAS 24, SPS 201 or LPS 1175 SR2.
- Fixing: min. 4no. galvanised steel straps, internally returned and fixed to internal masonry leaf, or as required to satisfy the requirements of Secured by Design.

412 WOOD DOORSETS INTERNAL, WITHIN APARTMENT

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Door leaf:
 - Core: Solid laminated softwood.
 - Thickness: 44 mm.
 - Facings: Interior grade plywood.
 - Lippings: Concealed lippings to long edges.
 - Finish as delivered: min. primer and undercoat, as section M60.
- Frame and architraves:
- Type: softwood, internal.
 - Wood species: European redwood.
 - Finish as delivered: min. primer and undercoat, as section M60.
- Preservative treatment: Not required.
- Glazing/ Infill details: Not applicable.
 - Manifestation: Not applicable.
 - Beading: Not applicable.
- Ironmongery:
 - min 3no. hinges per leaf
 - lever handle to inside and outside with latch/bathroom latch.
- Perimeter seals: Not required.
- Thermal performance (U-value maximum): not required.
- Other requirements: None.
- Fixing: Plugged and screwed, screw heads pelleted or concealed by post fix stop bead.

480 DOORSETS EXTERNAL and PVC-U, ENTRANCE DOOR

- Manufacturer: Submit proposals, using products with Agrement certification.
 - Product reference: Submit proposals.
- Door leaf: uPVC panelled and glazed.
 - Finish as delivered: White, self finished.
- Frame and architraves: uPVC.
 - Finish as delivered: White, self finished.
- Glazing/ Infill details: 6-16-6 argon filled sealed double glazing units, external pane to be laminated glass rated as P1A under EN 356; internal pane to satisfy the requirements of Section 5, Part K of the current Building Regulations for glazing in critical locations.
 - Manifestation: Not required, internal glass to be obscured.
 - Beading: Internal.
- Ironmongery: as a minimum, but to comply with Secured by Design recommendations
 - min 3no. hinges per leaf
 - lever handle to inside with key operation to outside, linked to multipoint espagnolette locking mechanism to opening stile, capable of being operated via an electronic access control system with video capability to phone unit in individual apartments
 - dog bolts to hinge stile
 - self closing mechanism.
- Perimeter seals: EPDM weatherseal.
- Thermal performance (U-value maximum): 1.2 W/m²K.
- Other requirements: Doorset to be compliant with and certified to BS PAS 24, SPS 201 or LPS 1175 SR2.
- Fixing: min. 4no. galvanised steel straps, internally returned and fixed to internal masonry leaf, or as required to satisfy the requirements of Secured by Design.

481 DOORSETS EXTERNAL and PVC-U, INTERNAL OPENING FRENCH DOORS

- Manufacturer: Submit proposals, using products with Agrement certification.
 - Product reference: Submit proposals.
- Door leaf: uPVC, glazed.
 - Finish as delivered: White, self finished.
- Frame and architraves: uPVC, glazed.
 - Finish as delivered: White, self finished.
- Glazing/ Infill details: 4-20-4 argon filled sealed double glazing units.
 - Manifestation: Not required, single domestic application.
 - Beading: Internal.
- Ironmongery:
 - min 3no. hinges per leaf
 - lever handle inside and outside with key operation to each, linked to multipoint espagnolette locking mechanism to opening stile.
- Perimeter seals: EPDM weatherseal.
- Thermal performance (U-value maximum): 1.2 W/m²K.
- Other requirements: None.
- Fixing: min. 4no. galvanised steel straps, internally returned and fixed to internal masonry leaf.

482 DOORSETS STEEL DOORS TO SERVICE ROOMS

- Manufacturer: Strongdor Ltd.
 - E: sales@strongdor.com
 - W: www.strongdor.com..
 - Product reference: Single Steel Doorset compliant with and certified to BS PAS 24, SPS 201 or LPS 1175 SR2.
- Door leaf: 45mm door leaf thickness, fitted with a flush lipped astragal for added security. Comprising of 2 x 1.2mm 'Rustec' steel sheets, the leaf is internally bonded with a dutch fold stitch welded system. 42mm thick 'Hexatex' core.
 - Finish as delivered: Polyester powdercoated, colour RAL 7015.
- Frame and architraves: .6 mm thick 'Rustec' steel. Single rebate 104mm wide frame with additional rebate for flush lip. A minimum of six fully adjustable fixing points. 'Adjust-2-fit' side channels with each frame.
 - Finish as delivered: Polyester powdercoated, colour RAL 7015.
- Glazing/ Infill details: Not applicable.
 - Manifestation: Not applicable.
 - Beading: Not required.
- Ironmongery:
 - BS 7352 Grade 13 stainless steel, twin bearing template drilled butt hinges with integral high security dog bolts are fitted as standard
 - 5 point eurocylinder multipoint locking to satisfy requirements of Approved Document Q of current Building Regulations and compliant with and certified to BS PAS 24, SPS 201 or LPS 1175 SR2
 - Self closing device to Cycle Storage room.
- Perimeter seals: EPDM weatherseal.
- Thermal performance (U-value maximum): Manufacturer's standard.
- Other requirements: None.
- Fixing: Built in with cramps.

631 HATCHES

- Manufacturer: Bilco UK Ltd.
 - Web: www.bilcouk.co.uk.
 - Email: bilcouk@bilco.com.
 - Product reference: Roof Access Hatch, Type E-50TB
- Other requirements: Ladder-up safety post.

EXECUTION

710 PROTECTION OF COMPONENTS

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

730 PRIMING/ SEALING

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

- 740 CORROSION PROTECTION
- Surfaces to be protected: dissimilar metals .
 - Protective coating: Two coats of bitumen solution to BS 6949 or an approved mastic impregnated tape.
 - Timing of application: Before fixing components.
- 760 BUILDING IN
- General: Not permitted unless indicated on drawings.
- 770 DAMP PROOF COURSES ASSOCIATED WITH BUILT IN WOOD FRAMES
- Method of fixing: To backs of frames using galvanized clout nails.
- 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.
- 809 FIRE RESISTING AND SMOKE CONTROL DOORS/ DOOR ASSEMBLIES/ DOORSETS/ ROLLER SHUTTERS AND CURTAINS - ACCREDITED INSTALLER
- Installation: By a firm currently registered under a third party accredited fire door installer scheme in accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.
- 810 FIRE RESISTING AND SMOKE CONTROL DOORS/ DOOR ASSEMBLIES/ DOORSETS/ ROLLER SHUTTERS AND CURTAINS - CONTRACTOR INSTALLED
- Gaps between frames and supporting construction: Filled as necessary in accordance with requirements for certification and/ or door/ doorset manufacturer's instructions.
- 820 SEALANT JOINTS
- Sealant:
 - Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
 - Colour: White .
 - Application: As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.
- 830 FIXING IRONMONGERY GENERALLY
- Fasteners: Supplied by ironmongery manufacturer.
 - Finish/ Corrosion resistance: To match ironmongery.
 - Holes for components: No larger than required for satisfactory fit/ operation.
 - Adjacent surfaces: Undamaged.
 - Moving parts: Adjusted, lubricated and functioning correctly at completion.
- 840 FIXING IRONMONGERY TO FIRE RESISTING DOOR ASSEMBLIES
- General: All items fixed in accordance with door leaf manufacturer's recommendations ensuring that integrity of the assembly, as established by testing, is not compromised.
 - Holes for through fixings and components: Accurately cut.
 - Clearances: Not more than 8 mm unless protected by intumescent paste or similar.
 - Lock/ Latch cases for fire 60 doors requiring $\geq$ 60 minutes integrity performance: Coated with intumescent paint or paste before installation.

850 LOCATION OF HINGES

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

860 INSTALLATION OF EMERGENCY EXIT DEVICES

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

L30 Stairs/ ladders/ walkways/ handrails/ balustrades

To be read with Preliminaries/ General conditions.

PRELIMINARY INFORMATION/ REQUIREMENTS

- 107 COMPLETION OF DESIGN TO INTERNAL STAIRCASE
- Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
 - Standard: Straight stairs and winders to BS 5395-1 and To Building Regulations (Eng) Approved Documents K and M.
 - Structural requirements: As section B50.
 - Additional requirements: None.
 - Design and production information: As Preliminaries section A31.
 - Timing of submissions: As Preliminaries section A31.
- 130 SITE DIMENSIONS
- Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
 - Designated items: Stair.

COMPONENTS

- 270 STAIRS Concrete
- Component material, grade, finish as delivered:
 - Treads: concrete with applied finish.
 - Slip resistance value of integral tread – water wet (minimum): Not applicable.
 - Slip resistance value of integral nosing – water wet (minimum): Not applicable.
 - Colour of integral nosing: LRV to BS 8493 contrast of 30 (minimum) with tread. Submit proposals.
 - Risers: reinforced concrete.
 - Strings: reinforced concrete.
 - Newels: not applicable.
 - Guarding: polyester powder coated tubular steel balusters with toughened glass panel infill.
 - Handrails: warm touch polyester powder coated tubular steel handrail.
 - Lower handrail: Not required.
 - Workmanship:
 - Joinery: not applicable.
 - Metalwork: as section Z11.
 - Other requirements: Matching balustrade to landing.

410 STEEL LADDERS FOR ROOF ACCESS

- Manufacturer: Bilco UK Ltd.
 - Web: www.bilcouk.co.uk.
 - Email: bilcouk@bilco.com.
 - Product reference: Mild steel fixed ladder with safety cage BL-S-WH2.
- Standard: To BS 4211.
- Safety hoops: Required.
- Platforms: Not required.
- Finish as delivered: Galvanized to BS EN ISO 1461.
- Other requirements: Slip resistant coating to rungs, as section M60
- Fixing: Bolted to masonry wall.

460 WALKWAYS FIRST FLOOR BALCONIES

- Component material, grade and finish as delivered:
 - Flooring: Timber or concrete deck substrate with cantilevered steel frame, all to detail by Structural Engineer
 - Finish: Triflex (UK) Limited
 - Web: www.triflex.co.uk
 - Email: info@triflex.co.uk
 - Product reference: Triflex ProFloor with Colour Design.
- Slip resistance value of finish - water wet (minimum): PTV of 40 to BS 7976.
- Guarding: 1100mm high 21.5mm laminated frameless glass.
- Edge protection: 100 mm aluminium channel shoe as BS 8300-2.
- Handrails: not required.
- Lower handrail: Not required.
- Workmanship: To section Z11.
 - Joinery: Not applicable.
 - Metalwork: To section Z11.
- Other requirements: none.

550 PURPOSE-MADE BALUSTRADES TO JULIET BALCONIES

- Component material, grade and finish as delivered:
 - Guarding: 1100mm high 21.5mm laminated frameless glass with stand off button fixing to masonry.
 - Handrails: Not required.
 - Lower handrail: Not required.
- Workmanship:
 - Joinery: Not applicable.
 - Metalwork: To section Z11.
- Other requirements: None.
- Fixing: stand off buttons to masonry.
 - Centres: equal, depending on number required..

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.

165 HEAT SOAKING OF THERMALLY TOUGHENED GLASS

- Standard: To BS EN 14179-1 and -2.
 - Holding period (minimum): two hours
 - Mean glass temperature: $290^{\circ} \pm 10^{\circ}\text{C}$.
- Certified evidence of treatment: Submit.
- Designated locations: Glazing to south-east, south-west and north-east elevations.

TYPES OF GLAZING

370 BEAD FIXED INSULATING GLASS UNITS GENERALLY

- IGU: As clause 655.
 - Perimeter taping: Do not use.
- Surround/ bead: PVC-U.
 - Preparation: Priming/ sealing not required.
 - Bead location: Inside.
 - Bead fixing: Proprietary clip-fixing.
- Glazing system: Preformed gasket sections supplied by window manufacturer.
- Thermal performance (U-value maximum): Manufacturer's standard.
- Glazing installation:
 - Insulating unit: Located centrally in surround using setting and location blocks.
 - Gaskets and beads: Installed as recommended by frame manufacturer.
Gasket fit at corners: Tight, without gaps.
 - Drainage and ventilation holes: Unobstructed.

610 WINDOW FILM

- Type: Privacy .
- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Colour: Neutral .
- Application: Carried out by a firm approved by the film manufacturer in accordance with manufacturer's recommendations.
 - Evidence of applicator's competence and experience: Submit on request.
 - Sample area: Complete as part of the finished work, in an approved location and obtain approval of appearance before proceeding.
 - Ambient air temperature at time of application: Above 5°C.
- Installed film: Fully adhered to the glass with no peeling, and free from bubbles, wrinkles, cracks or tears.
- Further contact with applied films: Avoid until bonding adhesive has cured.
- Cleaning and maintenance instructions: Submit copies.

655 INSULATED GLASS UNITS (IGUS) GENERALLY

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Standard: BS EN 1279.
- Thermal performance (centre pane): Manufacturer's standard.
- Construction:
 - Inner pane:
 - 4/6mm clear float glass;
 - 4/6mm clear toughened glass, location dependent
 - low emissivity coatings to room side, inner surface.
 - Cavity: 16-20mm argon.
 - Intermediate pane: Not applicable.
 - Cavity: Not applicable.
 - Outer pane:
 - 4/6mm clear toughened glass
 - 4/6mm clear laminated glass.
 - Spacer: 16/20mm anodized aluminium, colour: black.
- Unit thickness: 28mm.
- Other requirements: none.

M10 Cement based levelling/ wearing screeds

To be read with Preliminaries/General conditions.

TYPES OF SCREED

111 BONDED CEMENT:SAND LEVELLING SCREEDS TO UPPER FLOORS

- Substrate: Grouted beam and block floor.
- Screed construction: Fully bonded.
- Thickness:
 - Nominal: 65mm.
- Mix:
 - Proportions (cement:sand): 1:3-4.5..
- In situ crushing resistance (ISCR) category: A (3 mm maximum indentation).
- Flatness/ Surface regularity class: SR2.
- Finish: Smooth floated, as clause 530.
 - To receive: Acoustic floor battens and floor decking.
- Other requirements: None.

115 CEMENT:SAND LEVELLING SCREEDS TO GROUND FLOOR

- Substrate: In situ concrete slab.
- Screed construction: Floating, as clause 290.
 - Reinforcement for crack control: Steel fabric, as clause 392 as required by screed manufacturer.
- Thickness:
 - Nominal: 70 mm.
 - Minimum: 65 mm.
- Mix:
 - Proportions (cement:sand): To BS 8204-1.
- In situ crushing resistance (ISCR) category: C (2.5 mm maximum indentation).
 - Mass of test weight: 2 kg.
- Flatness/ Surface regularity class: SR2.
- Finish: Trowelled, as clause 540.
 - To receive: Carpet tiles or similar.
- Other requirements: None.

