SPECIFICATION

for

Buxton Opera House, Buxton,
Derbyshire SK17 6XN

TENDER

ARCHITECTS

Job Ref:
1635/-

Date:
Oct 2016

Revision:
A

1635_A_Buxton Opera House Spec

11 January 2017

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F21 Natural stone/ ashlar walling/ dressings

To be read with Preliminaries/ General conditions.

TYPES OF WALLING/ DRESSINGS

110A ASHLAR EXISTING WALLING AND DRESSINGS TO BE REPOINTED/REBUILT.

- Mortar: As section Z21.
  - Standard: Not applicable.
  - Mix: 1:2:9 cement:lime:sand.
  - Sand: To BS EN 13139; crushed stone with grading to approval.
  - Additional requirements: None.
- Bond: Existing.
- Joints: Flush.
  - Width: Existing.
  - Pointing: As clause 390.
- Other requirements: Contractor to include for pointing a 1m x 1m section of walling to agree the finish and mix with the Conservation Officer Prior to carrying out the re-pointing of large areas of work.

GENERAL/ PRODUCTION

LAYING AND JOINTING

315 ADVERSE WEATHER

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

325 LAYING GENERALLY

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

340 PUTLOG SCAFFOLDING

- Use: Not permitted.

390 POINTING

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

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

To be read with Preliminaries/ General conditions

132A CAVITY WEEP HOLE DUCT
- Manufacturer: Rytons Building Products Ltd.
  - Web: www.vents.co.uk.
  - Email: admin@rytons.com.
  - Product reference: RYTWEBS.
- Accessories: RYTWTUBE.

150A FULL FILL CAVITY INSULATION
- Manufacturer: Xtratherm UK Ltd.
  - Web: www.xtratherm.com.
  - Email: info@xtratherm.com.
  - Product reference: Safe-R SR/CW
- Thickness: 50 mm (assumed, to meet cavity width).

REINFORCING/ FIXING ACCESSORIES

214A CAVITY WALL TIES
- Manufacturer: Ancon Building Products.
  - Web: www.ancon.co.uk.
  - Email: info@ancon.co.uk.
  - Product reference: ST1 Wall tie
- Length: To suit rebuilt wall.
- Material: Stainless steel grade 1.4301 (304)

290 PROPRIETARY SPECIAL FIXINGS STAINLESS STEEL STAPLES FOR STONE COPINGS
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Material/ finish: Austenitic stainless steel - material/ coating reference 1.
- Sizes: To suit existing copings .
- Placement: Epoxy fix staples into existing pockets in copings .

FLEXIBLE DAMP PROOF COURSES/ CAVITY TRAYS

330A DAMP PROOF COURSE
- Manufacturer: Visqueen Building Products.
  - Web: www.visqueenbuilding.co.uk.
  - Email: riba@visqueenbuilding.co.uk.
  - Product reference: Zedex High Bond DPC
- Width: to suit wall thickness under copings and stepped flashings.
- Accessories: DPC Jointing Tape.

INSTALLATION OF DPCS/ CAVITY TRAYS

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

435 STEPPED DPCS IN EXTERNAL WALLS

- External walls on sloping ground: Install dpcs not less than 150 mm above adjoining finished ground level.

455 COPING/ CAPPING DPCS

- Placement: Bed in one operation to ensure maximum bond between masonry units, mortar and dpc.
- Dpcs crossing cavity: Provide rigid support to prevent sagging.

475 SITE FORMED CAVITY TRAYS

- Requirements to prevent downward ingress of water:
  - Profiles: To match those shown on drawings. Firmly secured.
  - Joint treatment: Use unjointed wherever possible, otherwise lap at least 100 mm and seal to produce a free draining and watertight installation.
  - Horizontal cavity trays: Support using cavity closer.
  - Sloping cavity trays: Prevent sagging.
  - Cleanliness: Free from debris and mortar droppings.

515 DPC/ CAVITY TRAY LEADING EDGE IN FACEWORK - FLUSH

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

610A SEALANT

- Manufacturer: Adshead Ratcliffe & Co Ltd.
  - Web: www.arbo.co.uk.
  - Email: arbo@arbo.co.uk.
  - Product reference: Arbosil XL 1099
- Colour: Black.
- Accessories: Joint backing: Closed cell foam polyethylene rod.

