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C20 Demolition

10 EXTENT OF DECONSTRUCTION/ DEMOLITION

- General: Subject to retention requirements specified elsewhere, deconstruct/ demolish structures down to floor level.

25 LOCATION OF SERVICES

- Services affected by the Works: Locate and mark positions.
- Mains services marking: Arrange with the appropriate authorities for services to be located and marked.

30 SERVICES DISCONNECTION ARRANGED BY CONTRACTOR

- Responsibility: Before starting deconstruction/ demolition arrange with the appropriate authorities for disconnection of services owned by those authorities and removal of associated fittings and equipment.

32 DISCONNECTION OF DRAINS

- General: Locate, disconnect and seal disused foul and surface water drains.
- Sealing: Permanent, and within the site.

35 LIVE FOUL AND SURFACE WATER DRAINS

- General: Protect drains and fittings still in use. Keep free of debris and ensure normal flow during deconstruction/ demolition work.
- Damage: Make good damage arising from deconstruction/ demolition work. Leave clean and in working order at completion of deconstruction/ demolition work.

50 WORKMANSHIP

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

55 SITE HAZARDS

- Precautions: Prevent fire and/ or explosion caused by gas and/ or vapour from tanks, pipes, etc.
- Dust: Reduce by periodically spraying with an appropriate wetting agent, or contain.
  - Lead dust: Submit method statement for control, containment and clean-up regimes.
- Site operatives and general public: Protect from vibration, dangerous fumes and dust arising during the course of the Works.

76 ASBESTOS-CONTAINING MATERIALS – UNKNOWN OCCURENCES

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

78 UNFORESEEN HAZARDS

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

C90 Alterations - spot items

GENERAL

30 RECYCLED MATERIALS

- Materials arising from alterations: May be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification.
- Evidence of compliance: Submit full details and supporting documentation.

G20 Carpentry/ timber framing/ first fixing

2 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.

5 STRUCTURAL SOFTWOOD FOR STRUCTURAL USE GENERALLY

- Grading standard: To BS 4978, BS EN 14081-1, or other national equivalent and so marked.
  - Timber of a target thickness less than 100 mm and not specified for wet exposure: Graded at an average moisture content not exceeding 20% with no reading being in excess of 24% and clearly marked as 'DRY' or 'KD' (kiln dried).
  - Timber graded undried (green) and specified for installation at higher moisture contents: Clearly marked as 'WET' or 'GRN'.
- Strength class to BS EN 338: C24.
- Treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8, Service life: 40 years .

10 UNGRADED SOFTWOOD FOR INTERNAL NONSTRUCTURAL USE

- Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
- Surface finish: Sawn.
- Treatment: CCA impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C5, Service life: 40 years .

12 WOOD TRIM FOR EAVES FASCIA

- 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, Service life: 40 years .
- Fixing: Two 50 mm lost head nails to each support.

30 SELECTION AND USE OF TIMBER

- Timber members damaged, crushed or split beyond the limits permitted by their grading: Do not use.

32 NOTCHES, HOLES AND JOINTS IN TIMBER

- Notches and holes: Position in relation to knots or other defects such that the strength of members will not be reduced.
- Scarf joints, finger joints and splice plates: Do not use without approval.

35 PROCESSING TREATED TIMBER

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

40 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%.

43 BOLTED JOINTS

- Bolt spacings (minimum): To BS EN 1995-1-1, section 8.5.
- Holes for bolts: Located accurately and drilled to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger.
- Washers: Placed under bolt heads and nuts that would otherwise bear directly on timber. Use spring washers in locations which will be hidden or inaccessible.
- Bolt tightening: So that washers just bite the surface of the timber. Ensure that at least one complete thread protrudes from the nut.
  - Checking: At agreed regular intervals. Tighten as necessary.

50 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: Timber to be of adequate size and have the same treatment as adjacent timber supports.

55 JOISTS GENERALLY

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

99 FASCIAS/ BARGES/ SOFFITS - PVC-U

- Manufacturer: Contractor's choice.
  - Product reference: Submit proposals.
- Material: Cellular PVC-U core with impact modified PVC-U skin and containing no lead or cadmium.
- Finish: Polyester powder coated.
- Colour: White.
- Nominal depth: To match existing.
- Edge profile: Square.
- Accessories/ Other requirements: Pre-formed ventilation slots.
- Support: 50 x 38 mm preservative treated softwood at maximum 450mm centres.
  - Provide additional support at joints.
- Fixings: 65 mm Polytop stainless steel nails.
- Installer: A contractor approved by the system manufacturer.

J41 Reinforced bitumen membrane roof coverings

To be read with Preliminaries/General conditions.

TYPES OF ROOF COVERING

110 BUILT-UP REINFORCED BITUMEN MEMBRANE WARM DECK ROOF COVERING To King George Public Toilets

- Substrate: Plywood deck.
  - Preparation: Icopal SA Bitumen Primer.
- Vapour control layer: Microal SK VCL.
- Insulation: 120mm Icopal Thermazone Insulation.
- Overlay to insulation: Not required.
- Waterproof covering:
  - System manufacturer: Icopal Total Torch.
  - First layer: Icopal Total Torch VCL.
    Attachment: Torch-on bonding.
  - Intermediate layer: Icopal Total Torch vapour dispersion layer .
    Attachment: Torch-on bonding.
  - Top layer/ Capsheet: Tecnatorch SBS mineral capsheet.
    Colour: Grey.
    Attachment: Torch-on bonding.
  - Flashings and detail work: Additional layer of SBS modified bitumen membrane, mineral surfaced.
- Surface protection: Not required.
- Accessories: Not required.

PERFORMANCE

210 ROOF PERFORMANCE

- General: Secure, free draining and weathertight.

225 AVOIDANCE OF INTERSTITIAL CONDENSATION: WARM AND INVERTED ROOFS - BS 5250 AND BS EN ISO 13788

- Interstitial condensation within roof construction: Determine risk as recommended in BS 5250 and BS EN ISO 13788.
- Vapour control layer: If necessary, provide a suitable membrane so that damage and nuisance from interstitial condensation do not occur.

230 INSULATION

- Requirement: Determine type and thickness of insulation and integral or separate overlay to satisfy the following criteria:
  - Thermal transmittance of roof (maximum): 0.18 W/m²K.
  - Compressive strength of insulation (minimum) at 10% compression: 150 kPa.
  - Finished surface: Suitably even, stable and robust to receive roof covering.
  - Insulation compliance: To relevant European Standard, or Agrément certified.