GENERALLY/ PREPARATION

210 SUITABILITY OF SUBSTRATES

- General:
 - Suitable for specified levels and flatness/ regularity of finished surfaces. Consider permissible minimum and maximum thicknesses of screeds.
 - Sound and free from significant cracks and gaps.
- Concrete strength: In accordance with BS 8204-1, Table 2.
- Cleanliness: Remove plaster, debris and dirt.
- Moisture content: To suit screed type. New concrete slabs to receive fully or partially bonded construction must be dried out by exposure to the air for minimum six weeks.

250 CONDUITS UNDER FLOATING SCREEDS

- Haunching: Before laying insulation for floating screeds, haunch up in 1:4 cement:sand on both sides of conduits.

260 FULLY BONDED CONSTRUCTION

- Preparation: Generally in accordance with BS 8204-1.
- Removing mortar matrix: Shortly before laying screed, expose coarse aggregate over entire area of hardened substrate.
- Texture of surface: Suitable to accept screed and achieve a full bond over complete area.
- Bonding coat: Slurry, as clause 275.

275 CEMENT SLURRY BONDING

- Slurry type: SBR polymer modified cement.
- Application: Shortly before laying screed, thoroughly wash clean the surface and keep well wetted for several hours. Remove free water then brush in cement slurry bonding coat of creamy consistency.
- Screeding: While slurry is still wet.

290 FLOATING CONSTRUCTION

- Insulation:
 - Type: ROCKWOOL Rockfloor Thermal.
 - Installation: Lay with tight butt joints. Continue up at perimeter abutments for full depth of screed.
- Separating layer:
 - Type: Polyethylene sheet, minimum 125 micrometres thick (500 gauge)..
 - Installation: Lay over insulation and turn up at perimeter abutments. Lap 100 mm at joints.

BATCHING/MIXING

302 CEMENTS

- Cement types: In accordance with BS 8204-1, clause 5.1.3.

305 AGGREGATES

- Sand: To BS EN 13139.
 - Grading limits: In accordance with BS 8204-1, Table B1.
- Coarse aggregates for fine concrete levelling screeds:
 - Standard: BS EN 12620.
 - Designation 4/10.
- Lightweight aggregates: In accordance with BS 8204-1, Annex A.

307 ADMIXTURES

- Standard: In accordance with BS 8204-1, Table 1.
- Calcium chloride: Do not use in admixtures.

310 BATCHING WITH DENSE AGGREGATES

- Mix proportions: Specified by weight.
- Batching: Select from:
 - Batch by weight.
 - Batch by volume: Permitted on the basis of previously established weight:volume relationships of the particular materials. Use accurate gauge boxes. Allow for bulking of damp sand.

330 MIXING

- Water content: Minimum necessary to achieve full compaction, low enough to prevent excessive water being brought to surface during compaction.
- Mixing: Mix materials thoroughly to uniform consistence. Mixes other than no-fines must be mixed in a suitable forced action mechanical mixer. Do not use a free fall drum type mixer.
- Consistency: Use while sufficiently plastic for full compaction.
- Ready-mixed retarded screed mortar: Use within working time and site temperatures recommended by manufacturer. Do not retemper.

335 IN SITU CRUSHING RESISTANCE (ISCR)

- Standards and category: In accordance with BS 8204-1, table 4.
 - Testing of bonded and unbonded screeds: To Annex D.
 - Testing of floating levelling screeds: To Annex E.

340 ADVERSE WEATHER

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

LAYING

345 LEVEL OF SCREED SURFACES

- Permissible deviation: (allowing for thickness of coverings): ± 5 mm from datum..

355 FLATNESS/ SURFACE REGULARITY OF FLOOR SCREEDS

- Standard: In accordance with BS 8204-1, Table 5.
- Test: In accordance with BS 8204-1, Annex C.
- Sudden irregularities: Not permitted.

375 COMPACTION OF SCREEDS

- General: Compact thoroughly over entire area.
- Screeds over 50 mm thick: Lay in two layers of approximately equal thickness. Roughen surface of compacted lower layer then immediately lay upper layer.

392 GENERAL REINFORCEMENT

- Steel fabric: In accordance with BS 4483.
 - Type: A98.
- Installation: In accordance with BS 8204-1.

405 JOINTS IN LEVELLING SCREEDS GENERALLY

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

415 BAY JOINTS IN BONDED WEARING SCREEDS

- Bay sizes:
 - Area (maximum): 15 m².
 - Length:breadth ratio (maximum): 3:2.
- Location of bay joints: Submit proposals.

FINISHING/CURING

510 FINISHING GENERALLY

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

530 SMOOTH FLOATED FINISH

- Finish: Even texture with no ridges or steps.

550 TROWELLED FINISH TO WEARING SCREEDS

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

650 CURING

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

M20 Plastered/ Rendered/ Roughcast coatings

To be read with Preliminaries/ General conditions.

TYPES OF COATING

- 280 GYPSUM PLASTER SKIM COAT ON PLASTERBOARD
- Plasterboard: 12.5 mm.
 - Preparation: Bonding agent recommended by plaster manufacturer.
 - Plaster: Board finish/ finish plaster to BS EN 13279-1, class B.
 - Manufacturer: British Gypsum.
 - Web: www.british-gypsum.com.
 - Email: bgtechnical.enquiries@bpb.com.
 - Product reference: Thistle Multi Finish.
 - Thickness: 3mm.
 - Finish: Smooth.
 - Accessories: Beads and stops .
- 290 PARGE COAT TO INTRNAL WALLS BETWEEN OCCUPANCIES AND CORRIDORS
- Substrate: Concrete blockwork as section F10.
 - Preparation: Bonding agent .
 - Render:
 - Mix: 1:1:6 cement:lime:sand.
 - Thickness: 8 mm (nominal), 6 mm (minimum).
 - Finish: Scratched horizontally to provide key.

MATERIALS AND MAKING OF MORTAR

- 430 READY-TO-USE CEMENT GAUGED MORTARS
- Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
 - Retempering: Restore workability with water only within prescribed time limits.
- 438 CEMENTS FOR MORTARS
- Cement: To BS EN 197-1.
 - Types: Portland cement, CEM I.
Portland slag cement, CEM II.
Portland fly ash cement, CEM II.
 - Strength class: 32.5, 42.5 or 52.5.
 - White cement: To BS EN 197-1.
 - Type: Portland cement, CEM 1.
 - Strength class: 52.5.
 - Sulfate resisting Portland cement: To BS EN 197-1.
 - Strength class: 42.5.
 - Masonry cement: To BS EN 998-1 and Kitemarked.
- 440 SAND FOR CEMENT GAUGED MORTARS
- Standard: To BS EN 13139.
 - Grading: 0/2 or 0/4 (CP or MP); category 2 fines.
 - Colour and texture: Consistent. Obtain from one source.

443 LIME FOR CEMENT GAUGED MORTARS

- Standard: To BS EN 459-1.
 - Type: CL 90S.

449 ADMIXTURES FOR CEMENT GAUGED MORTARS

- Suitable admixtures: Select from:
 - Air entraining (plasticizing) admixtures: To BS EN 934-2 and compatible with other mortar constituents.
 - Other admixtures: Submit proposals.
- Prohibited admixtures: Calcium chloride and any admixture containing calcium chloride.

495 MIXING

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

497 COLD WEATHER

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

PREPARING SUBSTRATES

510 SUITABILITY OF SUBSTRATES

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

538 STIPPLE KEY

- Materials:
 - Cement: To BS EN 197-1.
 - Sand: Clean, coarse.
 - Admixture: SBR bonding agent, Agrément certified.
- Mix proportions (cement:sand): 1:1.5-2.
- Consistency: Thick slurry, well stirred.
- Application: Brushed and stippled to form deep, close textured key.
- Curing: Controlled to achieve a firm bond to substrate.

541 BONDING AGENT APPLICATION

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

BACKINGS/ BEADS/ JOINTS

605 GYPSUM PLASTERBOARD BACKINGS

- Type: To BS EN 520 Type A, D and H1.
 - Core density (minimum): 650 kg/m³.
- Exposed surface and edge profiles: Suitable to receive specified plaster finish.

611 FIXING PLASTERBOARD BACKINGS GENERALLY

- Manufacturer: British Gypsum.
 - Web: www.british-gypsum.com.
 - Email: bgtechnical.enquiries@bpb.com.
 - Product reference: Wallboard, SoundBloc and Moisture Resistant Board.
- Accessories, materials and installation methods: As recommended by the plasterboard manufacturer.

612 JOINTS IN PLASTERBOARD BACKINGS

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

630 BEADS/ STOPS FOR INTERNAL USE

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

640 BEADS/ STOPS GENERALLY

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

659 PLASTERBOARD JOINTS

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

INTERNAL PLASTERING

710 APPLICATION GENERALLY

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

715 FLATNESS/ SURFACE REGULARITY

- Sudden irregularities: Not permitted.
- Deviation of plaster surface: Measure from underside of a straight edge placed anywhere on surface.
 - Permissible deviation (maximum) for plaster not less than 13 mm thick: 3 mm in any consecutive length of 1800 mm.

720 DUBBING OUT

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

725 UNDERCOATS GENERALLY

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

777 SMOOTH FINISH

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

778 WOOD FLOAT FINISH

- Appearance: An even overall texture. Finish with a dry wood float as soon as wet sheen has disappeared.

M40 Stone/ concrete/ quarry/ ceramic tiling/ mosaic

To be read with Preliminaries/ General conditions.

TYPES OF TILING/ MOSAIC

110 TILING TO KITCHEN AND BATHROOM WALLS

- Tiles: Glazed ceramic wall tiles.
 - Manufacturer/ Supplier: Submit proposals.
Product reference: Submit proposals.
 - Colour: To be agreed.
 - Finish: Glazed.
 - Size: not exceeding 300 x 300mm.
 - Thickness: not less than 6mm.
 - Slip potential:
Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum) to BS 7976-1, -2 and -3: Not applicable .
Surface roughness (Rz) (minimum) BS 1134: Not applicable .
Ramp test class: Not applicable.
 - Recycled content: Submit proposals.
- Background/ Base: Wallboard or Moisture resistant plasterboard.
 - Preparation: SBR bonding agent.
- Intermediate substrate: Not required.
- Bedding: Adhesive bed - notched trowel method, as clause 650.
 - Reinforcement: Not applicable.
 - Adhesive to BS EN 12004: Manufacturer: Building Adhesives Ltd.
 - Web: www.bal-adhesives.com.
 - Email: info@building-adhesives.com.
 - Product reference: Flex.
- Joint width: As spacer lugs.
- Grout: Manufacturer: Building Adhesives Ltd.
 - Web: www.bal-adhesives.com.
 - Email: info@building-adhesives.com.
 - Product reference: Easy epoxy.
 - Type/ classification: Not applicable.
 - Admixture: None.
- Movement joints: To internal corners of room where tiling exceeds 3m run.
- Accessories: None.

GENERAL

210 SUITABILITY OF BACKGROUNDS/ BASES

- Background/ base tolerances: To permit specified flatness/ regularity of finished surfaces given the permissible minimum and maximum thickness of bedding.
- New background drying times (minimum):
 - Concrete walls: 6 weeks.
 - Brick/ block walls: 6 weeks.
 - Rendering: 2 weeks.
 - Gypsum plaster: 4 weeks.
- New base drying times (minimum):
 - Concrete slabs: 6 weeks.
 - Cement:sand screeds: 3 weeks.

250 SAMPLES

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

PREPARATION

390 PLASTERBOARD BACKGROUNDS

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

FIXING

510 FIXING GENERALLY

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

531 SETTING OUT

- Joints: True to line, continuous and without steps.
 - Joints on walls: Horizontal, vertical and aligned round corners.
 - Joints in floors: Parallel to the main axis of the space or specified features.
- Cut tiles: Minimise number, maximise size and locate unobtrusively.
- Joints in adjoining floors and walls: Align.
- Joints in adjoining floors and skirtings: Align.
- Movement joints: Where locations are not indicated, submit proposals.
- Setting out of all tiles: Submit proposals.

550 FLATNESS/ REGULARITY OF TILING/ MOSAICS

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

560 LEVEL OF TILING ACROSS JOINTS

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

650 ADHESIVE BED - NOTCHED TROWEL METHOD (WALLS)

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

MOVEMENT JOINTS/ GROUTING/ COMPLETION

815 SEALANT MOVEMENT JOINTS TO WALLS WHERE TILING RUN EXCEEDS 3 METRES

- Joints: Extend through tiles and bedding to base/ background. Centre over joints in base/ background.
 - Width: 5mm.
- Sealant: Submit proposals.
 - Colour: to match grout.
 - Preparation and application: As section Z22.

875 GROUTING

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

885 COLOURED GROUT

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

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

To be read with Preliminaries/ General conditions.

TYPES OF COVERING

131 HEAVY CONTRACT ENTRANCE MATTING TILES

- Manufacturer: burmatex ltd.
 - Web: www.burmatex.co.uk.
 - Email: marketing@burmatex.co.uk.
 - Product reference: chevrolay 50 carpet tiles.
- Style: chevrolay 50: fibre-bonded carpet tiles with a chevron rib.
- Classification:
 - Standard: Heavy contract
 - Level of use class: Heavy contract
- Recycled content: 55–60%
- Colour and pattern: 6240 alpha grey.
- Weight: 4300 g/m²
- Thickness: 12 mm
- Flammability: Euroclass Bfl-s1
- Colour fastness: Light (to BS EN ISO 105 – BO2): grade 6 (minimum); shampoo (to BS 1006: UK-TB:1990): grade 4 (minimum)
- Environmental specifics: EPD-assessed

132 HEAVY CONTRACT, SOFT VELOUR CARPET TILE TO COMMON CIRCULATION AREAS, INCLUDING STAIRCASE

- Manufacturer: burmatex ltd.
 - Web: www.burmatex.co.uk.
 - Email: marketing@burmatex.co.uk.
 - Product reference: rialto
- Style: Pile fibre carpet tile
- Classification:
 - Standard: Heavy contract
 - Level of use class: Heavy contract
- Recycled content: 55–60%
- Colour and pattern: 2640 charcoal grey.
- Weight: 4450 g/m²
- Thickness: 7.8 mm
- Flammability: Euroclass Bfl-s1
- Static electricity: Body voltage test (to BS ISO 6356:2000): <2 kV
- Colour fastness: Light (to BS EN ISO 105 – BO2): grade 6 (minimum); shampoo (to BS 1006: UK-TB:1990): grade 4 (minimum)
- Thermal resistance: Tog rating 0.84; ISO 8302: 0.10 m²K/W
- Environmental specifics: BREEAM A and A+ ratings across full product range, EPD-assessed

151 SAFETY SHEET TO APARTMENT KITCHENS

- Manufacturer: Polyflor Ltd.
 - Web: www.polyflor.com.
 - Tel: +44 (0)161 767 1122.
 - Product reference: Polysafe Wood fx PUR safety floor
- Colour: to be agreed.
- Acoustic underlay: Not required.