760A COPING UNITS

- Material: Stone (existing).
- Manufacturer: Existing.
  - Product reference: Existing.
- Dimensions: As shown on drawings Existing.
- Finish: Existing.
- Mortar for bedding/ jointing: Cement gauged as section Z21.
  - Standard: Not applicable.
  - Mix: 1:2:9.
  - Additional requirements: .
- Joints: Full and finished flush.
- Placement: Lay on a full bed of mortar, to line and level.

H62 Natural slating

To be read with Preliminaries/ General conditions.

TYPES OF SLATING

105 ROOF SLATING TO REFIX REPLACE EXISTING SLATES

- Substrate: Existing.
- Pitch: 30° approx. to be checked on site.
- Underlay: Existing.
  - Recycled content: As existing.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): To match existing.
- Battens:
  - Size: To replicate existing.
  - Fixing: 65 x 3.35 mm galvanized round plain shank nails.
- Slates:
  - Supplier: Contractor's choice.
    Product reference: Contractor's choice.
  - Type: To match existing.
  - Size: To match existing.
  - Head-lap (minimum): To match existing.
  - Fixing: Two nails each slate.
- Accessories: Lead clips to secure individual slates .

SLATING GENERALLY

210 BASIC WORKMANSHIP

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

220 REMOVING EXISTING SLATING

- General: Carefully remove slates, battens, underlay, etc. with minimum disturbance of adjacent retained slating.
- Undamaged slates: Set aside for reuse.

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: Contractor's choice.
  - Moisture content at time of fixing and covering (maximum): 22%.
- Preservative treatment: As section Z12 and Wood Protection Association Commodity Specification C8.
  - Type: Micro-emulsion.

265 BATTEN FIXING

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

275 SLATE FIXING

- Setting out: Lay slates with an even overall appearance with slightly open (maximum 5 mm) butt joints. Align tails.
- Slate thickness: Consistent in any one course. Lay with thicker end as tail.
- Ends of courses: Use extra wide slates to maintain bond and to ensure that cut slates are as large as possible. Do not use slates less than 150 mm wide.
- Top course: Head-nail short course to maintain gauge.
- Fixing: Centre nail each slate twice through countersunk holes 20-25 mm from side edges.
  - Nails: Copper clout to BS 1202-2 or aluminium clout to BS 1202-3.
  - Nail dimensions: Determine in accordance with BS 5534 to suit site exposure, withdrawal resistance and slate supplier's recommendations.

ROOF SLATING EDGES/ JUNCTIONS/ FEATURES

305 GENERALLY

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

365 UNVENTILATED EAVES

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

660 SIDE ABUTMENTS

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

670 TOP EDGE ABUTMENTS

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

870A SUNDRY ACCESSORIES NEW CAST ALUMINIUM FINIAL

- Provide and fix a new cast aluminium finial to replicate the existing finial .

H71 Lead sheet coverings/ flashings

To be read with Preliminaries/ General conditions.

TYPES OF LEADWORK

110 ROOFING TO GLAZED LANTERN ROOF

- Substrate: Plywood on rafters.
  - Preparation: Lay new 19mm external quality ply to BS EN 636, Section 9 (plywood for use in exterior conditions.
- Underlay: Contractor's choice.
- Type of lead: Rolled to BS EN 12588 or Machine cast and BBA certified.
  - Thickness: 1.75 or 1.80 mm (Code 4).
- Pretreatment: Apply chalk slurry coat to underside of lead and allow to dry before laying, followed by chalk paste coat after bossing but before final fixing.
- Joints in direction of fall: Welted seams.
  - Spacing: Determined by Contractor.
- Eaves detail: Cut off roll carried around bottom edge of plwood decking to form drip line .
- Cross joints: 150 mm laps with copper clips at centre of each bay.
  - Spacing: Determined by Contractor.
  - Alignment: In line with adjacent bays.
- Intermediate fixings: Brass cup and screw with die-cast lead dome.
- Ridge/ Hip detail: Lead carried up under existing finial with single welt to top edge. Wood cored rolls to hips as clause 310.
- Accessories: None.