PRODUCTS

322 PRIMER
- Type: Modified bitumen primer.
- Manufacturer: Icopal.
  - Product reference: SA.

327 BONDING COMPOUND
- Type: As recommended by bitumen membrane manufacturer .
- Manufacturer: As for bitumen membrane .
  - Product reference: Contractor's choice .
- Restriction: For heat sensitive insulation materials, use cold bonding compound.

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 by bitumen membrane manufacturer.

370 COVER STRIPS TO JOINTS IN RIGID BOARD SUBSTRATES
- Bitumen membrane: To BS 8747, class S2P3.
- Width: 150 mm.

EXECUTION GENERALLY

515 ADVERSE WEATHER
- General: Do not lay coverings in high winds, wet or damp conditions or in extremes of temperature unless effective temporary cover is provided over working area.
- Unfinished areas of roof: Keep dry. Protect edges of laid membrane from wind action.

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

SUBSTRATES/ VAPOUR CONTROL LAYERS/ WARM DECK ROOF INSULATION

610 SUITABILITY OF SUBSTRATES
- Substrates generally: Secure, clean, dry, smooth, and 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 roof integrity.

620 RENEWING EXISTING COVERINGS
- Areas to be renewed: Submit proposals.
- Substrate: Do not damage.
- Timing: Remove only sufficient coverings as will be renewed and made weathertight on same day.

625 REMOVING EXISTING COVERINGS
- Mechanical stripping: dependent on condition of existing deck.
- Exposed substrate: Do not damage.

660 JOINTS IN RIGID BOARD SUBSTRATES
- Cover strip: Lay centrally over substrate joints before laying vapour control layers or coverings. Adhere to substrate with bonding compound along edges only.

670 LAYING VAPOUR CONTROL LAYER
- Attachment: Securely bond or nail to substrate.
- Side and end laps: 75 mm minimum, fully bitumen sealed.
- Joints in second layer (where applicable): Stagger by half a membrane.
- Penetrations: Fully seal using bonding or taping methods recommended by manufacturer.
- Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like: Enclosed with vapour control layer:
  - Dressed up sufficiently, providing 50 mm (minimum) seal when overlapped by the roof covering; or
  - Turned back 150 mm (minimum) over the insulation and sealed down.

680 LAYING WARM DECK ROOF INSULATION
- Setting out:
  - Long edges: Fully support and run at right angles to direction of span.
  - End edges: Adequately support.
  - Joints: Butt together.
  - End joints: Stagger.
- Bedding: Full bed of bonding compound.
- Mechanical fixing: Not required.
- Protection to exposed edges of insulation: Reduced thickness treated timber batten, outer edge chamfered at changes in level.
- Completion: Boards must be in good condition, well fitting and stable.

710 LAYING REINFORCED BITUMEN MEMBRANES GENERALLY
- Direction of laying: Unrolled up the slope.
  - Where practicable, install so that water drains over and not into laps.
- Side and end laps: As recommended by bitumen membrane manufacturer.
- Head and side laps: Offset.
- Intermediate and top layer/ capsheet: Fully bond.
- Successive layers: Apply without delay. Do not trap moisture.
- Strips of bitumen membrane for 'linear' details: Cut from length of roll.
- Completed coverings: Firmly attached, fully sealed, smooth, weatherproof and free draining.

740 TORCH-ON BONDING OF REINFORCED BITUMEN MEMBRANE
- Bond: Full over whole surface, with no air pockets.
- Excess compound at laps of top layer/ capsheet: Leave as continuous bead.

750 LAYING MINERAL FACED REINFORCED BITUMEN MEMBRANES
- Lap positions and detailing of ridges, eaves, verges, hips, abutments, etc: Submit proposals.
- Setting out: Neat, with carefully formed junctions.
- Lap bonding: Carry out only at prefinished margins or prepared 'black to black' edges.
- Excess bonding compound at laps: Remove whilst still warm.

775 SKIRTINGS AND UPSTANDS

- Angle fillets: Fix by bitumen bonding or nailing.
- Venting first layer of bitumen membrane: Stop at angle fillet. Fully bond in bitumen for 300 mm strip around perimeters. Overlap onto upstand with strips of BS 8747, Class S1P1 bitumen membrane, fully bonded.
- Other layers of bitumen membrane: Carry in staggered formation up upstand, with each layer fully bonded. Where practicable, carry top layer over top of upstand.
- Upstands:
  - At ends of rolls: Form with bitumen membrane carried up without using separate strip.
  - Elsewhere: Form with matching strips of bitumen membrane, maintaining laps.
  - Additional fixing of bitumen membranes: As recommended by bitumen membrane manufacturer.

780 WELTED DRIPS

- Material: To BS 8747 Class S5P5, mineral surfaced.
  - Length: Form using maximum length strips.
  - Height at external gutter (minimum): 75 mm.
- Welt tail: Nail to face of drip batten. Fold neatly.
- Welt: Bond together, carry minimum 100 mm onto roof. Overlap with top bitumen membrane.

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 chemicals, traffic and adjacent or high level working.

K10 Plasterboard dry linings/ partitions/ ceilings

25 LINING ON TIMBER FRAMED CEILINGS
- Substrate: Joists as existing centres.
- Linings: One layer 12.5 mm plasterboard.
  - Recycled content: minimum of 36 %.
- Fixing: Nails at 150 mm centres or screws at 230mm.
- Finishing: Skim coat plaster.
  - Primer/ Sealer: As recommended by board manufacturer for improved moisture resistance.
  - Accessories: Metal beads/ stops recommended by the board manufacturer.

65 DRY LINING GENERALLY
- General: Use fixing, jointing, sealing and finishing materials, components and installation methods recommended by board manufacturer.
- Plasterboards: To BS EN 520.
- Cutting plasterboards: Neatly and accurately without damaging core or tearing paper facing. Minimize cut edges.
- Two layer boarding: Stagger joints between layers.
- Finishing: Neatly to give flush, smooth, flat surfaces free from bowing and abrupt changes of level.

67 SKIM COAT PLASTER FINISH
- Plaster type: As recommended by board manufacturer.
  - Thickness: 2-3 mm.
- Joints: Fill and tape except where coincident with metal beads.
- Finish: Tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks.

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

70 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 services.
  - Board edges and lining perimeters.

87 SEALING GAPS AND AIR PATHS
- Sealing: Apply sealant to perimeter abutments and around openings as a continuous bead with no gaps.
  - Gaps between floor and underside of plasterboard: After sealing, fill with joint compound.

90 SEAMLESS JOINTING

- Filling and taping: Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of tape, fully bedded.
- Finishing: Feather out jointing compound to give a flush, smooth, seamless surface.
- Nail/ screw depressions and minor indents: Fill to give a flush surface.