152 VINYL SHEET SAFETY FLOORING

- Manufacturer: Polyflor Ltd.
 - Web: www.polyflor.com.
 - Email: info@polyflor.com.
 - Product reference: Polysafe Stone fx
- Colour: to be agreed.

171 HEAVY CONTRACT SHEET CARPET

- Manufacturer: burmatex ltd.
 - Web: www.burmatex.co.uk.
 - Email: marketing@burmatex.co.uk.
 - Product reference: 5500 luxury
- Standard: Heavy contract
- Classification:
 - Level of use class: Heavy contract
- Recycled content: 55–60%
- Width: 2000 mm
- Colour and pattern: to be agreed.
- Weight: 1150 g/m²
- Thickness: 6.5 mm
- Length: 30 m
- Flammability: Euroclass Efl-s1
- Durability:
 - Castor chair rating (to BS EN 985): Pass – suitable for continuous use
- Static electricity: Body voltage test (to BS ISO 6356:2000): <2 kV
- Sound performance: Reduction in impact noise (to BS EN 140-8:1998): 21 dB
- Colour fastness: Light (to BS EN ISO 105 – BO2): grade 6 (minimum); shampoo (to BS 1006: UK-TB:1990): grade 4 (minimum)
- Thermal resistance: Tog rating 0.89; ISO 8302: 0.09 m²K/W
- Environmental specifics: EPD-assessed
- Castor chair rating: Pass
- Dynamic loading: Loss <20%>
- Reduction in impact:
 - Noise: 21 dB
 - Noise at 1000 Hz: 30.7 dB
- Sound absorption coefficient: BS EN 354:2003

GENERAL REQUIREMENTS

210 WORKMANSHIP GENERALLY

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

250 LAYOUT - ROLL MATERIALS

- Setting out of seams: Agree setting out for sheeting types M50/ 171 .

330 COMMENCEMENT

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

340 CONDITIONING

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

350 ENVIRONMENT

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

PREPARING BASES

410 NEW BASES

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

430 NEW WET LAID BASES

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

440 SUBSTRATES TO RECEIVE THIN COVERINGS

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

460 SMOOTHING/ LEVELLING UNDERLAYMENT COMPOUND

- Type: As recommended by covering manufacturer.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.

535 PARTICLEBOARD FLOATING FLOORING

- Substrate: Boards securely fixed and free from surface sealers and contaminants.
 - Level: Sand to remove areas raised more than 1 mm.
 - Gaps between boards: Not more than 1 mm.
 - Priming: As required by covering adhesive manufacturer.
- Equilibrium moisture content at time of laying covering: As in service conditions.

LAYING COVERINGS

610 SETTING OUT TILES

- Method: Set out from centre of area/ room, so that wherever possible:
 - Tiles along opposite edges are of equal size.
 - Edge tiles are more than 50% of full tile width.

640 ADHESIVE FIXING GENERALLY

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

720 DOORWAYS

- Joint location: On centre line of door leaf.

741 FLOOR FINISH TRANSITION STRIPS

- Manufacturer: Gradus.
 - Web: www.gradus.com.
 - Email: imail@gradus.com.
 - Product reference: Clip-Top Transition Strip
- Profile (top/ base): RT42/AFT28 and TT35/AFT15.
- Top colour: to be agreed.

751 STAIR EDGINGS

- Manufacturer: Gradus.
 - Web: www.gradus.com.
 - Email: imail@gradus.com.
 - Product reference: PVC-U Hardnose XT Stair Edging
- Profile: DDXT1.
- Colour: min. 30 point difference from floor finish.
- Insert:
 - Type: Interior.
 - Insert colour: min. 30 point difference from floor finish.
- Fixing: Mechanical (screw) and adhesive fix.

- 780 TRAFFICKING AFTER LAYING
- Covering types: all.
 - Traffic free period: Until adhesive is set.

COMPLETION

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

M60 Painting/ clear finishing

To be read with Preliminaries/ General conditions.

COATING SYSTEMS

- 110 EMULSION PAINT TO NEW INTERNAL PLASTERBOARDED SURFACES
- Manufacturer: A single manufacturer listed in clause 210.
 - Product reference: Submit proposals.
 - Surfaces: Internal plasterboarded surfaces throughout.
 - Preparation: As clause 400.
 - Initial coats: 10% thinned primer.
 - Number of coats: 1.
 - Undercoats: Emulsion paint.
 - Number of coats: 1.
 - Finishing coats: Mid sheen vinyl emulsion paint.
 - Number of coats: min. 2.
- 111 EMULSION PAINT TO UNPLASTERED BLOCKWORK
- Manufacturer: A single manufacturer listed in clause 210.
 - Product reference: Submit proposals.
 - Surfaces: Fairfaced blockwork as clause F10/355.
 - Preparation: As clause 400, 570.
 - Initial coats: 10% thinned primer.
 - Number of coats: 1.
 - Undercoats: Emulsion paint.
 - Number of coats: 1.
 - Finishing coats: Matt vinyl emulsion paint.
 - Number of coats: min. 2.
- 130 GLOSS PAINT TO INTERNAL TIMBER SKIRTINGS, DOORS AND FRAMES, ARCHITRAVES, WINDOW BOARDS AND SIMILAR VISIBLE SUNDRY TIMBER COMPONENTS
- Manufacturer: A single manufacturer listed in clause 210.
 - Product reference: Submit proposals.
 - Surfaces: Uncoated; primed and undercoated.
 - Preparation: As clause 400.
 - Initial coats: Primer to uncoated surfaces.
 - Number of coats: 1.
 - Undercoats: to pre-primed surfaces.
 - Number of coats: 1.
 - Finishing coats: Full gloss.
 - Number of coats: min. 2.

- 131 GLOSS PAINT TO EXTERNAL FASCIAS, SOFFITS, SPANDRELS AND SIMILAR VISIBLE SUNDRY TIMBER COMPONENTS
- Manufacturer: A single manufacturer listed in clause 210.
 - Product reference: Submit proposals.
 - Surfaces: Treated; uncoated; primed and undercoated.
 - Preparation: As clause 400.
 - Initial coats: Primer to uncoated surfaces.
 - Number of coats: 1.
 - Undercoats: to pre-primed surfaces.
 - Number of coats: 1.
 - Finishing coats: Full gloss.
 - Number of coats: min. 2.
- 150 EGGSHELL/ SATIN PAINT TO INTERNAL TIMBER SKIRTINGS, DOORS AND FRAMES, ARCHITRAVES, WINDOW BOARDS AND SIMILAR VISIBLE SUNDRY TIMBER COMPONENTS
- Manufacturer: A single manufacturer listed in clause 210.
 - Product reference: Submit proposals.
 - Surfaces: Uncoated; primed and undercoated.
 - Preparation: As clause 400.
 - Initial coats: Primer to uncoated surfaces.
 - Number of coats: 1.
 - Undercoats: to pre-primed surfaces.
 - Number of coats: 1.
 - Finishing coats: Satin.
 - Number of coats: min. 2.
- 151 EGGSHELL/ SATIN PAINT TO EXTERNAL FASCIAS, SOFFITS, SPANDRELS AND SIMILAR VISIBLE SUNDRY TIMBER COMPONENTS
- Manufacturer: A single manufacturer listed in clause 210.
 - Product reference: Submit proposals.
 - Surfaces: Treated; uncoated; primed and undercoated.
 - Preparation: As clause 400.
 - Initial coats: Primer to uncoated surfaces.
 - Number of coats: 1.
 - Undercoats: to pre-primed surfaces.
 - Number of coats: 1.
 - Finishing coats: Satin.
 - Number of coats: min. 2.

GENERAL

210 COATING MATERIALS

- Manufacturer: Obtain materials from any of the following:
Crown Trade, product of Crown Paints Ltd
W: www.crowntrade.co.uk
E: info@crowntrade.co.uk
T: +44 (0)845 389 9583
F: +44 (0)845 389 9457
A: PO Box 37, Crown House, Hollins Road, Darwen, Lancashire. BB3 0BG

Dulux Trade, brand of ICI Paints/AkzoNobel
W: www.duluxtrade.co.uk
E: john_ashford@ici.com
T: +44 (0)870 242 1100
F: +44 (0)1753 532827
A: Wexham, Slough, Berkshire. SL2 5DS

Johnstone's, a brand of PPG Architectural Coatings UK Ltd
W: www.johnstonestrade.com
E: specifiers.acuk@ppg.com
T: +44 (0)1924 354000
F: +44 (0)1924 354548
A: Huddersfield Road, Birstall, Batley, West Yorkshire. WF17 9XA.

- Selected manufacturers: Submit names before commencement of any coating work.

215 HANDLING AND STORAGE

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

240 SURFACES NOT TO BE COATED

Radiator valves and stop valves .

280 PROTECTION

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

PREPARATION

400 PREPARATION GENERALLY

- Standard: In accordance with BS 6150.
- 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.

425 IRONMONGERY

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

471 PREPRIMED WOOD

- Areas of defective primer: Take back to bare timber.

481 UNCOATED WOOD

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

500 PREPRIMED STEEL

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

511 GALVANIZED, SHERARDIZED AND ELECTROPLATED STEEL

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

521 UNCOATED STEEL - MANUAL CLEANING

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

570 UNCOATED MASONRY/ RENDERING

- Loose and flaking material: Remove.

580 UNCOATED PLASTER

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

590 UNCOATED PLASTERBOARD

- Depressions around fixings: Fill with stoppers/ fillers.

645 SEALING INTERNAL MOVEMENT JOINTS

- General: To junctions of walls and ceilings with architraves, skirtings and other trims.
- Sealant: Water-borne acrylic.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Preparation and application: As section Z22.

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.

730 WORKSHOP COATING OF CONCEALED JOINERY SURFACES

- General: Apply coatings to all surfaces of components.

731 SITE COATING OF CONCEALED JOINERY SURFACES

- General: After priming, apply additional coatings to surfaces that will be concealed when fixed in place.
 - Components: All external components.
 - Additional coatings: One undercoat.

M61 Intumescent coatings for fire protection of steelwork

To be read with Preliminaries/General conditions

PROTECTIVE COATING SYSTEMS

110 ON SITE COATING TO PRIMED STEEL INTERNALLY

- Use/ location: Exposed faces of steel sections within ceiling voids.
- Fire performance: To BS 476, as clause 203.
- Preparation and priming: By steelwork contractor, as section G10.
- Intumescent coating system:
 - Manufacturer: Submit proposals.
Product reference: Submit proposals.
 - Intumescent coat:
Type: Submit proposals.
Finish: Non-visible areas: Basic and Visible areas: Normal decorative.
 - Top sealer coat:
Type: Submit proposals.
Colour: to be agreed.
- Bolt head/ Nut protection: As main steelwork.

PERFORMANCE AND GENERAL REQUIREMENTS

203 FIRE PERFORMANCE TO BS 476

- Fire resistance to BS 476-21: 60 minutes.

205 VALIDATION OF MATERIALS

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

210 WORKING PROCEDURES

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

215 WORKING CONDITIONS

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

250 SPRAYED COATING APPLICATION ON SITE

- Standard: In accordance with BS EN 16623.
- Spray drift: Minimize.
- Uncoated areas of steel: connection surfaces, areas to be welded, built in areas and support surfaces.
- Masking: Protect designated adjacent surfaces.
 - Designated surfaces: none.

270 INSPECTION

- Permit intumescent manufacturer to:
 - Inspect work in progress.
 - Inspect quality control records.
 - Take dry film thickness and other measurements.
 - Take samples of products.
- Intumescent manufacturer's inspection reports: Submit without delay.

PREPARATION OF SURFACES

APPLICATION OF COATINGS

410 INTUMESCENT COATING DRY FILM THICKNESS (DFT)

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

420 MEASUREMENT OF INTUMESCENT DFT

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

440 BASIC FINISH

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

450 NORMAL DECORATIVE FINISH

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

490 TOP SEALER COAT

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

COMPLETION

530 RECORDS OF INTUMESCENT APPLICATION

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

N10 General fixtures/ furnishings/ equipment

To be read with Preliminaries/General conditions.

PRODUCTS

136 INTERNAL LOBBY POSTBOXES

Manufacturer: Post Boxes UK Ltd.

- Tel: +44 (0)1922 218 218
- E-mail: sales@postboxesukltd.co.uk
- Web: www.postboxesukltd.co.uk.
- Product reference: H300-2 Horizontal post box (10no. total in 5h. x 2w. unit).
- Dimensions: (per box) 300mm w. x 220mm h. x 375mm d..
- Post aperture: 260mm x 30mm.
- Material: Post box body and door: Polyester powder coated 1mm zintec steel; cast aluminium flap.
 - Colour: to be agreed.
- Other requirements: Units bolted internally to masonry wall adjacent to internal security door.

291 ENTRANCE MATTING SYSTEM

- Manufacturer: Construction Specialties (UK) Ltd.
 - Web: www.c-sgroup.co.uk.
 - Email: info@c-sgroup.co.uk.
 - Product reference: CS Pedimat®
- Tread:
 - Type: Carpet insert, interior grade.
 - Colour: to be agreed.
- Rail finish: Black anodized.
- Spline options: Closed.
- Spline and vinyl endfiller colours: Black.
- Frame:
 - Type: 13 mm frame for recess mounting.
 - Finish: Clear anodized.
- Edge trim:
 - Type: Not required.
 - Finish: Not required.
- Other requirements: None.

EXECUTION

720 INSTALLATION GENERALLY

- General: As Preliminaries section A33.
- Fixing and fasteners: As section Z20.
- Services: Not applicable.

770 TRIMS

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

N11 Domestic kitchen fittings, furnishings and equipment

To be read with Preliminaries/ General conditions.