250A WEATHERING TO HARDWOOD FINIAL

- Type of lead:
  - Rolled to BS EN 12588;
  - Machine cast and BBA certified; or
  - Sand cast.
  - Thickness: 1.75 or 1.80 mm (Code 4).
- Joints: Lead burned..
- Edge details: Fixing: Determined by Contractor.
- Accessories: Fixing of lightning conductor strips.

310 RIDGE/ HIP ROLLS TO LEAD ROOFS

- Core: Rounded timber.
  - Size: 70 mm high x 45 mm wide.
  - Shape: Tapered to a flat base 30 mm wide.
  - Fixing: To ridge/ hip board with brass or stainless steel countersunk screws at not more than 600 mm centres.
- Roof covering: Dress roofing sheets up roll to form 50 mm upstand.
  - Fixing: Nail each sheet at underlapping end.
- Lead capping:
  - Thickness: As roof covering.
  - Lengths: Not more than 2000 mm.
  - Wings: Extend not less than 75 mm on to roof.
  - Laps in length: Not less than 150 mm for ridges, 100 mm for hips.
  - Fixing: Secure wings with one copper or stainless steel clip per roofing bay and at each lap.

324 SOAKERS FOR MITRED VALLEYS TO SLATE ROOFS

- Lead:
  - Thickness: 1.25 or 1.32 mm (Code 3).
- Dimensions:
  - Length: Slate length at valley mitre + 25 mm.
  - Underlaps: Not less than 150 mm.

420 COVER FLASHINGS FROM ASPHALT FLAT ROOF TO SLATE PITCH ROOF AND COVER FLASHING OVER UPSTANDS

- Lead:
  - Thickness: 1.75 or 1.80 mm (Code 4).
- Dimensions:
  - Lengths: Not more than 1000 mm.
  - End to end joints: Laps of not less than 100 mm.
  - Cover: Overlap to upstand of not less than 75 mm.
- Fixing: Lead wedges into bed joint, clips to lead upstand at laps and 500 mm centres.Fixed under asphalt flat roof as clause 710.

498A LEAD DAMP PROOF COURSE/ CAVITY TRAY UNDER STONE COPINGS

- Lead:
  - Thickness: 1.75 or 1.80 mm (Code 4).
  - Finish: Fully coated on both sides with high-build, bitumen based paint on the surfaces which are to be embedded.
- Length: Not more than 1500 mm.
- Laps: Not less than 100 mm, laps to be away from joints in copings. Lead supported at laps with slate
- Laying: On a thin even bed of wet mortar.
  - Next layer of overlying construction: Bed on mortar without delay and finish joint neatly.
- Treatment: Coat the built in lead sheet on both sides with bitumen based paint of thick consistency

GENERAL REQUIREMENTS/ PREPARATORY WORK

510 WORKMANSHIP GENERALLY

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

516 LEADWELDING

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

520 LEAD SHEET
- Production method:
  - Rolled, to BS EN 12588, or
  - Machine cast 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 ±10%.
- Identification: Labelled to show thickness/ code, weight and type.

580 EXISTING METAL REUSED
- Type/ Location/ Extent: lead flashings over flat roof coverings turned up vertical walls .
- Handling/ Storage: Keep for reuse in the Works.

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

620 PREPARATION OF EXISTING TIMBER SUBSTRATES
- Remedial work: Adjust boards to level and securely fix. Punch in protruding fasteners and plane or sand to achieve an even surface.
- Defective boards: Give notice.
- Moisture content: Not more than 22% at time of covering. Give notice if greater than 16%.

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

FIXING LEAD

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

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

715 CLIPS

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

770 WEDGE FIXING INTO JOINTS/ CHASES

- Joint/ chase: Rake out to a depth of not less than 25 mm.
- Lead: Dress into joint/ chase.
  - Fixing: Lead wedges at not more than 450 mm centres, at every change of direction and with at least two for each piece of lead.
- Sealant: Contractor's choice.
  - Application: As section Z22.