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

30 PARTICLEBOARD FLOORING TO GALLERY AREA
- Substrate: 50mm joists to 450mm centres.
  - Additional supports: As clause 67..
- Flooring: Particleboard to BS EN 312, Type P5.
  - Thickness: 18 mm.
  - Edges: Tongued and grooved all edges.
  - Recycled content: 70% (minimum) to BS EN ISO 14021.
  - Setting out: Long edges running across joists. End joints central over joists and staggered.
  - Fixing to joists:
    Fasteners: 50 x 3.35 mm annular ringed shank nails.
    Fixing centres (maximum): 200 mm around floor perimeter and along short edges of each board; 400 mm along intermediate supports.
- Joint adhesive: PVA to BS EN 204, class D3.
- Expansion provision: 10 mm clear expansion gap around floor perimeter of floor area and any upstands.

67 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.

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

85 FIXING GENERALLY
- Timing: Building to be weathertight before fixing boards internally.
- Moisture content of timber supports (maximum): 18%.
- Fasteners: Evenly spaced in straight lines and in pairs across joints.
  - Distance from edge of board: Sufficient to prevent damage.

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

K21 Wood strip/ board fine flooring/ linings

50 EXISTING WOOD FLOORING

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

60 FIXTURES

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

L20 Doors/ shutters/ hatches

10 TIMBER PROCUREMENT

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

20 WOOD FLUSH DOORS EXTERNAL and FD30S FIRE RESISTING AND SMOKE CONTROL

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Facings: Interior grade plywood.
- Lippings: Exposed lippings to long edges.
- Preservative treatment: Required.
- Finish as delivered: Prepared and primed, as section M60.
- Glazing/ Infill details: Clear fire-resisting glazing.
  - Manifestation: Not required.
  - Beading: External.
- Thermal performance (U-value maximum): Manufacturer's standard.
- Other requirements: None.

25 WOOD PANELLED DOORS EXTERNAL

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Wood species: Softwood.
- Preservative treatment: Required.
- Finish as delivered: Prepared and primed, as section M60.
- Glazing/ Infill details: Not applicable.
  - Manifestation: Not required.
  - Beading: Not required.
- Thermal performance (U-value maximum): Manufacturer's standard.
- Other requirements: None.

50 WOOD DOOR FRAMES AND ARCHITRAVES and FD30S FIRE RESISTING AND SMOKE CONTROL

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Species: Softwood.
- Preservative treatment: Required.
- Finish as delivered: Prepared and primed, as section M60.
- Perimeter seals: Fire and smoke seal.
- Thermal performance: Unrated.
- Fixing: Plugged and screwed.
  - Spacing of fixings (frames not predrilled): Maximum 150 mm from ends of each jamb, adjacent to each hanging point and at 600 mm maximum centres.

52 WOOD DOOR FRAMES EXTERNAL

- Materials: Generally to BS EN 942.
  - Species: Softwood.
  - Appearance class: J40.
- Assembly:
  - Adhesive: PVAC to BS EN 204, Class D4.
  - Joinery workmanship: As section Z12.
- Preservative treatment: Organic solvent as section Z12 and BWPDA Commodity Specification C5; Desired service life: 30 years.
- Moisture content on delivery: 13-19%.
- Finish as delivered: Prepared and primed, as section M60.
- Perimeter seals: EPDM weatherseal.
- Thermal performance: submit proposals.
- Fixing: Plugged and screwed.
  - Spacing of fixings (frames not predrilled): Maximum 150 mm from ends of each jamb, adjacent to each hanging point and at 600 mm maximum centres.

70 FIRE AND SMOKE RESISTANCE

- Requirement: Specified performance to be the minimum period attained when tested for integrity in accordance with BS 476-22, BS EN 1634-1 or BS EN 1634-3.
- Components and assemblies will be marked to the relevant product standard and/ or third party certification rating.

75 FIRE RESISTING/ SMOKE CONTROL DOORS/ DOORSETS

- Gaps between frames and supporting construction: Filled as necessary in accordance with door/ doorset manufacturer's instructions.

85 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.

M20 Plastered/ Rendered/ Roughcast coatings

10 CEMENT:LIME:SAND EXTERNAL RENDER

- Substrate: Clay brickwork and existing render.
  - Preparation: Remove existing defective render.
- Mortar: To match existing.
- Sand: To BS EN 13139.
  - Grading: 0/2 or 0/4 (CP or MP); category 2 fines.
- Lime: Nonhydraulic to BS EN 459-1, type CL 90S.
- Undercoats:
  - Mix (cement:lime:sand): 1:1:6 using sulfate resisting cement.
  - Thickness (excluding dubbing out and keys): First coat 8–12 mm and second coat 6–10 mm.
- Final coat:
  - Mix (cement:lime:sand): To match exisitng.
  - Thickness: 5-8 mm.
- Finish: To match existing.

50 GYPSUM PLASTER SKIM COAT ON PLASTERBOARD

- Plasterboard manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Plaster: Board finish plaster to BS EN 13279-1, class B.
  - Manufacturer: Contractor's choice.
    Product reference: Contractor's choice.
  - Thickness: 2-5 mm.
  - Finish: Smooth.

60 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.
- Sulfate resisting cement: To BS EN 197-1.
  - Strength class: 42.5.
- Masonry cement: To BS EN 998-1 and Kitemarked
  - Class: MC 12.5 (with air entraining agent).

62 ADMIXTURES FOR CEMENT GAUGED MORTARS

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

65 MIXING

- Render mortars (site-made):
  - Batching: By volume using gauge boxes or buckets.
  - Mix proportions: Based on damp sand. Adjust for dry sand.
- Mixes: Of uniform consistence and free from lumps.

67 COLD WEATHER

- Internal work: Take precautions to prevent damage to internal coatings when air temperature is below 3°C.
- External work: Avoid when air temperature is at or below 5°C and falling or below 3°C and rising.

71 SUITABILITY OF SUBSTRATES

- General: Suitable to receive coatings. Sound, free from contamination and loose areas.

74 EXISTING DAMP AFFECTED PLASTER/ RENDER

- Plaster affected by rising damp: Remove to a height of 300 mm above highest point reached by damp or 1 m above dpc, whichever is higher.
- Perished and salt contaminated masonry:
  - Mortar joints: Rake out.
  - Masonry units: Submit proposals.
- Drying out substrates: Establish drying conditions.

76 REMOVING DEFECTIVE EXISTING PLASTER

- Plaster for removal: Loose, hollow, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.
- Removing plaster: Cut back to a square, sound edge.

78 REMOVING DEFECTIVE EXISTING RENDER

- Render for removal: Detached, hollow, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.
- Removing defective render: Cut out to regular rectangular areas with straight, square cut or slightly undercut edges.
  - Render with imitation joints: Cut back to joint lines.
- Cracks (other than hairline cracks): Cut out to a width of 75 mm (minimum).