PRODUCTS

- 310 FITTED BASE UNITS GENERALLY
- Standard: To BS 6222-2 and -3, and BS EN 14749.
 - Manufacturer: Howden Joinery Ltd..
 - Product reference: Submit proposals.
 - Structural performance: To BS 6222-2, test level H.
 - Dimensions: To BS EN 1116.
 - Surface finishes: To BS 6222-3.
 - Doors and drawer fronts:
 - Material: Plastics laminate.
 - Finish and colour: Submit proposals.
 - Edges: Plastics strip.
 - Other requirements: Concealed door hinges.
 - Side panels, plinths and shelves:
 - Material: Plastics laminate.
 - Finish and colour: Submit proposals.
 - Edges: Plastics strip.
 - Accessories:
 - Bins;
 - Decor panels; and
 - Legs and plinths.
- 320 FITTED WALL UNITS GENERALLY
- Standard: To BS 6222-2 and -3, and BS EN 14749.
 - Manufacturer: Howden Joinery Ltd..
 - Product reference: Submit proposals.
 - Structural performance: To BS 6222-2, test level H.
 - Dimensions: To BS EN 1116.
 - Surface finishes: To BS 6222-3.
 - Doors and drawer fronts:
 - Material: Plastics laminate.
 - Finish and colour: Submit proposals.
 - Edges: Plastics strip.
 - Other requirements: Concealed door hinges.
 - Side panels and shelves:
 - Material: Plastics laminate.
 - Finish and colour: Submit proposals.
 - Edges: Plastics strip.
 - Accessories:
 - Add on cornice and pelmet mouldings;
 - Decor panels; and
 - Luminaires.

330 ISLAND AND PENINSULA KITCHEN UNITS GENERALLY

- Standard: To BS 6222-2 and -3 and BS 14749.
- Manufacturer: Howden Joinery Ltd..
 - Product reference: Submit proposals.
- Structural performance: To BS 6222-2, test level H.
- Dimensions: To BS EN 1116.
- Surface finishes performance: To BS 6222-3.
- Doors and drawer fronts:
 - Material: Plastics laminate.
 - Finish and colour: Submit proposals.
 - Edges: Plastic strip.
 - Other requirements: Concealed door hinges.
- Side panels, plinths and shelves:
 - Material: Plastics laminate.
 - Finish and colour: Submit proposals.
 - Edges: Plastic strip.
- Accessories:
 - Decor panels; and
 - Legs and plinths.

340 WORKTOPS GENERALLY

- Standard: To BS 6222-3.
- Manufacturer: Howden Joinery Ltd..
 - Product reference: Submit proposals.
- Material: Laminate covered particle board type 1.
- Dimensions: refer to drawings.
- Exposed edges: Laminate type to match worktop surface.
- Support: base units.
- Other requirements: none.

350 SINKS, TAPS, TRAPS AND WASTES GENERALLY

- Sinks:
 - Standard: To BS EN 13310.
 - Manufacturer: GEC Anderson Ltd.
 - Web: www.gecanderson.co.uk.
 - Email: info@gecanderson.co.uk.
 - Product reference: LM10.
 - Configuration: Sink and a half with single drainer, universal.
 - Overall size: 980 x 500mm.
 - Material: Stainless steel .
 - Colour and finish: Brushed steel .
- Tap/ chainstay/ overflow holes: Overflow hole..
- Taps: Mixer.
 - Manufacturer: GROHE Ltd.
 - Web: www.grohe.co.uk.
 - Email: kelly-jane.everest@grohe.com.
 - Product reference: Ambi Two Handle Sink Mixer 1/2", 30189000. - 223 mm projection.
 - Operation: Lever handle.
 - Material: Chromed steel.
- Wastes: Basket strainer waste (BSW)..
 - Standard: To BS EN 274-1, -2 and -3.
 - Manufacturer: GEC Anderson Ltd.
 - Web: www.gecanderson.co.uk.
 - Email: info@gecanderson.co.uk.
 - Product reference: Submit proposals.
 - Size: Ø 89 mm hole with basket strainer waste (BSW)..
 - Material: Chromed steel.
 - Tail: Slotted.
- Traps: Tubular, P type.
 - Standard: To BS EN 274-1, -2 and -3.
 - Manufacturer: Submit proposal.
 - Product reference: Submit proposal.
 - Size: DN40.
 - Material: Plastic.
 - Depth of seal (minimum): 75 mm.
- Accessories: None.

390 SEALANT

- Standard: To BS EN ISO 11600, class F20 HM.
- Type: One part silicone.
 - Manufacturer: Submit proposal.
 - Product reference: Submit proposal.
- Colour: to be agreed.

EXECUTION

610 MOISTURE CONTENT OF WOOD AND WOOD BASED BOARDS

- Control and monitoring:
 - Method statement: Submit.

620 INSTALLATION GENERALLY

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

630 INSTALLING UNITS AND WORKTOPS

- General: Well fitting, stable and secure.

640 INSTALLING APPLIANCES

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

650 INSTALLING SINKS, TAPS AND WASTES

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

660 SEALANT BEDDING AND POINTING

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

670 INSTALLING TRIMS AND MOULDINGS

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

COMPLETION

910 GENERAL

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

920 APPLIANCE COMMISSIONING

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

N13 Sanitary appliances and fittings

To be read with Preliminaries/ General conditions.

PRODUCTS

301 WCS AND CISTERNS

- Manufacturer: Ideal Standard (UK) Ltd.
 - Web: www.idealspec.co.uk.
 - Email: ukcustcare@idealstandard.com.
 - Product reference: E0798 - Concept Air Close Coupled Back to Wall WC Suite With Aquablade Technology.
- Finish: White - (01)
- Cistern: E0808(01) - Cistern.
- WC Seat: E0811(01) - Seat.

336 WASH BASINS

- Manufacturer: Ideal Standard (UK) Ltd.
 - Web: www.idealspec.co.uk.
 - Email: ukcustcare@idealstandard.com.
 - Product reference: E1345 - Concept Space Arc 55cm Washbasin - Short Projection
- Finish: White - (01).
- Pedestal: E7837 - Full Pedestal.
- Washbasin Wall Fixings: E0157 - Washbasin Fixing Clips.
- Brassware: B0763(AA) Tempo single lever basin mixer with pop-up waste..
- Trap: S8910 - Trap 1½" Plastic Bottle.

356 BATHS

- Manufacturer: Ideal Standard (UK) Ltd.
 - Web: www.idealspec.co.uk.
 - Email: ukcustcare@idealstandard.com.
 - Product reference: E7292(01) Concept 170cm x 70cm Idealform bath with 2 tapholes.
- Finish: White - (01).
- Brassware: B0730(AA) Tempo 2 hole bath filler.
- Shower brassware: A7221(AA) Ceratherm T50 exposed thermostatic shower mixer pack with idealrain evo shower kit 3 function round ø110mm handspray, 900mm rail and 1.75m idealflex hose.
- Shower screen: L6210(AA) Synergy Angle shower bath screen with clear glass and silver finish wall profile
- Bath Front Panel: E3194(01) Unilux 170cm front panel.
- Bath End Panel: Not required.
- Bath Waste: E1486(AA) Luxury bath pop-up waste and overflow.
- Bath Waste Handle & Cover: Not required.
- Thermostatic Valve: Not required.
- Trap: S8910 Trap 1½" plastic bottle, 75mm seal, multi-purpose outlet.

438 MIRRORS GENERALLY

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Material: silvered tempered glass, nom 600 x 450mm.
- Finish/ Colour: Submit proposals.

580 SEALANT POINTING

- Standard: To BS EN ISO 11600.
 - Class: F20 HM.
- Type: Silicone.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Colour: White.

EXECUTION

610 INSTALLATION GENERALLY

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

620 NOGGINGS AND BEARERS

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

630 TILED BACKGROUNDS OTHER THAN SPLASHBACKS

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

670 INSTALLING CISTERNS

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

710 INSTALLING TAPS

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

720 INSTALLING WASTES AND OVERFLOWS

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

755 SEALANT BEDDING AND POINTING

- Bedding: Bed W.C. over floor finish.
- Pointing: Joints between appliances and splashbacks..

N15 Internal fire and safety signage systems

To be read with Preliminaries/ General Conditions.

GENERAL

110 FIRE AND SAFETY SIGNAGE SYSTEMS FOR ESCAPE ROUTE

- System manufacturer: Submit proposals.
 - System reference: Submit proposals.
- Location and layout: As noted on Architectural and M+E plans.
 - Language: English.
- Material: Aluminium plate.
 - Other properties: Fixing holes.

SYSTEM PERFORMANCE

205 DESIGN OF INTERNAL SIGNAGE SYSTEMS FOR ESCAPE ROUTES

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

210 GENERAL REQUIREMENTS

- Signage and way guiding system design: BS ISO 16069 for design of safety signs and safety way guiding systems (SWGS).
 - For fire escape and evacuation signage: In accordance with: BS 5499-4 or BS ISO 16069.
 - For way guiding systems: In accordance with BS ISO 16069.
 - For safety signs other than escape route signage: In accordance with: BS 5499-10.
- Comply with the requirements of: Fire Strategy Report.

220 SIGN DESIGN AND FORMAT FOR ESCAPE ROUTES

- Format: In accordance with BS EN ISO 7010.
- Geometric shapes, colours and layout: In accordance with BS ISO 3864-1.
- Design principles for graphical symbols: In accordance with BS ISO 3864-3.
- Colorimetric and photometric properties of safety sign materials: In accordance with BS ISO 3864-4.
- Water safety: In accordance with BS ISO 20712-1.

270 FIRE REACTION OF FIRE ESCAPE SIGNAGE SYSTEM

- Non flammable surface:
 - Standard: To Building Regulations Approved Document B.

PRODUCTS

320 ALUMINIUM PLATE FOR ESCAPE ROUTE SIGNS

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Component thickness: 2 mm.
- Finish: Manufacturer's standard.
- Perimeters: Manufacturer's standard.
- Supports/ Fixings: Screw fixed.
- Accessories: Not required.

EXECUTION

610 FIXING SIGNS GENERALLY

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

COMPLETION

910 DOCUMENTATION

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

N25 Permanent access and safety equipment

To be read with Preliminaries/ General conditions.

TYPES OF SYSTEM/ EQUIPMENT

221 SINGLE POINT ANCHORAGE DEVICES

- Manufacturer: Latchways plc - an MSA Brand.
 - Web: www.msasafety.com/latchways.
 - Email: fallprotection@msasafety.com.
 - Product reference: PushLock™ Safety Eyebolt System
- Socket cap finish: Stainless steel.
- Additional requirements: To be used with personal protective equipment (PPE), e.g. full body harness to BS EN 361, energy absorber to BS EN 355, and retractable lanyard (of correct length) to BS EN 354

DESIGN/PERFORMANCE REQUIREMENTS

430 SAFETY

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

440 DESIGN LIFE/ MAINTENANCE PROGRAMME

- Design life of access/ safety system: Not less than 10 years.
- Schedule for maintenance and for replacement of components: Submit.

FABRICATION, ASSEMBLY AND INSTALLATION

510 FABRICATION AND ASSEMBLY GENERALLY

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

520 PROTECTION

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

535 EXECUTION GENERALLY

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

540 MECHANICAL FIXINGS

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

550 FASTENERS, INSERTS AND BOLTS FOR BUILDING IN

- Supplier: Equipment manufacturer/ supplier.

560 FIXINGS FOR SECURING EQUIPMENT

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

570 FIXING ANCHOR INSTALLATION

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

610 IDENTIFICATION AND REGISTRATION LABELS FOR OTHER EQUIPMENT GENERALLY

- Provision: Provide and fix to each piece of equipment a permanent label giving:
 - Manufacturer's name, address and telephone number.
 - Name and/ or reference code of model.
 - Serial number and year of manufacture.
 - Maximum load (in kilograms) that may be sustained by the equipment.
- Location: In positions such that labels can be easily read.

615 CE MARKING AND DECLARATION OF CONFORMITY OF PERMANENTLY INSTALLED SUSPENDED ACCESS EQUIPMENT

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

640 MARKING OF ANCHOR DEVICES

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

810 SERVICE/ MAINTENANCE GENERALLY

- General: Following acceptance of the completed installation, service and maintain the equipment for the period stated below as and at intervals recommended by the manufacturer. Such maintenance to include a 'call-out' service during normal working hours to maintain the equipment in an acceptable and safe condition.
- Service/ Maintenance period: Three years.

820 OPERATING INSTRUCTIONS

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

830 OPERATING AND MAINTENANCE MANUAL

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

P10 Sundry insulation/ proofing work

SUNDRY INSULATION/ PROOFING WORK

To be read with Preliminaries/ General conditions

TYPES OF INSULATION

125 INSULATION LAID BETWEEN CEILING TIES/ JOISTS

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Material: Mineral wool to BS EN 13162.
- Recycled content: Manufacturer's standard.
- Thickness: 100 mm.
- Installation requirements:
 - Installation standard: To BS 5803-5.
 - Joints: Butted, no gaps.
 - Insulation at perimeter: Carried over wall plates.
 - Eaves ventilation: Unobstructed.
 - Service holes: Sealed, and debris removed before laying insulation.
 - Water cistern platforms: Not applicable.

140 INSULATION FITTED AT RAFTER LEVEL

- Manufacturer: ROCKWOOL Ltd.
 - Web: www.rockwool.co.uk.
 - Email: info@rockwool.com.
 - Product reference: ROCKWOOL FLEXI.
- Location: Between rafters.
- Material: Mineral wool to BS EN 13162.
- Facing: Not required.
- Recycled content: Manufacturer's standard.
- Thickness: 100 mm.
- Installation requirements:
 - General: Insulation to be friction fitted between rafters with no gaps.
 - Joints: Butted, no gaps.
 - Fasteners: Used where necessary to retain insulation and/ or prevent slumping.
 - Vapour control facing (if specified): Fit insulation with facing on warm side. Staple overlap (if provided) to underside of rafters; tape joints between adjacent overlaps using vapour impermeable adhesive tape.
 - Air space above insulation: Not restricted.
 - Eaves ventilation: Unobstructed.