790 SCREW FIXING INTO JOINTS/ CHASES

- Joint/ chase: Rake out to a depth of not less than 25 mm.
- Lead: Dress into joint/ chase and up back face.
  - Fixing: Into back face with stainless steel screws and washers and plastics plugs at not more than 450 mm centres, at every change of direction, and with at least two fixings for each piece of lead.
- Sealant: Contractor's choice.
  - Application: As section Z22.

JOINTING LEAD

810 FORMING DETAILS

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

830 STANDING SEAM JOINTS

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

845 WOOD CORED ROLL JOINTS WITH SPLASH LAP

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

847 HOLLOW ROLL JOINTS

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

880 WELTED JOINTS

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

970 PATINATION OIL

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

J21 Mastic asphalt roofing/ insulation/ finishes

To be read with Preliminaries/ General conditions.

TYPES OF COATING/ PAVING

130 COLD DECK ROOF COATING
- Substrate: Existing.
  - Preparation: Cut back existing asphalt for a minimum 500mm and make good existing asphalt.
- Separating layer (loose laid): Reinforced bitumen sheathing felt.
  - Laps (minimum): 50 mm.
- Coating: Mastic asphalt to BS 6925.
  - Type: R988/ T25.
  - Application: To match existing asphalt thickness.
- Surface protection: Not required.
- Accessories: lead flashing over adjacent pitched roofs.

180 SKIRTINGS/ VERTICAL WORK TO REBUILT PARAPET WALL
- Substrate: Unknown.
  - Preparation: Primer.
- Separating layer: Not required.
- Keying: Not required.
- Coating: Mastic asphalt to BS 6925.
  - Type: R988/ T25.
  - Application: to match exist upstand.
  - Height above finished roof level: 150 mm (minimum).
  - Fillet profile: 45° angle, 40 mm minimum width on face.
- Surface protection: Solar reflective paint.
- Accessories: Not required.

PRODUCTS

325 BONDING COMPOUND
- Type: As recommended by mastic asphalt manufacturer for conditions and surface.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.

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

400 SEPARATING LAYER (LOOSE LAID)
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Type: Reinforced bitumen sheathing felt.
  - Laps (minimum): 75 mm .

402 MASTIC ASPHALT (ROOFING)
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Type: To BS 6925, R988/B.
  - Application: to match existing thickness.

455 SAND FOR RUBBING
- Type: Clean, coarse sand from natural deposits, free from loam.
  - Size: Passing a 600 micrometre sieve and retained on a 212 micrometre sieve.

EXECUTION GENERALLY

510 ADVERSE WEATHER
- General: Do not lay mastic asphalt in wet or damp conditions unless effective temporary cover is provided over working area.
- Unfinished areas of the roof: Keep dry.

520 INCOMPLETE WORK
- Daywork joints in warm roofs and edges of phased roofing: Adequately protected and fully weathertight.

525 PREPARING EDGES OF EXISTING MASTIC ASPHALT
- Single coat applications:
  - Cut edges: Soften and clean.
- Two coat applications:
  - Cut edges: Soften and remove half depth of softened material for minimum width of 75 mm.
  - Jointing: Lapped between new and existing material at prepared edges.
- Torching: Not permitted.
- Timing: Immediately prior to laying mastic asphalt.

SUBSTRATES/ VAPOUR CONTROL LAYERS/ WARM DECK ROOF INSULATION

610 SUITABILITY OF SUBSTRATES
- Substrates generally:
  - Secure, even textured, clean, dry and frost free.
- Preliminary work: Completed, including:
  - Chases (minimum): 25 x 25 mm.
  - External angles: Chamfered where required to maintain full thickness of mastic asphalt.
  - Formation of upstands and kerbs.
  - Grading to correct falls.
  - Movement joints.
  - Penetrations/ Outlets.
- Moisture content and stability of substrate: Must not impair integrity of roof.

620 REMOVING EXISTING MASTIC ASPHALT
- Areas to be removed: As Architects drawing.
- Existing roof: Do not damage.
- Timing: Only remove sufficient mastic asphalt as will be replaced and made weathertight on same day.