80 PLASTERBOARD BACKINGS

- Additional framing supports:
  - Fixtures, fittings and service outlets: Accurately position to suit fasteners.
  - Board edges and perimeters: To suit type and performance of board.
- Joints:
  - Joint widths (maximum): 3 mm.
  - End joints: Stagger between rows.
  - Two layer boarding: Stagger joints between layers.
- Joint reinforcement tape: Apply to joints and angles except where coincident with metal beads.

82 BEADS/ STOPS

- Location: External angles and stop ends.
- Materials:
  - External render: Stainless steel.
  - Internal plaster/ render: Galvanized steel.
- Fixing: Secure and true to line and level.
  - Beads/ stops to external render: Fix mechanically.

87 APPLICATION OF COATINGS

- General: Apply coatings firmly and achieve good adhesion.
- Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
  - Accuracy: Finish to a true plane with walls and reveals plumb and square.
- Drying out: Prevent excessively rapid or localized drying out.
- Keying undercoats: Cross scratch (plaster coatings) and comb (render coatings). Do not penetrate undercoat.

93 CURING AND DRYING OF RENDER COATINGS

- Curing: Keep each coat damp by covering with polyethylene sheet and/ or spraying with water
  - Curing period (minimum): as recommended by render manufacturer.
- Drying: Allow each coat to dry thoroughly, with shrinkage substantially complete before applying next coat.

97 RENDER FINAL COAT - SCRAPED FINISH

- Finish: Scraped to expose aggregate and achieve an even texture.

99 RENDER FINAL COAT - PLAIN FLOATED FINISH

- Finish: Even, open texture free from laitance.

M40 Stone/ Concrete/ Quarry/ Ceramic tiling/ Mosaic

15 NEW BACKGROUNDS/BASES

- Background drying times (minimum):
  - Brick/block walls: 6 weeks.
  - Rendering: 2 weeks.
  - Gypsum plaster: 4 weeks.
- Base drying times (minimum):
  - Concrete slabs: 6 weeks.
  - Cement:sand screeds: 3 weeks.

20 EXISTING BACKGROUNDS/BASES GENERALLY

- Efflorescence, laitance, dirt, loose and defective material: Remove and make good defective areas with materials compatible with background/base and bedding.
- Deposits of oil, grease and other materials incompatible with the bedding: Remove.
- Tile, paint and other nonporous surfaces: Clean.
- Wet backgrounds: Dry before tiling.
- Paint with unsatisfactory adhesion: Remove so as not to impair bedding adhesion.

25 NEW PLASTER

- Plaster primer: Apply if recommended by adhesive manufacturer.

30 FIXING GENERALLY

- Colour/ shade: Avoid unintended variations within tiles for use in each area/ room.
  - Variegated tiles: Mix thoroughly.
- Adhesive: Compatible with background/ base.
- 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.
- 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/ mosaics and no gap should be greater than 6 mm, i.e. a tolerance of $\pm$ 3 mm.
- Surplus bedding material: Clean from joints and face of tiles/ mosaics.

32 MORTAR BEDDING

- Bedding mix:
  - Cement: Portland to BS EN 197-1, type CEM I/42.5.
  - Sand for walls: To BS EN 13139.
    Grading designation: 0/2 (CP or MP) category 2 fines.
  - Sand for floors: To BS EN 13139.
- Grading designation: 0/4 (MP) category 1 fines and between 20-66% passing a 0.5 sieve.
- 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.
- Mixing: Mix materials thoroughly to uniform consistence. Use a suitable forced action mechanical mixer. Do not use a free fall type mixer.
- Application: At normal temperatures use within two hours. Do not use after initial set. Do not retemper.

35 SETTING OUT

- Joints: True to line, continuous and without steps.
  - Joints on walls: Horizontal, vertical and aligned round corners.
  - Joints in floors: Parallel to main axis of 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.

60 ADHESIVE BED - NOTCHED TROWEL AND BUTTERING METHOD TO FLOORS

- Application: Floated coat of adhesive to dry base and comb surface.
- Tiling: Apply coat of adhesive to backs of dry tiles. Fill any profiles. Press tiles firmly onto float coat.
- Finished adhesive thickness: Within range allowed by manufacturer.

70 GROUTING

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

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

15 CARPET TILING TO STORE AND OFFICE

- Base: Existing timber floorboards..
  - Preparation: Remove existing carpeting.
- Fabricated underlay: Hardboard..
- Carpet tiles: Loop and cut pile to BS EN 1307 .
  - Manufacturer: Burmatex or similar approved.
    Product reference: Armour and Tivoli.
  - Recycled content: Contractor's choice.
  - Size: 500 x 500 mm.
  - Colour/ pattern: as per schedule.
- Method of laying: Fully adhere all tiles with release adhesive recommended by tile manufacturer..

20 SHEETING - VINYL TO KITCHENETTE, STAIRS AND TOURIST INFORMATION CENTRE

- Base: Existing timber floorboards.
  - Preparation: Remove existing carpeting and tiles.
- Fabricated underlay: Hardboard.
- Flooring roll: PVC with particle based enhanced slip resistance to BS EN 13845 AND HETEROGENEOUS PVC to BS EN649 .
  - Manufacturer: Polyflor or similar approved.
    Product reference: as per schedule of works.
  - Recycled content: Contractor's choice.
  - Width: as per manufacturer's recommendation.
  - Thickness: as per manufacturer's recommendation.
  - Colour/ pattern: as per manufacturer's recommendation.
- Adhesive (and primer if recommended by manufacturer): as per manufacturer's recommendation .
- Seam welding: Hot welding with complimentary coloured rod .

25 CARPETING BARRIER MATTING TO TIC

- Base: Existingtimber floorboards.
  - Preparation: Remove existing carpeting.
- Fabricated underlay: Hardboard.
- Carpet underlay: n/a.
  - Manufacturer: n/a.
    Product reference: n/a.
  - Recycled content: n/a.
- Underlay adhesive (and primer if recommended by manufacturer): n/a.
- Carpet: fibre bonded.
  - Manufacturer: Burmatex or similar approved.
    Product reference: Grimebuster.
  - Recycled content: n/a.
  - Width: as per manufacturer's recommendation.
  - Colour/ pattern: as per manufacturer's recommendation.
- Carpet adhesive (and primer if recommended by manufacturer): as per manufacturer's recommendation.

40 LAYING COVERINGS ON NEW WET LAID BASES

- Base drying aids: Not used for at least four days prior to moisture content test.
- Base moisture content test: Carry out in accordance with BS 5325, Annexe A or BS 8203, Annexe A.
- Commencement of laying coverings: Not until all readings show 75% relative humidity or less.