149 MULTI LAYER FOIL INSULATION

- Manufacturer: Boulder Developments.
 - Web: www.superfoil.co.uk.
 - Email: sales@superfoil.co.uk.
 - Product reference: SF40

310 VAPOUR CONTROL LAYER BELOW GROUND FLOOR SLAB

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Material: 1000 gauge virgin polyethylene.
- Minimum vapour resistance: 250 MN s/g.
- Installation requirements:
 - Setting out: Joints minimized.
 - Method of fixing: Double sided sealant tape and welted joint.
 - Joints: At supports only, lapped 150 mm minimum.
 - Openings: Membrane fixed to reveals.
 - Joints and edges: Sealed with double sided tape with vapour resistivity not less than the vapour control layer.
- Penetrations: Sealed.
- Other requirements: None.

320 BREATHER MEMBRANE

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Installation requirements:
 - Setting out: Joints minimized. Membrane to form a continuous barrier to prevent water, snow and wind blown dust reaching the substrate.
 - Method of fixing: Stainless steel staples at 300 mm centres on line of horizontal laps into sheathing board.
 - Joints: Lapped 100 mm minimum horizontally and 150 mm minimum vertically.
 - Openings: Membrane fixed to reveals.
 - Bottom edges: Membrane lapped over flashings, sills, etc. to allow free drainage to the exterior.
- Penetrations: Sealed.

411 FIRE BARRIERS

- Manufacturer: ROCKWOOL Ltd.
 - Web: www.rockwool.co.uk.
 - Email: info@rockwool.com.
 - Product reference: ROCKWOOL Fire Barrier Slab
- Accessories: ROCKWOOL Acoustic Intumescent Sealant

421 INTUMESCENT CAVITY BARRIER

- Manufacturer: ROCKWOOL Ltd.
 - Web: www.rockwool.co.uk.
 - Email: info@rockwool.com.
 - Product reference: ROCKWOOL TCB Cavity Barrier.
- Overall cavity width: 75 and 125mm.
- Accessories: None.

433 FIREPROOF INSULATION

- Manufacturer: ROCKWOOL Ltd.
 - Web: www.rockwool.co.uk.
 - Email: info@rockwool.com.
 - Product reference: ROCKWOOL SP 60 Firestop Slab.
- Dimensions: 75 mm x 650 mm x 1000 mm.
- Facing: Aluminium faced foil both sides.
- Reaction to fire class: A1 to BS EN 13501-1.
- Accessories: SP Firestop fixing brackets.

P12 Fire stopping systems

To be read with Preliminaries/ General conditions.

GENERAL

130 FIRE STOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS GENERALLY

- Fire resistance: As clause 240.
- Penetration seal: Submit proposals.
 - Size: To match wall thickness.
- Gap sealer: to be agreed.
- Capping sealant: Submit proposals.
 - Colour: White .

160 LINEAR GAP SEALING GENERALLY

- Fire resistance: As clause 240.
- Gap width or height (nominal): 10 mm.
- Gap filler: Submit proposals.
- Capping sealant: Submit proposals.
 - Colour: White .

PRODUCTS

240 FIRE PERFORMANCE OF COMPARTMENT WALLS

- Resistance to fire: To BS EN 13501-2, EI 60 or better.
- Reaction to fire: To BS EN 13501-1, Class A1.
- Smoke resistance:
 - Air leakage rate (maximum): 3 m³/m²·hr.

305 PRODUCT CERTIFICATION

- Certification: For products specified generically, submit evidence of compliance with the specification.
- Acceptable evidence: Agrément certificate.

330 FLEXIBLE INTUMESCENT GAP SEALER

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Strip width: Wider than joint width.

335 INTUMESCENT FOAM

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.

338 INTUMESCENT MASTIC

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.

- 340 INTUMESCENT MORTAR
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- 342 FIRE RESISTING MORTAR
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- 360 MINERAL WOOL RIGID BATTS
- Standard: To BS EN 13162.
 - Surface treatment: Ablative coating
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Recycled content: Manufacturer's standard.
- 370 PIPE COLLAR
- Type: Concealed intumescent pipe collar.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- 385 SEALANT BACKING MATERIAL
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- 390 SEALANT
- Type: Fire-resisting silicone.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.

EXECUTION

- 610 THIRD PARTY CERTIFIED INSTALLER
- Certification: For the technical competency of the installer of the evidence of compliance with a third party installation certification scheme.
 - Acceptable evidence: UKAS Accreditation Certificate.
- 620 WORKMANSHIP GENERALLY
- Gaps: Seal between building elements and services, to provide effective resistance to fire and the passage of smoke. Allow for capping sealants where required. Finish flush with surrounds.
 - Adjacent surfaces: Prevent overrun of sealant or mortar on to finished surfaces.
- 650 INSTALLING FLEXIBLE INTUMESCENT GAP SEALER
- Fitting of strips: Compress strips and fit into gap, so that, as they decompress, the strips wedge themselves in the void.
 - Shrink wrapping: Do not remove.
 - Joints:
 - Ends of strips: Fit intumescent 'end piece' at both ends of run of stop laminate.
 - Joints between strips: Fit two intumescent 'end pieces' at each butt joint.

660 APPLYING INTUMESCENT FOAM

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

670 APPLYING INTUMESCENT MORTAR

- Sequence: Install mortar after services are permanently installed.
- Loose dust and combustible materials: Remove from the opening.
- Shuttering: Install suitable shuttering panels to the faces of the opening.
- Temperature: Do not apply mortar when it could be damaged by frost.
- Powder:water ratio: as manufacturer's instructions.
- Mortar cure: Do not disturb mortar before final set has taken place.
- Shuttering: Remove after mortar has cured.

710 INSTALLING MINERAL WOOL BATTS

- Installing batts: Fit tight into void between the penetrating services and the surrounding construction to form a solid barrier.
 - Brackets: Impale batts on proprietary pressed steel brackets at 500 mm maximum centres and not greater than 250 mm from ends of batts..
 - Bracket fixing: as manufacturer's details.
- Face of batts: Flush with the surface of wall, floor or soffit.
- Joints between batts: Close butt joints; seal with fire-resisting sealant.
- Gaps between services and barrier: Seal with fire resisting sealant.

730 FIXING PIPE COLLARS

- Collar fixing: Self-tapping screws, stainless steel.
- Gap around collar: as manufacturer's details.
- Length of wraps: Not applicable.

740 INSERTING SEALANT BACKING MATERIAL

- Preparation: Removed debris from service penetration.
- Installation: Insert joint filler to full depth of joint leaving sufficient depth to apply sealant.

745 APPLYING SEALANTS GENERALLY

- Application: As section Z22.

750 APPLYING CAPPING SEALANT

- Preparation: Submit proposals.
- Priming: Submit proposals.
- Depth of sealant: 10 mm.
- Temperature: Do not apply water based sealants when they could be damaged by frost.

COMPLETION

910 CLEANING

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

920 INSPECTION

- Notice for inspection (minimum): Five working days .

P20 Unframed isolated trims/ skirtings/ sundry items

To be read with Preliminaries/General conditions

- 110 **SOFTWOOD SKIRTINGS, ARCHITRAVES AND OTHER SIMILAR VISIBLE TRIMS GENERALLY**
- Quality of wood and fixing: To BS 1186-3.
 - Species: Contractor's choice.
 - Class: CSH.
 - Moisture content at time of fixing: 9-13%.
 - Preservative treatment: Not required.
 - Fire rating: To BS EN 13501-1, Class A2.
 - Profile: Pencil-rounded.
 - Finished size: As drawings.
 - Finish as delivered: Prepared and primed as M60.
 - Fixing: Adhesive, as section Z20 or 38 mm No 10 woodscrews at 450 mm centres and pelleted.
- 200 **MEDIUM DENSITY FIBREBOARD SKIRTINGS, ARCHITRAVES, WINDOWBOARDS AND OTHER SIMILAR VISIBLE TRIMS GENERALLY**
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Standard: To BS EN 622-5.
 - Type: MDF.H.
 - Formaldehyde class: To BS EN 622-1, Class E1.
 - Fire rating: To BS EN 13501-1, Class A2.
 - Thickness: As drawings.
 - Edges: Quarter rounded.
 - Finish: Prepared and primed, as section M60.
 - Recycled content: Submit proposals.
 - Support/ Fixing: Adhesive, as section Z20 or 38 mm No 10 woodscrews at 450 mm centres and pelleted.
- 240 **PLYWOOD CONCEALED PATRESSES**
- Face ply species: Contractor's choice.
 - Appearance class to BS EN 635: Class II/III.
 - Bond quality to BS EN 314-2: Class 2.
 - Fire rating: To BS EN 13501-1, Class A2.
 - Thickness: 19 mm.
 - Edges: sawn.
 - Support/ Fixing: Fitted between metal studs and screwed.

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

P21 Door/ window ironmongery

To be read with Preliminaries/ General conditions.

PRE-TENDER

10 QUANTITIES AND LOCATIONS

- Quantities and locations of ironmongery are scheduled by the supplier .
- Fixing: As sections L10 and L20.

GENERAL

121 IRONMONGERY FROM SINGLE PROPRIETARY RANGE

- Manufacturer: Submit proposals .
 - Product reference: Submit proposals .
- Principal material/ finish: Satin stainless steel, grade 1.4401 (316) externally, Satin stainless steel, grade 1.4301 (304) internally, including fixings. Handles etc. to be solid where diameter is less than 25mm .
- Items unavailable within selected range: Submit proposals.

140 SAMPLES

- General: Before placing orders with suppliers submit labelled samples of the following: single example of all major components .
 - Conformity: Retain samples on site for the duration of the Contract. Ensure conformity of ironmongery as delivered with labelled samples.

170 IRONMONGERY FOR FIRE DOORS

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

180 STRENGTH CLASS OR CATEGORY OF DUTY FOR DOOR IRONMONGERY

- Requirement: To BS EN 1192, Class 3.
- 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 GENERALLY

- Standard: To BS EN 1935.
 - Hinges to doors on escape routes and fire/ smoke control doors: CE marked.
- Manufacturer: As clause 121 .
 - Product reference: Submit proposals .
- Type: Double ball bearing butt .
- Size: 102 x 76 mm .
- Material/ finish: Satin stainless steel, grade 1.4301 (304) .
- Hinge grade: not less than 12 .
- Other requirements: None .

WINDOW HANGING DEVICES

380 SLIDING FRICTION STAY HINGES TO TOP HUNG CASEMENTS

- Manufacturer: as window manufacturer's standard .
 - Product reference: Submit proposals .
- Type: Projecting top hung .
Size: to suit window size .
- Material/ finish: Austenitic stainless steel .

DOOR OPERATING DEVICES

410 OVERHEAD DOOR CLOSERS AS SCHEDULED

- Standard: To BS EN 1154.
 - Door closing devices to fire/ smoke control doors: CE marked.
- Manufacturer: as clause 121 .
 - Product reference: Submit proposals .
- Type: Face fixed .
- Power size: Adjustable 2-6 .
- Other functions: Delayed closing .
- Casing finish: Anodized, colour to match stainless steel .
- Operational adjustment:
 - Variable power: Matched to size, weight and location of doors.
 - Latched doors: Override latches and/ or door seals when fitted.
 - Unlatched doors: Hold shut under normal working conditions.
 - Closing against smoke seals of fire doors: Positive. No gaps.

DOOR SECURING DEVICES

510 THIEF RESISTANT DOOR LOCKS TO INDIVIDUAL APARTMENT DOORS, AS SCHEDULED

- Standard: To BS 3621 and Kitemarked.
- Manufacturer: As clause 121 .
 - Product reference: Submit proposals .
- Type: Cylinder mortice lock. Euro pattern cylinder to BS EN 1303 classification 1 6 - 1 - 1 4 .
- Backset: 57 mm .
- Material/ finish: Satin stainless steel faceplate .
- Keying: Not master keyed .

511 THIEF RESISTANT DOOR LOCKS TO UPVC FRONT DOOR

- Standard: To BS 3621 and Kitemarked.
- Manufacturer: As door manufacturer's standard .
 - Product reference: Submit proposals .
- Type: Cylinder mortice lock linked to multipoint locking mechanism in opening stile. Euro pattern cylinder to BS EN 1303 classification 1 6 - 1 - 1 4 .
- Backset: 57 mm .
- Material/ finish: Satin stainless steel faceplate .
- Keying: Not master keyed .

515 DOOR LOCKS TO MAINTENANCE ACCESS AREAS INTERNALLY

- Standard: To BS EN 12209.
- Manufacturer: As clause 121 .
 - Product reference: Submit proposals .
- Type: 5 lever mortice deadlock .
- Backset: 57 mm .
- Material/ finish: Satin stainless steel faceplate .
- Keying: In landlord's master keyed suite .

540 DOOR LATCHES AS SCHEDULED

- Standard: To BS EN 12209.
- Manufacturer: As clause 121 .
 - Product reference: Submit proposals .
- Type: Horizontal case mortice latch .
- Backset: 57 mm .
- Material/ finish: Satin stainless steel faceplate .
- Latch spring strength: Select to prevent unsprung lever handles drooping.

586 PRIVACY INDICATOR BOLTS AS SCHEDULED

- Manufacturer: as clause 121 .
 - Product reference: Submit proposals .
- Type: Rotary, internal thumbturn integral/complimentary with lever handle .
- Material/ finish: Satin stainless steel, grade 1.4301 (304) .
- Emergency release facility: Required.

WINDOW SECURING DEVICES

592 SASH FASTENERS TO TOP HUNG CASEMENTS

- Manufacturer: As window manufacturer's standard .
 - Product reference: Submit proposals .
- Type: Keyed lock .
- Size: As window manufacturer's standard .
- Material/ finish: Stove enamelled steel, colour white .
- Additional requirements: None .

DOOR FURNITURE

- 610 LEVER HANDLES AS SCHEDULED
- Standard: To BS EN 1906.
 - Manufacturer: as clause 121 .
 - Product reference: Submit proposals .
 - Style: Round pattern with return to door .
 - Size: 25 mm .
 - Material/ finish: Satin stainless steel, grade 1.4301 (304) .
 - Mounting: Sprung rose with bolt through fixing .
 - Additional requirements: None .
- 641 PULL HANDLES AS SCHEDULED
- Manufacturer: as clause 121.
 - Product reference: Submit proposals.
 - Standard: To BS 8424.
 - Shape: D handle .
 - Diameter: 25 mm .
 - Distance between centres: 300 mm .
 - Material/ finish: Satin stainless steel, grade 1.4301 (304) .
 - Mounting: Bolt through .
 - Additional requirements: None .
- 670 PUSH PLATES AS SCHEDULED
- Manufacturer: as clause 121 .
 - Product reference: Submit proposals .
 - Size: 350 x 75 mm .
 - Material/ finish: Satin stainless steel, grade 1.4301 (304) .
 - Mounting: Face fix .
 - Additional requirements: Rounded edges and radiused corners .
- 690 KICK PLATES AS SCHEDULED
- Manufacturer: as clause 121 .
 - Product reference: Submit proposals .
 - Size: 150mm high x 50mm narrower than door width .
 - Material/ finish: Satin stainless steel, grade 1.4301 (304) .
 - Mounting: Face fix .
 - Additional requirements: Rounded edges and radiused corners .
- 710 ESCUTCHEONS TO CYLINDER LOCKS
- Manufacturer: as clause 121 .
 - Product reference: Submit proposals .
 - Material/ finish: Satin stainless steel, grade 1.4301 (304) .
 - Keyhole type: Euro profile cylinder .
 - Usage: To cylinder locks where no handle backplate is specified to be fitted .