630 MAKING GOOD EXISTING MASTIC ASPHALT
- Existing items to be removed: as architect's drawing.
- Defective areas of mastic asphalt: Soften and carefully cut out.
  - Hammers, chisels, etc.: Do not use to cut cold mastic asphalt.
  - Substrate: Clean and dry.
  - Separating membrane: Make good.
  - Mastic asphalt: Patch level with existing surface in two coats, the top coat lapped minimum 75 mm on to existing asphalt and to half its depth.

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.

695 SEPARATING LAYER
- Give notice: Where it is or becomes apparent that a separating layer is required.

ASPHALTING

720 DELIVERY
- Condition of mastic asphalt as delivered to site:
  - Hot-prepared, do not remelt on site, or
  - Blocks: Remelt on site, mix thoroughly, Temperature of material (maximum), 230°C.

730 TRANSPORTING
- Transport distances: Minimize to avoid excessive cooling of molten mastic asphalt.
- Buckets, barrows or dumpers used for mastic asphalt: Line with minimum quantity of fine inert dust. Use silica or similar acid resisting dust where acid resisting mastic asphalt is being used.

735 LOCALIZED HEATING
- Blowlamps and gas torches: Use only types with controlled gradual heating during laying, removal and repair of mastic asphalt.

740 LAYING MASTIC ASPHALT
- Standard: To BS 8218.
- Application:
  - In bays to even thickness.
  - Re-heated asphalt: Do not use.
- External angles, junctions and tuck-ins: Maintain full thickness of asphalt.
- Fillets at internal angles: Solid, fully fused to asphalt coating.
- Previously laid coats: Protect whilst exposed.
- Successive coats:
  - Timing: Apply without delay and within same working period.
  - Coats: Apply at right angles to preceding.
  - Stagger joints between bays in consecutive coats (minimum): 75 mm.
- Condition of contact edges of previously laid bays: Warm and clean.
- Blowing: Pierce and make good affected areas while mastic asphalt is still at working temperature.
- Completion: During final floating operation, whilst asphalt is still warm, apply sand to horizontal surfaces and rub in well using wooden float. Remove surplus material.
- Surface condition at completion: Smooth and free from imperfections. Firmly adhered, weatherproof and free draining.

COMPLETION

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

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

J41 Reinforced bitumen membrane roof coverings

To be read with Preliminaries/ General conditions.

TYPES OF COVERING

110A INSULATED WATERPROOFING SYSTEM
- Manufacturer: Icopal Limited.
  - Web: www.icopal.co.uk.
  - Email: info.uk@icopal.com.
  - Product reference: Anderson HT System
- Primer: Xtra-Seal QD Bitumen Primer.
- Vapour Control Layer: Anderson Vapourbar
- Insulation: 85mm Kingspan Thermaroof TR27 LPC/FM.
- First layer: Anderson 3G Perforated Preparation Layer.
- Intermediate Layer: Anderson HT 125 Sand underlay.
- Cap sheet:
  - Type: Anderson HT 180 Mineral capsheet.
  - Colour: Blue-grey.
- Flashings and detail work: Anderson HT Mineral capsheet.
- Accessories: Thermazone P&R Insulating Fillet and Anderson Antrim GRP trim.

PRODUCTS

322A PRIMER
- Manufacturer: Icopal Limited.
  - Web: www.icopal.co.uk.
  - Email: info.uk@icopal.com.
  - Product reference: Xtra-Seal Bitumen Primer

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.

335 ANGLE FILLETS
- Material: As supplied by insulation manufacturer.
  - Size (minimum): 50 x 50 mm, triangular in section.
- Restriction: Fillets under torch-on bitumen membranes to be non-combustible.

EXECUTION GENERALLY

515 ADVERSE WEATHER
- General: Do not lay coverings in high winds, wet 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.

625 REMOVING EXISTING COVERINGS

- Mechanical stripping: Not permitted.
- Exposed substrate: Do not damage.

670 LAYING VAPOUR CONTROL LAYER

- Attachment: Securely bond or nail to substrate.
- Side and end laps: as manufacturers recommendations.
- Joints in second layer (where applicable): Stagger by half a sheet.
- Penetrations: Fully seal using bonding or taping methods recommended by manufacturer.
- Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like: Enclose, 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.

WATERPROOF MEMBRANES/ ACCESSORIES

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 membranes for 'linear' details: Cut from length of roll.
- Completed coverings: Firmly attached, fully sealed, smooth, weatherproof and free draining.