45 EXISTING FLOOR COVERING REMOVED

- Substrate: Clear of covering and as much adhesive as possible. Skim with smoothing compound to give smooth, even surface.

50 HARDBOARD UNDERLAY

- Standard: To BS EN 622-2.
  - Type: HB.
- Thickness: 4.8 mm.
- Sheet size: 1200 x 1200 mm.
- Substrate: Existing floor boards securely fixed and level with no gross irregularities or protruding fasteners.
- Conditioning sheets: Prior to fixing.
  - Requirement: To restrict in situ expansion and prevent consequential disfigurement to floor coverings.
- Laying sheets: as per manufacturer's recommendation.
  - Cross joints: Staggered with none coincident with joints in base.
    Joints: Butted.
- Fasteners: 25 mm ring shanked or twisted shank nails or divergent staples.
  - Spacing: Commence at centre of one side of each sheet, at 150 mm grid centres over area and 100 mm centres along perimeter, set in 12 mm from edge.
  - Placement: Not to project above sheet surface or through underside of base.
- Underlay conditioned by wetting: Do not lay coverings until hardboard is dry.

60 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.

65 LAYING COVERINGS

- Base/ substrate condition: Rigid, dry, smooth, free from grease, dirt and other contaminants.
- Use a primer where recommended by adhesive manufacturer. Allow to dry thoroughly.
- Adhesive: As specified, as recommended by covering manufacturer or, as approved.
- Conditioning of materials prior to laying: As recommended by manufacturer.
- Environment: Before, during and after laying, provide adequate ventilation and maintain temperature and humidity approximately at levels which will prevail after building is occupied.
- Finished coverings: Accurately fitted, tightly jointed, securely bonded, smooth and free from air bubbles, rippling, adhesive marks, stains, trowel ridges and high spots.

75 STAIR NOSINGS AND TRIMS

- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Material/ finish: Contractor's choice .
- Fixing: Secure, level with mitred joints. Adjusted to suit thickness of covering with continuous strips of hardboard or plywood. Packing strips and nosings bedded in gap-filling adhesive.
  - Screw fixing with matching plugs: Required .

85 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

30 PREPARATION GENERALLY

- Standard: In accordance with BS 6150.
- Risk assessment and method statement for hazardous materials: Prepare for 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, dirt, grease and oil: Remove.
- Surface irregularities: Provide smooth finish.
- Organic growths and infected coatings:
  - Remove with assistance of biocidal solution.
  - Apply residual effect biocidal solution to inhibit regrowth.
- Joints, cracks, holes and other depressions: Fill with stoppers/ fillers. Provide smooth finish.
- Dust, particles and residues from preparation: Remove and dispose of safely.
- Doors, opening windows and other moving parts:
  - Ease, if necessary, before coating.
  - Prime resulting bare areas.

32 PREVIOUSLY COATED SURFACES GENERALLY

- Preparation: In accordance with BS 6150, clause 11.5.
- Contaminated or hazardous surfaces: Give notice of:
  - Coatings suspected of containing lead.
  - Substrates suspected of containing asbestos or other hazardous materials.
  - Significant rot, corrosion or other degradation of substrates.
- Risk assessment and method statement for hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
- Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.
- Alkali affected coatings: Completely remove.
- Retained coatings:
  - Thoroughly clean.
  - Gloss coated surfaces: Provide key.
- Partly removed coatings: Apply additional preparatory coats.
- Completely stripped surfaces: Prepare as for uncoated surfaces.

35 FIXTURES AND FITTINGS

- Risk assessment and method statement for hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- Removal: Before commencing work: Ironmongery, coverplates, grilles, wall clocks, and other surface mounted fixtures.
- Replacement: Refurbish as necessary, refit when coating is dry.

37 WOOD PREPARATION

- General: Provide smooth, even finish with lightly rounded arrises.
- Degraded or weathered surface wood: Take back surface to provide suitable substrate.
- Degraded substrate wood: Repair with sound material of same species.
- Heads of fasteners: Countersink sufficient to hold stoppers/ fillers.
- Resinous areas and knots: Apply two coats of knotting.
- Defective primer: Take back to bare wood and reprime.

39 STEEL PREPARATION

- Corrosion and loose scale: Take back to bare metal.
- Residual rust: Treat with a proprietary removal solution.
- Bare metal: Apply primer as soon as possible.

41 MASONRY AND RENDERING PREPARATION

- Loose and flaking material: Remove.

43 PLASTER PREPARATION

- Nibs, trowel marks and plaster splashes: Scrape off.
- Overtrowelled 'polished' areas: Provide suitable key.

45 PREVIOUSLY PAINTED WINDOW FRAMES

- Paint encroaching beyond glass sight line: Remove.
- Loose and defective putty: Remove.
- Putty cavities and junctions between previously painted surfaces and glass: Clean thoroughly.
- Finishing:
  - Patch prime, reputty, as necessary and allow to harden.
  - Seal and coat as soon as sufficiently hard.

55 EXISTING GUTTERS

- Dirt and debris: Remove from inside of gutters.
- Defective joints: Clean and seal with suitable jointing material.
- Suspected hazardous materials: submit method statement.

61 COATING GENERALLY

- Application standard: In accordance with BS 6150, clause 9.
- Conditions: Maintain suitable temperature, humidity and air quality.
- Surfaces: Clean and dry at time of application.
- Thinning and intermixing: Not permitted unless recommended by manufacturer.
- Priming coats: Apply 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.

65 CONCEALED JOINERY SURFACES

- General: After priming, apply additional coatings to surfaces that will be concealed when component is fixed in place.
  - Components: External door frames.
  - Additional coatings: One undercoat.

68 STAINING WOOD

- Primer: Apply if recommended by stain manufacturer.
- Application: Apply in flowing coats and brush out excess stain to produce uniform appearance.

70 EXTERNAL DOORS

- Bottom edges: Prime and coat before hanging.

75 BEAD GLAZING TO COATED WOOD

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

N13 Sanitary appliances and fittings

To be read with Preliminaries/ General conditions.

EXECUTION

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

613 COMPATIBILITY OF COMPONENTS
- General: Each sanitary assembly must consist of functionally compatible components, preferably obtained from a single manufacturer.
  - Exceptions: Water supply fittings, wastes and traps.

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

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

650 INSTALLING WC PANS
- Floor mounted pans: Screw fix and fit cover caps over screw heads. Do not use mortar or other beddings.
- Seat and cover: Stable when raised.

670 INSTALLING CISTERNS
- Cistern operating components: Obtain from cistern manufacturer.
- 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.