720 DOOR STOPS

- Manufacturer: As clause 121 .
 - Product reference: Submit proposals .
- Type: Floor mounted black rubber centre fixing .
- Usage: To doors opening against walls other than those fitted with closers with a back check facility .

730 LETTER PLATES TO UPVC FRONT DOOR, IDENTICAL AND OUT

- Standard: To BS EN 13724.
- Manufacturer: as door manufacturer's standard .
 - Product reference: Submit proposals .
- Operation: Outward opening sprung flap .
- Size: 254 x 102 mm .
- Material/ finish: Satin stainless steel, grade 1.4401 (316) .
- Features: Internal brush seals .

890 DOOR VIEWERS TO APARTMENTS

- Manufacturer: As clause 121 .
 - Product reference: Submit proposals .
- Angle of vision: 160° .
- Material/ finish: Chrome plated .
- Viewer body diameter: 12 mm .
- Door thickness: 44 mm .

WINDOW FURNITURE

900 CASEMENT HANDLES TO UPVC WINDOWS

- Manufacturer: as window manufacturer's standard .
 - Product reference: Submit proposals .
- Type: Locking .
- Material/ finish: Satin stainless steel, grade 1.4301 (304) .
- Features: none .

Q10 Kerbs/ edgings/ channels/ paving accessories

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF KERBS/ EDGINGS/ CHANNELS

111 PRECAST CONCRETE KERB

- Manufacturer: Marshalls plc.
 - Web: www.marshalls.co.uk.
 - Email: info@marshalls.co.uk.
 - Product reference: Half Battered Kerb
- Size: HB2 – 125 x 255 mm and HB3, 125 x 150 mm.
- Radius kerbs:
 - Type: Radius, convex (external) and Radius, concave (internal).
 - Size: HB to BN (LH), 125 x 255/ 150 mm; HB to BN (RH), 125 x 255/ 150 mm; HB2 – 125 x 255 mm and HB3 – 125 x 150 mm.
 - Radius: as drawings.
- Special shapes: Drop kerb 1:9 gradient 125 x 255/ 150 left hand DL1. Drop kerb 1:9 gradient 125 x 255/ 150 right hand DR1.

112 PROPRIETARY PRECAST CONCRETE

- Manufacturer: Marshalls plc.
 - Web: www.marshalls.co.uk.
 - Email: info@marshalls.co.uk.
 - Product reference: EF Flat Top Edgings.
- Size: 50 x 200 mm.

113 PRECAST CONCRETE CHANNELS

- Manufacturer: Marshalls plc.
 - Web: www.marshalls.co.uk.
 - Email: info@marshalls.co.uk.
 - Product reference: Channels
- Type: Dished channel, 305 x 150 CD.

181 DRAINAGE CHANNEL SYSTEMS WITH GRATINGS

- Manufacturer: ACO Technologies plc.
 - Web: www.aco.co.uk.
 - Email: technical@aco.co.uk.
 - Product reference: M100D.
- Channel:
 - Type of fall: Constant invert.
 - Joints: Drain union, PVC-U.
Size: 110 mm diameter.
 - Accessories:
 - Sump unit with sediment bucket;
 - Drainlock security locking assembly;
 - Endcap, closing, inlet/ outlet; and
 - Gully assembly comprising top, base, bucket and grating.
- Gratings:
 - Load class C250 (Cars and light vans): Slotted galvanized steel grating.

ROAD/ PAVING ACCESSORIES/ MARKING/ DEMARCATION

316 SPEED BUMPS

- Manufacturer: Gradus.
 - Web: www.gradus.com.
 - Email: imail@gradus.com.
 - Product reference: Speed Bumps
- Height: 50 mm.
- Length: SBK-3000-50BY (3000 mm), adjustable to suit road width.

395 ROAD MARKING (THERMOPLASTIC)

- Standard: Road Safety Markings Association standard specification document for road marking and road studs (StanSpec).
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Colour: White and yellow.
- Retroreflectivity to BS EN 1436: Not required (Class R0).

LAYING

510 LAYING KERBS, EDGINGS AND CHANNELS

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

530 CONCRETE FOR FOUNDATIONS, RACES AND HAUNCHING

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

540 CEMENT MORTAR BEDDING

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

547 BEDDING/ BACKING OF UNITS ON FRESH CONCRETE RACES

- Standard: To BS 7533-6.

560 HAUNCHING DOWELS

- Dowels: Steel bar to BS 4482.
 - Size: 12 mm diameter, 150 mm long.
- Installation of dowels: Vertically into foundation while concrete is plastic.
 - Centres: 450 mm.
 - Distance from back face of kerb: 50 mm.
 - Projection: 75 mm.
- Haunching: Rectangular cross section, cast against formwork, fully enclosing and protecting dowels.

570 CHANNELS

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

580 DRAINAGE CHANNEL SYSTEMS

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

620 ACCURACY

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

625 REGULARITY OF PAVED SURFACES

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

Q20 Granular sub-bases to roads/ pavings

To be read with Preliminaries/ General conditions.

110 THICKNESSES OF SUB-BASE/ SUBGRADE IMPROVEMENT LAYERS

- Thicknesses: See sections:
- Q22 Coated macadam/ asphalt roads/ pavings and Q25 Slab/ brick/ sett/ cobble pavings.

121 CHECKING OF SUBGRADES

- Anticipated subgrade conditions: Refer to ground investigation report.
- Subgrade variation: If material appears to vary from anticipated conditions, or if there are extensive soft spots, report condition and await instruction before proceeding.
- Submit: Results and obtain instructions before proceeding.

130 HERBICIDES

- Type: Contact, non-selective.
- Application: To subgrade of any areas of vegetation apparent three weeks in advance of undertaking paving and surfacing works.

140 EXCAVATION OF SUBGRADES

- Final excavation to formation/ subformation level: Carry out immediately before compaction of subgrade.
- Soft spots and voids: Give notice.
- Old drainage and service trenches: Give notice.
- Wet conditions: Do not excavate or compact when the subgrade may be damaged or destabilized.

145 PREPARATION AND COMPACTION OF SUBGRADES

- Timing: Immediately before placing sub-base.
- Soft or damaged areas: Excavate and replace with sub-base material, compacted in layers 300 mm (maximum) thick.
- Compaction: Thoroughly, by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed roads/ pavings when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

150 SUBGRADES FOR VEHICULAR AREAS

- Preparation and treatment: To Highways Agency 'Specification for highway works', clauses 616 and 617.

- 170 GEOTEXTILE FILTER/ SEPARATOR MEMBRANE BELOW SUB-BASE
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Jointing: Single welt with two rows of staggered, corrosion resistant staples.
 - Protect from:
 - Exposure to light, except during laying (maximum five hours).
 - Contaminants.
 - Materials listed as potentially deleterious by geotextile manufacturer.
 - Damage, until fully covered by fill.
 - Wind uplift, by laying not more than 15 m before covering with fill.
 - Preparation: Remove humps and sharp projections and fill hollows before laying.
- 180 NOTICE
- Give notice:
 - After preparation and compaction of subgrades;
 - For inspection of granular sub-base material before spreading; and
 - On completion of compaction .
 - Period of notice: 5 working days.
- 200 SUBGRADE IMPROVEMENT LAYER (CAPPING)
- Material: To Highways Agency 'Specification for highway works', table 6/1, Class 6F4 or 6F5.
 - Standard: Placed and compacted to Highways Agency 'Specification for highway works', table 6/1, clauses 612 and 613.3, 613.8, 613.9, 613.10 and 613.13.
- 210 HIGHWAYS AGENCY TYPE 1 UNBOUND MIXTURE FOR SUB-BASE
- Material: Type 1 unbound mixture to Highways Agency 'Specification for highway works', clauses 801 and 803.
 - Recycled aggregate: Not permitted.
- 211 GRANULAR MATERIAL
- Quality: Of a known suitability for use in sub-base, free from excessive dust, well graded, all pieces less than 75 mm in any direction, minimum 10% fines value of 50 kN when tested in a soaked condition to BS 812-111 or a resistance to fragmentation of LA50 for the Los Angeles test to BS EN 1097-2, and in any one layer only one of the following:
 - 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.
 - Gravel or hoggins with not more clay content than is required to bind the material together, and with no large lumps of clay.
 - Natural gravel.
 - Natural sand.
 - Filling: Spread and levelled in 150 mm maximum layers, each layer thoroughly compacted.
- 213 BLINDING PROTECTION FOR MEMBRANES
- Location: On sub-base to receive separating membrane.
 - Material: Approved fine material .
 - Thickness (minimum): Sufficient to fill interstices and cover all stones.
 - Compaction: Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
 - Permissible deviations on surface level: ± 20 mm.

- 215 COARSE GRADED AGGREGATE FOR PERMEABLE PAVING - UNBOUND.
- Material: Hard crushed rock.
 - Standard: To BS EN 13242 and paving manufacturers recommendations.
 - Aggregate size: 4/20.
 - Grading: As Interpave 'Guide to the design, construction and maintenance of concrete block permeable pavements edition 6', table 12.
 - Other properties: As Interpave 'Guide to the design, construction and maintenance of concrete block permeable pavements edition 6', table 13.
 - Testing:
 - Materials: Provide suppliers' certificates for grading and specified properties.
 - Sub-base: Not required.
 - Laying: Lay in 100-150mm thick layers and lightly compact to ensure maximum density and aggregate interlock without crushing individual particles or unacceptably reducing the void ratio
 - Protection: Prevent damage by traffic and contamination by mud and soil.
- 220 FROST SUSCEPTIBLE GRANULAR MATERIAL
- Definition (non frost susceptible material): To Highways Agency 'Specification for highway works' clause 801.8.
 - Depth of frost susceptible material below final surface of paving (minimum): 450 mm.
 - Testing: Test materials used if required and supply certificates.
- 225 PLACING OF MATERIAL WITH HIGH SULFATE CONTENT
- Standard: To Highways Agency 'Specification for highway works', clauses 801.2 and 801.3.
 - Separation distance (minimum): 500 mm.
- 230 PLACING GRANULAR MATERIAL GENERALLY
- Preparation: Loose soil, rubbish and standing water removed.
 - Structures, membranes and buried services: Ensure stability and avoid damage.
- 241 LAYING GRANULAR SUB-BASES FOR VEHICULAR AREAS
- Proposals: Well in advance of starting work submit details of:
 - Maximum depth of each compacted layer.
 - Type of plant.
 - Minimum number of passes per layer.
 - General: Spread and levelled in layers. As soon as possible thereafter compact each layer.
 - At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place: Take particular care to compact fully.
 - Defective areas: Remove loose, segregated or otherwise defective areas to the full thickness of the layer and lay and compact new material.
 - Sub-base surface after compaction and immediately before overlaying: Uniformly well closed and free from loose material, cracks, ruts or hollows.
- 250 LAYING GRANULAR SUB-BASES FOR PEDESTRIAN AREAS
- General: Spread and levelled.
 - Compaction:
 - Timing: As soon as possible after laying.
 - Method: By roller or other suitable means, adequate to resist subsidence or deformation of the sub-base during construction and of the completed paving when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

310 ACCURACY

- Permissible deviation from required levels, falls and cambers (maximum):
 - Subgrades:
Roads and parking areas: +20 -30 mm.
Footways and recreation areas: ± 20 mm.
 - Sub-bases:
Roads and parking areas: ± 20 mm.
 - Footways and recreation areas: ± 12 mm .

320 SURFACES TO RECEIVE SAND BEDDING FOR PAVING TO SECTION Q25.

- Blind surface: As necessary before compaction to ensure that surface is tight and dense enough to prevent laying course sand being lost into it during construction or use.
- Material: Approved fine material.

330 COLD WEATHER WORKING

- Frozen materials: Do not use.
- Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.

340 PROTECTION

- Sub-bases: As soon as practicable, cover with subsequent layers, specified elsewhere.
- Subgrades and sub-bases: Prevent degradation by construction traffic, construction operations and inclement weather.

Q22 Asphalt roads/ pavings

To be read with Preliminaries/ General conditions.

TYPES OF PAVING

110 ASPHALT CONCRETE PAVING TO ROADWAY AND CAR PARKING

- Standard: To BS EN 13108-1.
- Subgrade improvement layer: As section Q20.
 - Compacted thickness: Submit proposals.
- Granular sub-base: As section Q20.
 - Compacted thickness: Submit proposals.
- Geotextile: Sheet.
 - Manufacturer: Submit proposals.
 - Product reference: Contractor's choice.
- Base: 40mm size dense roadbase to BS4987 Part 1 (5.1) with 150 pen or 200 pen bitumen.
 - Paving grade: 100/150.
 - Compacted thickness: 90 mm, nominal.
- Binder course: 20mm size dense basecourse to BS4987: Part 1 (6.5) with 150 pen or 200 pen bitumen.
 - Paving grade: 100/150.
 - Compacted thickness: 60 mm, nominal .
- Surface course: 10mm size close-graded wearing course to BS4987: Part 1: (7.4) with 100, 150 or 200 pen bitumen.
 - Paving grade: 100/150/200.
 - Slip/ Skid resistance: No requirement.
 - Compacted thickness: 35mm, nominal.
- Reclaimed content:
 - Standard: To BS EN 13108-8.
 - Value (maximum): Submit proposals.
- Surface treatment: Not required.
- Other requirements: as noted on Engineer's drawings.

PREPARATORY WORK/ REQUIREMENTS

210 TIMBER EDGING TO EXISTING BOUNDARY

- Softwood board:
 - Size: 38 x 150 mm.
 - Fixing: Galvanized nails into softwood pegs.
- Softwood pegs:
 - Size: 50 x 50 x 450 mm long.
 - Fixing: Drive into ground.
 - Centres: 900 mm.
- Preservative treatment: To provide a 30 year service life.
 - Type: Submit proposals.