730 PARTIAL BONDING OF REINFORCED BITUMEN MEMBRANE

- Venting first layer: Loose lay, align and cut to length. Do not carry up angle fillets and vertical surfaces or through details.
  - Long edges: Overlap minimum 50 mm.
  - Ends: Butt together.
- Intermediate layer: Fully bond to first layer and through to substrate.

735 POUR AND ROLL BONDING OF REINFORCED BITUMEN MEMBRANE

- Bonding compound:
  - Hot and fluid when bitumen membranes are laid.
  - Application: Spread evenly so that a small quantity is squeezed out at each edge.
- Bond: Full over whole surface, with no air pockets.
- Excess compound at laps:
  - First and intermediate layers. Spread out.
  - Top layer/ Capsheet: Remove.

740 TORCH-ON BONDING OF REINFORCED BITUMEN MEMBRANES

- Bond: Full over whole surface, with no air pockets.
- Excess compound at laps of top layer/ capsheet: Leave as continuous bead.

745 COLD APPLIED ADHESIVE BONDING OF REINFORCED BITUMEN MEMBRANES
- Bond: Full over whole surface, with no air pockets.

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 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.

COMPLETION

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

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 Gypsum board dry linings/ partitions/ ceilings

To be read with Preliminaries/ General conditions.

TYPES OF DRY LINING

265A ENCASEMENT SYSTEM (FRAMELESS)

- Manufacturer: British Gypsum.
  - Web: www.british-gypsum.com.
  - Email: bgtechnical.enquiries@bpb.com.
  - Product reference: FireCase
- Extent of protection to structural members: Three sided protection to steel columns incorporating steel angles.
- Fire performance: 60 minutes.
- Support system: Sizes and spacing of intermediate backing strips/ noggings/ metal angles and fixings as recommended by British Gypsum
- Linings: 20 mm Glasroc F FireCase.
- Fixings: Gyproc Firecase Screws – 50 mm long.
- Finishing:
  - Type: Taped seamless finish.
  - Accessories: Rigid beads/ stops

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.

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.

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.

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.

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.

M20 Plastered/ Rendered/ Roughcast coatings

To be read with Preliminaries/ General conditions.

TYPES OF COATING

200A THISTLE MULTI FINISH
- Manufacturer: British Gypsum.
  - Web: www.british-gypsum.com.
  - Email: bgtechnical.enquiries@bpb.com.
  - Product reference: Thistle Multi Finish

210A THISTLE HARDWALL
- Manufacturer: British Gypsum.
  - Web: www.british-gypsum.com.
  - Email: bgtechnical.enquiries@bpb.com.
  - Product reference: Thistle Hardwall

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.

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.

566 REMOVING DEFECTIVE EXISTING PLASTER
- Plaster for removal: Detached, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.
  - Hollow, detached areas: Remove where area of detachment is more than 300x300 m².
- Stained plaster: Remove.
- Removing defective plaster. Cut back to a square, sound edge.
- Faults in background (structural deficiencies, damp, etc.): Submit proposals.
- Cracks:
  - Fine hairline cracking/ crazing: Leave.
  - Other cracks; Cut out to a width of 75 mm (minimum).
- Dust and loose material: Remove from exposed substrates and edges.

BACKINGS/ BEADS/ JOINTS

630 BEADS/ STOPS FOR INTERNAL USE
- Material: Galvanized steel to BS 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.

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.

M60 Painting/ clear finishing

To be read with Preliminaries/ General conditions.

COATING SYSTEMS

110 EMULSION PAINT TO INTERNAL PLASTERED SURFACES

- Manufacturer: HMG Paints Ltd. Tel. 01612057631. Tech Support Line 01612778164.
  - Product reference: Vinyl Matt Emulsion or Vinyl Silk Emulsion to match existing.
- Surfaces: Previously decorated and new plastered areas.
  - Preparation: Wash down surfaces and prepare as recommended in the British Coatings Federation Guide 'Lead in painted surfaces guide on repainting and removal dor DIY and professional painters and decorators'. Generally in accordance with the manufacturer's recommendations and clauses 400, 440, 490 and 651.
- Initial coats: As recommended by manufacturer.
  - Number of coats 1.
- Undercoats: As recommended by manufacturer.
  - Number of coats: 1.
- Finishing coats: Vinyl Matt or Vinyl Silk Emulsion to match existing .
  - Number of coats: 1.