P20 Unframed isolated trims/ skirtings/ sundry items

10 SOFTWOOD SKIRTINGS, WINDOW BOARDS, ARCHITRAVES ETC.

- Quality of wood and fixing: To BS 1186-3.
  - Species: Contractor's choice.
  - Class: 2.
- Moisture content at time of fixing: 9 -13%.
- Preservative treatment: Not required.
- Fire rating: To BS 476-7, Class 1.
- Profile: To match existing.
  - Finished size: As sow.
- Finish as delivered: Prepared and primed as section M60.
- Fixing: Plugged, and screwed at 450mm centres.

80 INSTALLATION GENERALLY

- Joinery workmanship: As section Z10.
- Metal workmanship: As section Z11.
- Methods of fixing and fasteners: As section Z20.
- 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

2 QUANTITIES AND LOCATIONS
- Quantities and locations of ironmongery are in the door schedule .
- Fixing: As sections L10 and L20.

8 DOOR HINGES TO DOORS
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Type: Washered butt hinge. .
- Size: 102 x 76 mm. .
- Material/ finish: Polished brass .
- Other requirements: None .

24 DOOR LOCKS TO EXTERNAL DOORS AND OFFICE DOOR
- Standard: To BS EN 12209.
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice
- Type: 5 lever mortice deadlock .
- Backset: 57 mm .
- Material/ finish: Polished brass faceplate .
- Keying: In master keyed suite .

28 DOOR LATCHES TO DOORS
- Standard: To BS EN 12209.
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Type: Horizontal case mortice latch .
- Backset: 57 mm .
  Material/ finish: Polished brass faceplate .
- Latch spring strength: Select to prevent unsprung lever handles drooping.

32 PANIC EXIT DEVICES TO FIRST FLOOR FIRE EXIT
- Standard: To BS EN 1125.
  - Devices for locked doors on escape routes: CE marked.
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Type: Push bar .
- Material/ finish: Powder coated steel, colour to match door furniture .
- Additional requirements: None .

36 PRIVACY INDICATOR BOLTS TO WC
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Type: Knob slide bolt .
- Material/ finish: Satin anodized aluminium .
- Emergency release facility: Required.

38 LEVER HANDLES TO ALL DOORS

- Standard: To BS EN 1906.
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Style: As schedule .
- Size: As schedule .
- Material/ finish: Polished stainless steel, grade 1.4301 (304) .
- Mounting: As schedule .

60 THRESHOLD WEATHERSTRIP TO EXTERNAL DOORS

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

P31 Holes, chases, covers and supports for services

10 HOLES, RECESSES AND CHASES IN MASONRY

- Locations: To maintain integrity of strength, stability and sound resistance of construction.
- Sizes: Minimum needed to accommodate services.
  - Holes (maximum): 300 mm².
- Walls of hollow or cellular blocks: Do not chase.
- Walls of other materials:
  - Vertical chases: No deeper than one third of single leaf thickness, excluding finishes.
  - Horizontal or raking chases: No longer than 1 m. No deeper than one sixth of the single leaf thickness, excluding finishes.
- Chases and recesses: Do not set back to back. Offset by a clear distance at least equal to the wall thickness.
- Cutting: Do not cut until mortar is fully set. Cut carefully and neatly. Avoid spalling, cracking and other damage to surrounding structure.

20 NOTCHES AND HOLES IN STRUCTURAL TIMBER

- General: Avoid if possible.
- Sizes: Minimum needed to accommodate services.
- Position: Do not locate near knots or other defects.
- Notches and holes in 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.

30 PIPE SLEEVES

- Material: Match pipeline.
- Sleeves: Extend through full thickness of wall or floor. Position accurately.
  - Clearance around service (maximum): 20 mm or diameter of service, whichever is the lesser.
  - Installation: Bed solid.

R10 Rainwater drainage systems

16 PVC-U GUTTERS
- Standard: To BS EN 607 and BS EN 1462, Kitemark certified.
- Manufacturer: FLOPLAST OR SIMILAR .
  - Product reference: CAST IRON EFFECT.
- Recycled content: Contractor's choice.
- Profile: Half round.
- Colour: Black.
- Accessories: Stop ends.
- Fixing: PVC-U clips at 600 mm centres.

26 RAINWATER OUTLETS
- Manufacturer: FLOPLAST OR SIMILAR.
  - Product reference: CAST IRON EFFECT.
- Type of grate: Flat.
- Outlet: Type and direction to suit pipework, with adaptors and connections recommended for the purpose by outlet manufacturer.
- Accessories: NONE.
- Fixing: Grout into preformed holes.

50 INSTALLATION GENERALLY
- Discharge of rainwater: Complete, and without leakage or noise nuisance.
- Components: Obtain from same manufacturer for each type of pipework and guttering.
- Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
- Fixings and fasteners: As section Z20.

60 GUTTERS LAID TO FALL
- Setting out: To true line and even gradient to prevent ponding or backfall. Position high points of gutters as close as practical to the roof and low points not more than 50 mm below the roof.
- Joints: Watertight.
- Roofing underlay: Dressed into gutter.

70 PIPEWORK
- Fixing: Securely, plumb and/ or true to line with additional supports as necessary to support pipe collars, particularly at changes in direction.
- Cut ends of pipes and gutters: Clean and square with burrs and swarf removed.

R11 Above ground foul drainage systems

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.

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.

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.

650 JOINTING PIPEWORK - COPPER

- Jointing: Integral lead free solder ring capillary fittings:
  - Standard: To BS EN 1254-1, Kitemark certified.
- Connections to appliances and equipment:
  - Compression fittings: To BS EN 1254-2, Kitemark certified.
  - Fittings with threaded ends: To BS EN 1254-4, Kitemark certified.

675 COATED PIPES

- Cutting: Recoat bare metal.

680 ELECTRICAL CONTINUITY

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

685 IDENTIFICATION OF INTERNAL FOUL DRAINAGE PIPEWORK

- Markings: To BS 1710.
  - Type: Black, 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.

705 ACCESS FOR TESTING AND MAINTENANCE

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

COMPLETION

900 TESTING GENERALLY

- Dates for testing: Give notice.
  - Period of notice (minimum): 5 working days.
- Preparation:
  - Pipework: Securely fixed and free from obstruction and debris.
  - Traps: Filled with clean water.
- Testing:
  - Supply clean water, assistance and apparatus.
  - Do not use smoke to trace leaks.
- Records: Submit a record of tests.

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.

920 SUBMITTALS

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

R12 Below ground drainage systems

2 EXISTING DRAINS
- Setting out: Before starting work, check levels and positions of existing drains, inspection chambers and manholes against drawings. Report discrepancies.