LAYING

310 LAYING GENERALLY

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

330 LEVELS

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

351 CONTRACTOR'S USE OF PAVEMENTS

- Preparation for final surfacing:
 - Timing: Defer laying until as late as practicable.
 - Immediately before laying final surfacing: Clean and make good the base/ binder course. Allow to dry.
 - Adhesion: Tack coat to BS 434-1 or BS EN 13808.
Application rate: As manufacturer's recommendation.
Accuracy: Uniform, without puddles.
 - Finishing: Allow emulsion to break completely before applying surface.

COMPLETION

390 DOCUMENTATION

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

Q25 Slab/ brick/ sett/ cobble pavings

To be read with Preliminaries/ General conditions.

GENERAL

121 CONCRETE PAVING

- Manufacturer: Marshalls plc.
 - Web: www.marshalls.co.uk.
 - Email: info@marshalls.co.uk.
 - Product reference: Modal
- Size: 400 x 400 mm.
- Colour: Submit proposals.
- Finish: Textured.

SYSTEM PERFORMANCE

220 DESIGN - CONCRETE FLAG PAVING SYSTEM

- Design: Complete the design of the concrete slab paving system in accordance with BS 7533-4.
 - Site category: II.
- Ground conditions: Refer to site investigation report.
- Performance criteria: as noted on drawings.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

PRODUCTS

316 CONCRETE PAVING

- Manufacturer: Marshalls plc.
 - Web: www.marshalls.co.uk.
 - Email: info@marshalls.co.uk.
 - Product reference: Modal
- Size: 400 x 400 mm.
- Colour: Submit proposals.
- Finish: Textured.

370 CEMENT FOR SITE MIXED MORTAR GENERALLY

- Standard: As section Z21.

390 SAND/ FINE AGGREGATE FOR UNBOUND LAYING COURSE AND JOINTING OF CONCRETE FLAG PAVING GENERALLY.

- Standard: To BS 7533-4, unbound construction laying course and jointing material.
- Purity: Free from deleterious salts, contaminants, lime and cement.
- Procurement: Obtain from one source and ensure consistent grading.

EXECUTION

620 ADVERSE WEATHER

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

625 LAYING PAVINGS - GENERAL

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

630 LEVELS OF PAVING

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

637 REGULARITY OF PAVED SURFACES

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

645 PROTECTION

- Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
- Materials storage: Do not overload pavings with stacks of materials.
- Handling: Do not damage paving unit corners, arrises, or previously laid paving.
- Mortar bedded pavings: Keep free from traffic after laying:
 - Pedestrian traffic (minimum): 7 days.
 - Vehicular traffic (minimum): 14 days.
- Access: Restrict access to paved areas to prevent damage from site traffic and plant.

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

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

710 LAYING FLAG AND SLAB PAVING - SAND/ FINE AGGREGATE LAYING COURSE AND JOINTING

- Standard: In accordance with BS 7533-4.
- Flag installation and cutting: To Interpave 'Concrete flag paving'.
- Laying course:
 - Nominal thickness after compaction: 50 mm.
- Joint width: 2-5 mm.

COMPLETION

915 COMPLETION OF PAVING WITH DRY SAND OR FINE AGGREGATE FILLED JOINTS

- Sand dressing: Leave a thin layer of dry jointing sand/ fine aggregate over the paving, sweep clean before practical completion.
- Final compaction of the surface course: In accordance with BS 7533-3.
- Vacuum cleaning machines: Not allowed.

Q40 Fencing

To be read with Preliminaries/ General conditions.

FENCING SYSTEMS

340 STEEL VERTICAL BAR FENCING

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Standard: To BS 1722-9.
- Height: 1200 mm above finished ground.
- Verticals: 12 mm diameter round bar. blunt top.
- Centres of verticals: nom. 95mm.
- Posts: RHS, 40 x 40 x 3 mm.
 - Finish: Hot-dip galvanized to BS EN ISO 1461 and Polyester powder-coated, as section Z31.

Colour: RAL 9005.

- Centres of posts (maximum): 2.8 m.
- Method of setting posts/ stays/ legs: Posts fitted with welded base plates and fixed to top of 215mm garden wall stretcher bond course, prior to laying of header course capping.
- Accessories: Single leaf pedestrian gate.
- Conformity: Submit manufacturer's and installer's certificates, to BS 1722-9.

350 STEEL PALISADE FENCING

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Standard: To BS 1722-12, type GP21 .
- Height: 2100 mm.
- Pales: Corrugated 'W'.
- Pale tops: Round only.
 - Finish: Hot-dip galvanized to BS EN ISO 1461 and Polyester powder-coated, as section Z31.

Colour: RAL 9005.

- Fixings: Bolted.
- Centres of posts (maximum): 2.75 m.
- Method of setting posts:
 - Holes: 450 x 450 mm square .
 - Embedded length: 625mm.
 - Completely filled to ground level with concrete.
- Bottom of fencing: Maximum ground clearance 50 mm, additional rail fixed to pales 100 mm from bottom with two intermediate supports..
- Accessories:
 - 3no. single fob controlled self closing and self locking pedestrian gate;
 - Double vehicle entry gate with overlapping meeting stile; and
 - Remotely controlled gate opener.
- Conformity: Submit manufacturer's and installer's certificates, to BS 1722-12.

GATES AND GATE POSTS

- 560 STEEL 1200mm HIGH VERTICAL BAR GATES TO SITE ENTRANCE FROM PUBLIC FOOTPATH.
- Manufacturer: Submit proposals.
 - Standard:
 - Domestic gates: To BS 4092-1.
 - Steel palisade gates: To BS 1722-12.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Materials and workmanship: As section Z11.
 - Finish: Hot-dip galvanized to BS EN ISO 1461 and Polyester powder-coated, as section Z31.
 - Colour: RAL 9005.
 - Jointing: Welded.
 - Fittings: Two self closing adjustable hinges, cushioned slam plate and lever action catch.
 - Finish: Hot-dip galvanized to BS EN ISO 1461 and Polyester powder-coated, as section Z31, black.
 - Method of fixing: Secured to masonry posts either side of opening.
 - Accessories: None.
- 561 STEEL 2100mm HIGH PALISADE BAR PEDESTRIAN GATES.
- Manufacturer: Submit proposals.
 - Standard:
 - Domestic gates: To BS 4092-1.
 - Steel palisade gates: To BS 1722-12.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Materials and workmanship: As section Z11.
 - Finish: Hot-dip galvanized to BS EN ISO 1461 and Polyester powder-coated, as section Z31.
 - Colour: RAL 9005.
 - Jointing: Welded.
 - Fittings: Two self closing adjustable hinges, cushioned slam plate and fob operation electromagnetic locking mechanism.
 - Finish: Hot-dip galvanized to BS EN ISO 1461 and Polyester powder-coated, as section Z31, black.
 - Method of fixing: Secured to 100 x 100mm SHS posts either side of opening, set into concrete foundation, 450mm square x 750mm deep.
 - Accessories: None.

562 STEEL 2100mm HIGH PALISADE BAR DOUBLE VEHICULAR ENTRY GATE.

- Manufacturer: Submit proposals.
- Standard:
 - Domestic gates: To BS 4092-1.
 - Steel palisade gates: To BS 1722-12.
- Manufacturer: Submit proposals.
- Product reference: Submit proposals.
- Materials and workmanship: As section Z11.
- Finish: Hot-dip galvanized to BS EN ISO 1461 and Polyester powder-coated, as section Z31.
 - Colour: RAL 9005.
- Jointing: Welded.
- Fittings: Two electrically operated self closing adjustable hinges, cushioned slam plate and remote control fob operation electromagnetic locking mechanism.
 - Finish: Hot-dip galvanized to BS EN ISO 1461 and Polyester powder-coated, as section Z31, black.
- Method of fixing: Secured to 100 x 100mm SHS posts either side of opening, set into concrete foundation, 450mm square x 1100mm deep.
- Accessories: None.

EXECUTION

710 INSTALLATION GENERALLY

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

715 COMPETENCE

- Operatives: Contractors must employ competent operatives.
- Qualifications: Submit certification of training.
 - NHSS Sector Scheme 2A sub categories: (b) and (d).
 - NHSS Sector Scheme 2C sub categories: (a).

720 SETTING POSTS IN CONCRETE

- Standard: To BS 8500-2.
- Mix: Designated concrete not less than GEN1 or Standard prescribed concrete not less than ST2.
- Admixtures: Do not use.
- Holes: Excavate neatly and with vertical sides.
- Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.
- Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

780 MAKING GOOD GALVANIZED SURFACES

- Treatment of minor damage (including on fasteners and fittings): Low melting point zinc alloy repair rods or powders made for this purpose, or at least two coats of zinc-rich paint to BS 4652.
- Thickness: Apply sufficient material to provide a zinc coating at least equal in thickness to the original layer.

Q50 Site/ street furniture/ equipment

To be read with Preliminaries/ General conditions.

191 STEEL BOLLARD

- Manufacturer: Marshalls plc.
 - Web: www.marshalls.co.uk.
 - Email: info@marshalls.co.uk.
 - Product reference: RB109 Steel Bollard
- Height (above ground): 1000 mm.
- Diameter: 114 mm.
- Finish: Galvanized and powder coated.
- Colour: RAL 9005 (Black).
- Accessories/ Other requirements: Hazard banding, amber.

SITE AND STREET FURNITURE

210 CYCLE STANDS

- Manufacturer: Cyclepods
 - Web: www.cyclepods.co.uk
 - Email: info@cyclepods.co.uk.
 - Product reference: Secure Bike Hanger.
- Type: 6no. Single stands.
- Material: Steel.
 - Finish: Hot-dip galvanized to BS EN ISO 1461 and Polyester powder-coated, as section Z31.
 - Colour: RAL 9005.
- Accessories: None.
- Method of fixing: Resin anchor high security fixing into masonry.

351 TRAFFIC BLINDSPOT MIRROR TO BLIND CORNER WITHIN SITE

- Manufacturer: Barriers Direct
 - Web: www.barriersdirect.co.uk
 - Email: support@barriersdirect.co.uk.
 - Product reference: Convex safety & surveillance mirror, ref: 3182, 400mm dia..
- Material: Polymir mirror.
 - Finish: plastics frame.
 - Colour: RAL 9005.
- Accessories/ Special requirements: Bolted to polyester powder coated galvanised steel traffic signage post with base of mirror at 2.3m above finished ground level.
- Method of fixing: Post bedded in 750mm deep sub-surface concrete base with min 600mm embedment.

INSTALLATION

510 CONCRETE FOUNDATIONS GENERALLY

- Standard: To 8500-2.
- Mix: Designated concrete not less than GEN 1 or standard prescribed concrete not less than ST2.
- Admixtures: Do not use.
- Foundation holes: Neat vertical sides.
- Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

515 SETTING COMPONENTS IN CONCRETE

- Holes: 450 x 450 x minimum 750 mm deep.
- Components: Accurately positioned and securely supported.
- Concrete fill: Fully compacted as filling proceeds.
- Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.
- Temporary component support: Maintain undisturbed for minimum 48 hours.

R10 Rainwater drainage systems

To be read with Preliminaries/ General conditions.

GENERAL

110 GRAVITY RAINWATER DRAINAGE SYSTEM

- Rainwater outlets: Proprietary.
- Gutters: Aluminium and Single layer polymeric sheet as section J42.
- Pipework: Aluminium and PVC-U, sealed.
- Below ground drainage: As section R12 or as Structural Engineer's specification.
- Disposal: To surface water drainage.
- Controls: As Structural Engineer's specification.
- Accessories: Insulation to internal downpipes.

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.

230 DESIGN PARAMETERS - GENERAL

- Roof and gutter construction and finish: Concrete tile pitched roof with exposed gutters to perimeter and single ply polymeric roof membrane with integral gutter to central area of building.
- Design rate of rainfall: As BS EN 12056-3, National Annex NB.2.
 - Category: 2.
- Design life of building: 60 years.
- Available capacity of existing below ground drainage (maximum): to be advised.

PRODUCTS

311 ALUMINIUM GUTTERS

- Standard: Agrément certified.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Profile: Moulded No. 46.
- Type/ Thickness: Extruded, 1.6 mm thickness.
- Nominal size: 150 mm.
- Finish: Polyester powder coating.
- Colour: RAL 9005.
- Brackets: Proprietary, fixed to timber fascia.
 - Fixings: Stainless steel screws.
Size: 25 x 4 mm.
- Accessories: Jointing clips and Stop ends.

345 GUTTER LININGS

- Manufacturer: as clause J42.
 - Product reference: Submit proposals.
- Material: single layer polymeric.
- Size: max. 450mm wide .
- Outlets: as clause 365 .

366 RAINWATER OUTLETS

- Manufacturer: Alumasc Water Management Solutions.
 - Web: www.alumascwms.co.uk.
 - Email: info@alumascwms.co.uk.
 - Product reference: Harmer AV600 Vertical Spigot roof outlet with push fit flange
- Type: dome grating, 160 mm pipe.
- Accessories: Not required.

425 PVC-U PIPEWORK - SEALED

- Standard: To BS EN 1329-1 or BS 4514, Kitemark certified.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Recycled content: None permitted.
- Nominal size: DN110.
- Colour: Grey.
- Brackets: PVC-U clips, black.
 - Fixings: Stainless steel screws.
Size: 40 x 4 mm.
- Accessories:
 - Access fittings;
 - Insulation; and
 - Intumescent collars as section P12.

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: not exceeding 1200 mm.
 - Additional brackets: Where necessary to maintain support and stability, provide at joints in gutters and near angles and outlets.
- Roofing underlay: Dressed into gutter.

616 SETTING OUT EAVES GUTTERS - LEVEL

- Setting out: Level and as close as practical to the roof.
- Outlets: Aligned with connections to below ground drainage.