150 EGGSHELL/ SATIN PAINT TO EXISTING AND NEW EXTERNAL CAST IRON RAINWATER HOPPERS, RAINWATER PIPES AND GUTTERS AND METAL BARS OVER WINDOWS

- Manufacturer: As clause 150A.
  - Product reference: As clause 150a.
- Surfaces: Previously decorated.
  - Preparation: Wash down surfaces and prepare as recommended in the British Coatings Federation Guide 'Lead in painted surfaces guide on repainting and removal dor DIY and professional painters and decorators'. Generally in accordance with the manufacturer's recommendations and clauses 400, 440, 490 and 651.
- Initial coats: As clause 150B.
  - Number of coats: 1.
- Undercoats: As recommended by manufacturer.
  - Number of coats: 1.
- Finishing coats: As clause 150A.
  - Number of coats: 1.

150A ACRYLIC EGGSHELL PAINT

- Manufacturer: Johnstone's Trade - a brand of PPG Industries.
  - Web: www.johnstonestrade.com.
  - Email: specifiers.acuk@ppg.com.
  - Product reference: Johnstone's Trade Flexible Satin (Stormshield)
- Colour: TBC to match existing colour scheme.

150B HIGH BUILD PRIMER TO METAL GUTTERS, HOPPERS, RAINWATER PIPES AND METAL BARS OVER WINDOWS

- Manufacturer: Johnstone's Trade - a brand of PPG Industries.
  - Web: www.johnstonestrade.com.
  - Email: specifiers.acuk@ppg.com.
  - Product reference: Johnstone's Trade High Build Zinc Rich Primer

150C EGGSHELL/ SATIN PAINT TO EXISTING TIMBER WINDOWS
- Manufacturer: As clause 150A.
  - Product reference: As clause 150A.
- Surfaces: Previously decorated.
  - Preparation: Wash down surfaces and prepare as recommended in the British Coatings Federation Guide 'Lead in painted surfaces guide on repainting and removal dor DIY and professional painters and decorators'. Generally in accordance with the manufacturer's recommendations and clauses 400, 440, 490 and 651.
- Initial coats: As clause 150D.
  - Number of coats: 1.
- Undercoats: As clause 150D.
  - Number of coats: 1.
- Finishing coats: As clause 150A.
  - Number of coats: 1.

150D EMULSION PAINT PRIMER TO EXISTING tIMBER WINDOWS
- Manufacturer: Johnstone's Trade - a brand of PPG Industries.
  - Web: www.johnstonestrade.com.
  - Email: specifiers.acuk@ppg.com.
  - Product reference: Johnstone's Trade Joncryl Water-Based Primer Undercoat (Ecological Solutions)

175A PROTECTIVE COATING TO INSIDE OF CAST IRON RAINWATER GUTTERS AND HOPPERS
- Manufacturer: Johnstone's Trade - a brand of PPG Industries.
  - Web: www.johnstonestrade.com.
  - Email: specifiers.acuk@ppg.com.
  - Product reference: Johnstone's Black Bitumen
- Colour: Black.
  Surfaces: Inside of existing cast iron gutters and hoppers
  -Preperation: Where existing paint- wash down surfaces and prepare as recommended in British Coatings Federation Guide 'Lead in painted surfaces guide on repainting and removal for DIY and professional painters and decorators'. Generally in accordance with the manufacturer's recommendations.
  Initial coats: As recommended by the manufacturer.
  Number of coats: 2

GENERAL

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

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.

440 PREVIOUSLY COATED SURFACES GENERALLY

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

461 PREVIOUSLY COATED WOOD

- Degraded or weathered surface wood: Take back to provide suitable substrate.
- Degraded substrate wood: Repair with sound material of same species.
- Exposed resinous areas and knots: Apply two coats of knotting.