19 EXCAVATING PIPE TRENCHES
- Trench from bottom up to 300 mm above crown of pipe: With vertical sides.
  - Width: As small as practicable but not less than external diameter of pipe plus 300 mm.
- Type of subsoil: Where the type of subsoil at the level of the crown of the pipe differs from that stated for the type of pipeline, give notice.
- Timing: Excavate to formation immediately before laying beds or pipes.
- Mud, rock projections, boulders and hard spots: Remove. Replace with bedding material, well consolidated.
- Local soft spots: Harden by tamping in bedding material.

21 BEDDING AND JOINTING
- Laying pipes: To true line and regular gradient on even bed for full length of barrel with sockets (if any) facing up the gradient.
- Jointing: Lubricate. Leave gaps at ends of spigots to allow for movement.

23 CLASS D NATURAL BED
- Trench bottom: Hand trim to accurate levels, levelling up any overdig with compacted spoil.
- Pipes: Cut holes for couplings/ sockets and lay pipes resting uniformly on their barrels, adjusting to line and gradient. Do not use hard packings under pipes.
- Backfilling: After initial testing, backfill to 150 mm above crown of pipe with a protective cushion of selected fill, free from vegetable matter, rubbish and frozen soil and material retained on a 40 mm sieve. Thoroughly hand compact in 100 mm layers.

41 TRENCHES LESS THAN 1 M FROM FOUNDATIONS
- Class Z concrete surround: Provide in locations where bottom of trench is lower than bottom of foundation.
  - Top of concrete: Higher than bottom of foundation.

50 GULLIES - PAVED AREAS
- Standards:
  - Clay: To BS EN 295-1 and Kitemark certified, or Agrément certified.
  - Plastics: To BS 4660 and Kitemark certified, or Agrément certified.
- Material: Plastics .
- Manufacturer: Contractor's choice .
  - Product reference: Contractor's choice .
- Sizes: TO MATCH EXISTING .
- Outlet sizes: DN 100 .
- Covers: TO GULLIES. .
  - Product reference: Contractor's choice .
  - Type: Loose grating .
  - Material: Plastics .
  - Sizes: TO MATCH EXISTING .
  - Loading grade to BS EN 124: A15 .
- Silt buckets: Plastics .
  - Product reference: Contractor's choice .

58 INSTALLATION OF FITTINGS

- Appearance: Square with and tightly jointed to adjacent construction as appropriate.
- Bedding and surround of fittings, traps, etc: Concrete, 150 mm thick.
- Permissible deviation in level of gullies: +0 to -10mm.

69 CONVENTIONAL CHANNELS, BRANCHES AND BENCHING

- Main channel: Bedded solid in 1:3 cement:sand mortar, branches connected to main channel at half channel level, so that discharge flows smoothly in direction of main flow.
- Benching: Concrete rising vertically from main channel to a height not lower than soffit of outlet pipe, then sloping upwards at 10% to walls, and with dense smooth uniform finish.

84 TESTING AND INSPECTION GENERALLY

- Obstructions and debris: Remove. Check that the installation is clear before testing.

97 CLEANING

- General: Flush out the whole installation and remove silt and debris immediately before handing over.

V90 Electrical systems - domestic

GENERAL

5 LOW VOLTAGE SUPPLY
- Nature of current: Alternating.
- Phase: Single phase.
- Voltage: 230 V.
- Source: Local electricity distribution company.
- Metering: Existing metering to remain.
- Accessories: none.

20 DESIGN OF LOW VOLTAGE ELECTRICAL INSTALLATION GENERALLY
- Design and detailing: Complete for the electrical installation.
- Standards: In accordance with BS 7671 and the requirements of the electricity distributor.
- Design information: Submit calculations, manufacturer's literature and drawings showing equipment positions and routes.

24 DESIGN OF GENERAL LIGHTING SYSTEM
- Purpose: Refer to Dextra design in schedule.
- Design and detailing: Complete for the general lighting system.
- Standard: To SLL 'Code for lighting'.
- Room: Complete building.
  - Maintained average illuminance: as Schedule.
  - Controls: as schedule.
- Maintenance: Submit proposals for the maintenance/ relamping regime.

25 DESIGN OF EXTERNAL LIGHTING SYSTEM
- Purpose: Refer to Dextra design in schedule.
- Design and detailing: Complete for the external lighting system.
- Standards: To SLL 'Code for lighting' and CIBSE Lighting Guide 6.
- Area: as Schedule.
  - Maintained average illuminance: as Schedule.
  - Minimum illuminance at any point: as Schedule.
  - Uniformity: as Schedule.

27 SMALL POWER SYSTEM DESIGN
- Purpose: as Schedule.
- Small power outlets: Provide to serve the building and its equipment.
- Room: as Schedule.
  - Outlets: as Schedule.
- Fixed equipment: Provide supplies.

PRODUCTS

30 PRODUCTS GENERALLY
- Standard: To BS 7671.
- CE Marking: Required.

32 DISTRIBUTION BOARDS
- Standard: To BS EN 61439-3.
- Manufacturer: as Schedule.
  - Product reference: as Schedule.
- Third party certification: ASTA certified.
- Rating: as Schedule.
- Incoming devices: as Schedule.
- Number of outgoing ways: as Schedule.
- Outgoing devices: as Schedule.
- Enclosure:
  - Ingress protection to BS EN 60529: as Schedule.
  - Material: Metal.
  - Door lock: Not required.

36 CABLE TRUNKING AND DUCTING THROUGHOUT
- Standards: as Schedule.

37 STEEL CONDUIT AND FITTINGS as Schedule
- Standards: To BS EN 61386-1 and BS EN 61386-21.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.

38 PVC CONDUIT AND FITTINGS as Schedule
- Standards: To BS 4607-5 or BS EN 61386-1 and BS EN 61386-21.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.

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

40 PROTECTIVE CONDUCTORS
- Type: Cable conductors with yellow/ green sheath.

41 ELECTRICAL ACCESSORIES as Schedule
- Standards:
  - Generally: To BS 5733.
  - Switches: To BS EN 60669-1.
- Manufacturer: as Schedule .
  - Product reference: as Schedule .
- Finish: White plastic .
- Mounting: Recessed.

45 LUMINAIRES as Schedule
- Standards: To BS EN 60598-1 and BS EN 55015.
  - Approval: Kitemark certified.
- Manufacturer: as Schedule.
  - Product reference: as Schedule.
- Mounting: Ceiling surface.
- Lamp: Light emitting diodes (LEDs).
  - Wattage: as Schedule.