630 INSTALLING RAINWATER OUTLETS

- Fixing: Secure. Fix before connecting pipework.
 - Method: as manufacturer's instructions.
- 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: Plugged and screwed into masonry.
 - Distance between bracket fixing centres (maximum): 1500 mm.
- 645 **FIXING LOW GRADIENT PIPEWORK**
- Bracket fixings: Plugged and screwed into masonry.
 - Distance between bracket fixing centres (maximum): 1200 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.
- 655 **JOINTING INTERNAL PIPEWORK**
- Jointing: Solvent welded with lubricated ring seal joints at no more than 1.8 m spacing.
- 675 **CUTTING COATED PIPEWORK AND GUTTERS**
- Cutting: Recoat bare metal.
- 680 **FIXING INSULATION TO INTERNAL PIPELINES AND GUTTERS**
- Fixing: Secure and neat. Provide continuity at supports and leave no gaps. Fix split pipe insulation with the split on 'blind' side of pipeline.
 - Method: Mechanical fasteners.
 - Timing: Do not fit insulation until completion of pipe airtightness or leakage testing.
- 685 **IDENTIFICATION OF INTERNAL RAINWATER PIPEWORK**
- Standard: In accordance with Water Regulations Advisory Scheme (WRAS) Information and guidance note 9-02-05 and BS 8515.
- 690 **ELECTRICAL CONTINUITY - PIPEWORK**
- Joints in metal pipes with flexible couplings: Clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

COMPLETION

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

910 GUTTER TEST

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

R11 Above ground foul drainage systems

To be read with Preliminaries/ General conditions.

GENERAL

115 ABOVE GROUND FOUL DRAINAGE SYSTEM

- Sanitary and floor drainage outlets: Sanitary fittings as section N13.
- Waste pipework: MUPVC or PVC-C.
- Discharge stack and branch pipework: PVC-U.
- Separate ventilating pipework: None required.
- Accessories: Air admittance valves.
- Disposal: To below ground drainage as section R12 or to Structural Engineer's details.

SYSTEM PERFORMANCE

210 DESIGN

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

220 COLLECTION AND DISTRIBUTION OF FOUL WATER

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

PRODUCTS

350 MUPVC OR PVC-C PIPEWORK FOR WASTES

- Material and standard:
 - MUPVC: To BS 5255 and Kitemark certified; or
 - PVC-C: To BS EN 1566-1, and Kitemark certified.Application area code: B.
Opening dimensions of access fittings, design of swept fittings, stand off dimensions of pipe and fitting brackets and requirements for adaptors and plugs: To BS 4514.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Nominal sizes: DN32, DN40, DN50.
- Colour: Grey, white where exposed to view.
- Brackets: Plastics pipe clips, colour to match pipes.
 - Fixings: Stainless steel screws.Size: 25 x 4 mm.
- Accessories: Access fittings.

365 PVC-U PIPEWORK - FOR DISCHARGE STACKS AND BRANCHES

- Standard: To BS EN 1329-1, Kitemark certified.
 - Weather resistance, connectors to WC pans, opening dimensions of access fittings, design of swept fittings, stand off dimensions of pipe and fitting brackets and requirements for adaptors and plugs: To BS 4514.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Nominal size: DN 110.
- Colour: Grey.
- Brackets: Plastics pipe clips, colour to match pipes.
 - Fixings: Stainless steel screws.
Size: 25 x 4 mm.
- Accessories: Access fittings and Air admittance valves.

375 AIR ADMITTANCE VALVES

- Standard: To BS EN 12380 or Agrément certified.
- Minimum air flow rate: To BS EN 12056-2.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.

EXECUTION

601 INSTALLATION GENERALLY

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

605 PIPE ROUTES

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

610 FIXING PIPEWORK

- Pipework: Fix securely plumb and/ or true to line. Fix discharge stack pipes at or close below socket collar or coupling.
- Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
- Externally socketed pipes and fittings: Fix with sockets facing upstream.
- Additional supports: Provide as necessary to support junctions and changes in direction.
- Vertical pipes: Provide a load bearing support not less than every storey level. Tighten fixings as work proceeds so that every storey is self supporting.
- Wall and floor penetrations: Isolate pipework from structure, e.g. with pipe sleeves.
 - Masking plates: Fix at penetrations if visible in the finished work.
- Expansion joint sockets: Fix rigidly to the building.
- Fixings: Allow the pipe to slide.

- 615 **FIXING VERTICAL PIPEWORK - PVC-U**
- Bracket fixings: Plugged and screwed into masonry.
 - Distance between bracket fixing centres (maximum): 1500 mm.
- 620 **FIXING LOW GRADIENT PIPEWORK - MUPVC OR PVC-C**
- Bracket fixings: Plugged and screwed into masonry.
 - Distance between bracket fixing centres (maximum): 1200 mm.
- 630 **JOINTING PIPEWORK - GENERALLY**
- General: Joint with materials, fittings and techniques that will make effective and durable connections.
 - Jointing differing pipework systems: With adaptors intended for the purpose.
 - Cut ends of pipes: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
 - Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
 - Junctions: Form with fittings intended for the purpose.
 - Jointing material: Do not allow it to project into bore of pipes and fittings.
 - Surplus flux, solvent jointing materials and cement: Remove from joints.
- 660 **JOINTING PIPEWORK - ABS, MUPVC, PVC-C AND PVC-U**
- Jointing: Solvent welded with lubricated ring seal joints at maximum 1800 mm spacing.
- 685 **IDENTIFICATION OF INTERNAL FOUL DRAINAGE PIPEWORK**
- Markings: To BS 1710.
 - Type: Black bands, with arrows to indicate direction of flow.
 - Wording: White lettering 'FOUL DRAINAGE' on a black background.
 - Type: Integral lettering on pipe wall, self-adhesive bands or identification clips.
 - Locations: At 500 mm centres, junctions and both sides of slabs, valves, appliances, bulkheads and wall penetrations.
- 695 **DISCHARGE AND VENTILATING STACKS**
- Terminations: Perforated cover or cage that does not restrict airflow.
 - Material: Plastics, as discharge stack.
- 700 **INSTALLING AIR ADMITTANCE VALVES**
- Position: Vertical, above flood level of highest appliance served and clear of insulation materials (other than the manufacturer's insulating cover).
 - Connection to discharge stack: Allow removal for rodding, e.g. ring seal.
 - Roof spaces and other unheated locations: Fit manufacturer's insulating cover.

COMPLETION

- 905 **PIPEWORK AIRTIGHTNESS TEST**
- Preparation:
 - Open ends of pipework: Temporarily seal using plugs.
 - Test apparatus: Connect a 'U' tube water gauge and air pump to pipework via a plug or through trap of an appliance.
 - Testing: Pump air into pipework until gauge registers 38 mm.
 - Required performance: Pressure of 38 mm is to be maintained without loss for at least three minutes.

915 PREHANDOVER CHECKS

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

Z10 Purpose made joinery

To be read with Preliminaries/ General conditions.

110 FABRICATION

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

120 CROSS SECTION DIMENSIONS OF TIMBER

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

130 PRESERVATIVE TREATED WOOD

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

140 MOISTURE CONTENT

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

250 FINISHING

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

Z11 Purpose made metalwork

To be read with Preliminaries/ General conditions.

PRODUCTS

310 MATERIALS GENERALLY

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

FABRICATION

515 FABRICATION GENERALLY

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

520 COLD FORMED WORK

- Profiles: Accurate, with straight arrises.

527 WELDING GENERALLY.

- Welding procedures:
 - Method and standard: Metal arc welding to BS EN 1011-1 and -2..
 - Welding Procedure Specification (WPS): Not required.
- Preparation:
 - Joint preparation: Clean thoroughly.
 - Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.
- Jointing:
 - Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
 - Dissimilar metals: Welding not permitted.
 - Strength requirements: Welds to achieve design loads.
 - Heat straightening: Not permitted.
 - Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds.
 - Tack welds: Use only for temporary attachment.
 - Jigs: Provide to support and restrain members during welding.
 - Filler plates: Obtain approval.
 - Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater.
 - Weld terminations: Clean and sound.

FINISHING

- 710 FINISHING WELDED AND BRAZED JOINTS VISIBLE IN COMPLETE WORK
- Standard: To BS EN ISO 8501-3.
 - Preparation grade: P2.
 - Butt joints: Smooth, and flush with adjacent surfaces.
 - Fillet joints: Neat.
 - Grinding: Grind smooth where indicated on drawings.
- 745 PREPARATION FOR APPLICATION OF COATINGS
- General: Complete fabrication, and drill fixing holes before applying coatings.
 - Paint, grease, flux, rust, burrs and sharp arrises: Remove.
- 780 GALVANIZING
- Standard: To BS EN ISO 1461.
 - Preparation:
 - Vent and drain holes: Provide in accordance with BS EN 14713-1 and -2. Seal after sections have been drained and cooled.
 - Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
 - Welding slag: Remove.
 - Component cleaning: To BS EN ISO 8501-3.
 - Grade: St 2½.

Z12 Preservative/ fire retardant treatment

To be read with Preliminaries/ General conditions.

110 TREATMENT APPLICATION

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

120 COMMODITY SPECIFICATIONS

- Standard: In accordance with the Wood Protection Association (WPA) publication 'Industrial wood preservation specification and practice'.

130 PRESERVATIVE TREATMENT SOLUTION STRENGTHS/ TREATMENT CYCLES

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

150 WATER-BASED ORGANIC PRESERVATIVE TREATMENT

- Solution:
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Application: High pressure impregnation.
- Moisture content of wood:
 - At time of treatment: Not more than 28%.
 - After treatment: Timber to be surface dry before use.

160 ORGANIC SOLVENT PRESERVATIVE TREATMENT

- Solution:
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Application: Double vacuum + low pressure impregnation, or immersion.
- Moisture content of wood:
 - At time of treatment: As specified for the timber/ component at time of fixing.
 - After treatment: Timber to be surface dry before use.

165 WATER-BASED MICROEMULSION PRESERVATIVE TREATMENT

- Solution:
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Application: Double vacuum + low pressure impregnation.
- Moisture content of wood:
 - At time of treatment: As specified for the timber/ component at time of fixing.
 - After treatment: Timber to be surface dry before use.

210 FIRE RETARDANT TREATMENT

- Standard: In accordance with the Wood Protection Association (WPA) publication 'Industrial flame retardant treatment of wood and wood-based panel products'.
- Solution type: INT 1.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Application: Vacuum + pressure impregnation.
- Moisture content of wood:
 - At time of treatment: As specified for the timber/ component at time of fixing.
 - After treatment: Timber to be redried slowly at temperatures not exceeding 60°C to minimize distortion and degradation.

610 MAKING GOOD TO PRESERVATIVE TREATMENT ON-SITE

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

620 MAKING GOOD TO FIRE RETARDANT TREATMENT ON-SITE

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

Z20 Fixings and adhesives

To be read with Preliminaries/ General conditions.

PRODUCTS

310 FASTENERS GENERALLY

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

320 PACKINGS

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

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.

410 POWDER ACTUATED FIXING SYSTEMS

- Types of fastener, accessories and consumables: As recommended by tool manufacturer.

EXECUTION

610 FIXING GENERALLY

- Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
- Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.
- Appearance: Fixings to be in straight lines at regular centres.

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.

690 USING POWDER ACTUATED FIXING SYSTEMS

- Powder actuated fixing tools: To BS 4078-2 and Kitemark certified.
- Operatives: Trained and certified as competent by tool manufacturer.

700 APPLYING ADHESIVES

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

Z21 Mortars

To be read with Preliminaries/ General conditions.

CEMENT GAUGED MORTARS

110 CEMENT GAUGED MORTAR MIXES

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

120 SAND FOR SITE MADE CEMENT GAUGED MASONRY MORTARS

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

131 READY-MIXED LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS

- Standard: To BS EN 998-2.
- Lime: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
- Pigments for coloured mortars: To BS EN 12878.

135 SITE MADE LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS

- Permitted use: Where a special colour is not required and in lieu of factory made ready-mixed material.
- Lime: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
- Mixing: Thoroughly mix lime with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least 16 hours before using.

160 CEMENTS FOR MORTARS

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

180 ADMIXTURES FOR SITE MADE CEMENT GAUGED MORTARS

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

190 RETARDED READY TO USE CEMENT GAUGED MASONRY MORTARS

- Standard: BS EN 998-2.
- Lime for cement:lime:sand mortars: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
- Pigments for coloured mortars: To BS EN 12878.
- Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
 - Retempering: Restore workability with water only within prescribed time limits.

210 MAKING CEMENT GAUGED MORTARS

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

Z22 Sealants

To be read with Preliminaries/General conditions.

PRODUCTS

310 JOINTS 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.

Z31 Powder coatings

To be read with Preliminaries/ General conditions.

120 POWDER COATING MATERIALS

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

210 WORKING PROCEDURES

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

220 POWDER COATING APPLICATORS

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

225 GUARANTEES

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

310 PRETREATMENT OF ALUMINIUM COMPONENTS

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

320 PRETREATMENT OF STEEL COMPONENTS

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

330 PRETREATMENT FOR PROTECTION IN AGGRESSIVE ENVIRONMENTS

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

430 EXTENT OF POWDER COATINGS

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

435 APPLICATION OF POWDER COATINGS

- Surfaces to receive powder coatings: Free from dust or powder deposits.
- Powder colours: Obtain from one batch of one manufacturer.
- Commencement of powder coatings: To be continuous from pretreatment.
- Components to be installed on site in order of application.
- Jig points: Not visible on coated components.
- Curing: Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
- Stripping and recoating of components: Only acceptable by prior agreement of powder coating manufacturer. Stripping, pretreatment and powder coating are to be in accordance with manufacturer's requirements.
- Overcoating of components: Not acceptable.

440 PERFORMANCE AND APPEARANCE OF POWDER COATINGS

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

450 ALUMINIUM ALLOY FABRICATIONS

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

460 STEEL FABRICATIONS

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

470 FIXINGS

- Exposed metal fixings: Powder coat together with components, or coat with matching repair paint system applied in accordance with the powder coating manufacturer's recommendations.

480 DAMAGED COMPONENTS - REPAIR OR REPLACEMENT

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

510 PROTECTION

- Powder coated surfaces of components: Protect from damage during handling and installation, or by subsequent site operations.
- Protective coverings must be:
 - Resistant to weather conditions.
 - Partially removable to suit building in and access to fixing points.
- Protective tapes in contact with powder coatings must be:
 - Low tack, self adhesive and light in colour.
 - Applied and removed in accordance with tape and powder coating manufacturers' recommendations. Do not use solvents to remove residues as these are detrimental to the coating.
- Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

520 PROTECTION IN HAZARDOUS LOCATIONS

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

535 DOCUMENTATION

- Submit the following information for each batch of powder coated components:
 - Supplier.
 - Trade name.
 - Colour.
 - Type of powder.
 - Method of application.
 - Batch and reference number.
 - Statutory requirements.
 - Test certificates.
 - Maintenance instructions.

540 COMPLETION

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