490 PREVIOUSLY COATED STEEL

- Defective paintwork: Remove to leave a firm edge and clean bright metal.
- Sound paintwork: Provide key for subsequent coats.
- 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.
- Remaining areas: Degrease.

541 UNCOATED ALUMINIUM/ COPPER/ LEAD
- Surface corrosion: Remove and lightly key surface.
- Pretreatment: Etching primer if recommended by coating system manufacturer.

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

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

631 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 set.
  - Seal and coat as soon as fully set.

640 EXTERNAL POINTING TO EXISTING FRAMES
- Defective sealant pointing: Remove.
- Joint depth: Approximately half joint width; adjust with backing strip if necessary.
- Sealant:
  - Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
  - Preparation and application: As section Z22.

651 EXISTING GUTTERS
- Dirt and debris: Remove from inside of gutters.
- Defective joints: Clean and seal with suitable jointing material.

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.

R10 Rainwater drainage systems

To be read with Preliminaries/ General conditions.

110 GRAVITY RAINWATER DRAINAGE SYSTEM
- Rainwater outlets: Proprietary.
- Gutters: Cast iron.
- Pipework: Cast iron, spigot and socket.
- Below ground drainage: N/A.
- Disposal: Existing.
- Controls: Not applicable.
- Accessories: Sealant for gutters.

SYSTEM PERFORMANCE

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

PRODUCTS

315 CAST IRON GUTTERS
- Standard: To BS 460, except for shape and dimensions.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice to match existing.
- Profile: To match existing.
- Jointing type: To match existing.
- Nominal size: to match existing.
- Finish as supplied: Primary coating, to receive paint finish as section M60.
- Brackets: To match existing.
  - Fixings: To manufacturers recommendations to match existing.
    Size: To match existing.
- Accessories: As required to replicate the existing system.

375 CAST IRON PIPEWORK - FLEXIBLE COUPLINGS
- Standard: To BS EN 877, Agrément certified.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice to match existing.
- Coupling type: To match existing.
- Nominal size: To match existing.
- Finish as supplied: Anti rust primer, to receive paint finish as section M60.
- Brackets: To manufacturers recommendations and to match existing.
  - Fixings: to match existing.
    Size: to match existing.
- Accessories: As required to replicate existing system.

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: to replicate existing .
    Fixing centres: to replicate existing .
  - 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: to replicate existing.
- 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: to replicate existing system.
- Distance between bracket fixing centres (maximum): As existing system.

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.

675 CUTTING COATED PIPEWORK AND GUTTERS

- Cutting: Recoat bare metal.

COMPLETION

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: N/A.
- Waste pipework: cast iron as existing.
- Discharge stack and branch pipework: Cast iron - flexible couplings.
- Separate ventilating pipework: None required.
- Accessories: All acessories needed vto replicate/ refurbish the existing system.
- Disposal: to existing below ground drainage.

PRODUCTS

330A CAST IRON PIPEWORK - FOR DISCHARGE STACKS AND BRANCHES
- Standard: To BS EN 877.
- Manufacturer: Contractor's choice to match existing.
  - Product reference: Contractor's choice to match existing.
- Coupling type: To replicate existing system.
- Nominal sizes: to replicate existing system.
- Finish: Factory anti rust primer.
- Brackets: to replicate existing system.
  - Fixings: to replicate existing system.
    Size: to replicate existing.
- Accessories: All accessories needed to replicate/refurbish the existing system.

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.

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 - CAST IRON
- Bracket fixings: As existing system.
- Distance between bracket fixing centres (maximum): As existing system.

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.

695 DISCHARGE AND VENTILATING STACKS
- Terminations: Perforated cover or cage that does not restrict airflow.
  - Material: Metal.

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.

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 glygol 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.

LIME:SAND MORTARS

310 LIME:SAND MORTAR MIXES

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

320 SAND FOR LIME:SAND MASONRY MORTARS

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

345 ADMIXTURES FOR HYDRAULIC LIME:SAND MORTARS

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

360 MAKING LIME:SAND MORTARS GENERALLY

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

Z22 Sealants

To be read with Preliminaries/General conditions.

PRODUCTS

310 JOINTS WHERE LEAD FLASHING ARE TURNED INTO BED JOINT

- 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.