47 LAMPS GENERALLY

- Standards:
  - Compact fluorescent lamps: To BS EN 60901 and BS EN 61199.
  - High pressure mercury lamps: To BS EN 60188 and BS EN 62035.
  - High pressure sodium lamps: To BS EN 62035.
  - Light emitting diodes (LEDs): To BS EN 62031.
  - Metal halide lamps: To BS EN 62035.
  - Tubular fluorescent lamps:
    Single-capped lamps: To BS EN 60901 and BS EN 61199.
    Double-capped lamps: To BS EN 60081 and BS EN 61195.
  - Tungsten halogen lamps: To BS EN 60432-2 and BS EN 60357.
- Manufacturer: as Schedule.
  - Lamps of the same type and rating: Same manufacturer.

50 EXTERNAL LUMINAIRES as Schedule

- Standards: To BS EN 60598-1 and BS EN 55015.
- Approval: Kitemark certified.
- Manufacturer: as Schedule.
  - Product reference: as Schedule.
- Mounting: as Schedule.
- Ingress protection to BS EN 60529: IP65.
- Lamp: Light emitting diodes (LEDs).
  - Wattage: as Schedule.
  - Colour temperature: as Schedule.
- Spill lighting control: NONE.

EXECUTION

60 GENERAL EXECUTION

- Standard: In accordance with BS 7671.

63 INSTALLING CONDUIT AND FITTINGS

- Fixing: Fix securely. Fix boxes independently of conduit.
- Drainage outlets: Locate at lowest points in conduit installed externally, and where condensation may occur.
- Location: Position vertically and horizontally in line with equipment served, and parallel with building lines. Locate where accessible.
- Jointing:
  - Number of joints: Minimize.
  - Lengths of conduit: Maximize.
  - Cut ends: Remove burrs, and plug during building works.
  - Movement joints in structure: Manufactured expansion coupling.
  - Threaded steel conduits: Tightly screw to ensure electrical continuity, with no thread showing.
  - Conduit connections to boxes and items of equipment, other than those with threaded entries: Earthing coupling/ male brass bush and protective conductor.
- Changes of direction: Site machine-formed bends, junction boxes and proprietary components. Do not use elbows or tees. Alternatively, use conduit boxes.
  - Connections to boxes, trunking, equipment and accessories: Screwed couplings, adaptors, connectors and glands, with rubber bushes at open ends.

64 INSTALLING TRUNKING AND DUCTING

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

66 CABLE ROUTES

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

68 INSTALLING ELECTRICAL ACCESSORIES AND EQUIPMENT

- Location: As schedule and drawings.
- Arrangement: Coordinate with other wall or ceiling mounted equipment.
- Positioning: Accurately and square to vertical and horizontal axes.
- Alignment: Align adjacent accessories on the same vertical or horizontal axis.
- Mounting: Recessed.
- Mounting heights (finished floor level to underside of equipment or accessory): As schedule .

70 INSTALLING FINAL CONNECTIONS

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

72 INSTALLING LUMINAIRES

- Location: As schedule and drawings.
- Supports: Adequate for weight of luminaire.
- Locations: Submit proposals.

74 EQUIPMENT LABELLING

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

76 ENGRAVING

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

78 FINAL FIX

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

79 CLEANING

- Electrical equipment: Clean immediately before handover.
- Equipment not supplied but installed under the electrical works: Clean immediately before handover.

COMPLETION

85 INSPECTION AND TESTING GENERALLY

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

Z10 Purpose made joinery

10 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. Heads of countersunk screws sunk at least 2 mm below surfaces visible in completed work.
- Adhesives: Compatible with wood preservatives applied and end uses of timber.

20 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.
  - Hardwood sections: To BS EN 1313-2.

30 PRESERVATIVE TREATED WOOD

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

40 MOISTURE CONTENT

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

50 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

31 METAL PRODUCTS

- Grades of metals, section dimensions and properties: To the appropriate British Standards and suitable for the purpose.
- Fasteners: Generally, same metal as component, with matching coating and finish.

50 PREPARATION FOR APPLICATION OF COATINGS

- General: Fabrication complete, and fixing holes drilled before applying coatings.
- Paint, grease, flux, rust, burrs and sharp arrises: Removed.

51 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.
- Prefinished metals: Do not damage or alter appearance of finish.

52 COLD FORMED WORK

- Profiles: Accurate, with straight arrises.

53 WELDING AND BRAZING GENERALLY

- Surfaces to be joined: Clean thoroughly.
- Tack welds: Use only for temporary attachment.
- Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
- Surfaces of materials that will be self-finished and visible in completed work: Protect from weld spatter.
- Flux residue, slag and weld spatter: Remove.

54 WELDING OF STEEL

- Method: Metal arc welding to BS EN 1011-1 and -2.

56 FINISHING WELDED AND BRAZED JOINTS VISIBLE IN COMPLETE WORK

- Butt joints: Smooth, and flush with adjacent surfaces.
- Fillet joints: Neat.
- Grinding: Grind smooth where indicated on drawings.

Z12 Preservative/ fire retardant treatment

10 TREATMENT APPLICATION

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

20 COMMODITY SPECIFICATIONS

- Standard: Current edition of the Wood Protection Association (WPA) publication 'Industrial wood preservation specification and practice'.

25 PRESERVATIVE TREATMENT SOLUTION STRENGTHS/ TREATMENT CYCLES

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

35 WATER-BASED ORGANIC PRESERVATIVE TREATMENT

- Solution:
  - Manufacturer: Contractor's choice.
    Product reference: Contractor's choice.
  - 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.

70 MAKING GOOD TO PROTECTION TREATMENT ON-SITE

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

Z20 Fixings and adhesives

10 FIXINGS AND FASTENERS 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 or sleeves to avoid bimetallic corrosion.
- General usage: To recommendations of fastener manufacturers and/ or manufacturers of components, products or materials fixed and fixed to.
- Fixings: To be in straight lines, at regular centres.

30 FIXINGS THROUGH FINISHES

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

35 PACKINGS

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

40 CRAMP FIXINGS

- Fasteners: Fix cramps to frames with screws of same material as cramps.
- Fixings in masonry work: Fully bed in mortar.

55 PLUGGED COUNTERSUNK SCREW FIXING

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

60 APPLYING ADHESIVES

- Surfaces: Clean. 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

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

20 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 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.

25 SAND FOR LIME:SAND MASONRY MORTARS
- Type: Sharp, well graded.
  - Quality, sampling and testing: To BS EN 13139.
  - Grading/ Source: As specified elsewhere.

30 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.

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

50 ADMIXTURES FOR SITE MADE 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.

60 MAKING MORTARS GENERALLY

- 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.
- Contamination: Prevent intermixing with other materials.

70 MAKING HYDRAULIC LIME:SAND MORTARS

- Mixing hydrated hydraulic lime:sand: Follow the lime manufacturer's recommendations for each stage of the mix.
  - Water quantity: Only sufficient to produce a workable mix.

Z22 Sealants

EXECUTION

62 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.

63 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.