WAGL.01-NBS

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C51 DIA
Repairing/ renovating/ conserving timber

C51 DIA Repairing/ renovating/ conserving timber

107D RELATED WORK
is specified in the following sections:
G20 Carpentry/Timber Framing/First Fixing
Z10 Purpose Made Joinery
Z20 Fixings/Adhesives

120D REVIEW OF SCOPE OF REPAIR WORK UPON CLOSE INSPECTION
Provide access scaffolding and artificial lighting to all areas where timber repair is to be made to enable the CA to make a close inspection.
Provide attendance and inspect the work with the CA to confirm the nature and extent of the cutting out and removal of timbers as identified on drawings.
Make a record of instructions given during inspections, which may either confirm or vary scope of work, and measure and record relevant details, as clause 135D.
Prepare and submit details of instructions for confirmation.

135D RECORDING TO THE APPROVAL OF THE CA
Clearly mark by appropriate means, the defective timbers or parts of timbers to be removed.
Record by photograph or other approved method, timbers to be cut out and/or missing timbers to be reinstated, and the relationship of surrounding work.
Cross-reference identified and marked timbers to drawings or photographs

140 FILLER
Contractor to submit proposals for CA approval.
Filler: Filler to be sand-able, 2 pack filler. Not epoxy resin.

165D SAMPLES
Submit samples of timber and obtain approval before proceeding with manufacture or repair.
Retain and protect approved samples on site until Practical Completion and ensure work matches

206D TIMBER REPAIRS
It is not intended to renew or straighten old and crooked structure but rather to set it in sound and healthy repair.
Repair timbers individually, as far as possible in position, with a minimum of replacement and renewal.
Resolve all "live" structural movement, and correct design of physical weaknesses.
Retain irregularities that are not unsound or unsafe.
Finish joints to ensure close contact of mating surfaces

235D JOINTING/FIXING GENERALLY
Where not specified otherwise, select fixing and jointing methods and types, sizes and spacings of fastenings in compliance with section Z20. Fastenings to comply with relevant British Standards

255D SCARF JOINTS

Where approved:

- Angle of slope to be not more than 1 in 6 and length of scarf not less than 500mm.
- Fix with mechanical fastenings so that permissible local timber stresses and capacity of fastenings are not exceeded.
- Arrange to provide a maximum gluing surface and ensure that direction of mating surfaces is matched.

603D SEQUENCE OF REPAIR WORK

Remove unwanted timbers.
Carry out de frassing and preservative treatment.
Repair existing and introduce new timbers

605D ACCURACY

Not withstanding BS 8000 Part 5:1990, clause 3.2.1, comply with Preliminaries clause A33/340 and any required critical dimensions given in the Specification or on the drawings.

685D PRESERVATIVE TREATMENT

Agree extent of treatment to existing timber with CA.
Carry out as much cutting and machining as possible before treatment.
Retreat all treated timber that is sawn along the length, ploughed, thicknessed, planed or otherwise extensively processed.
Treat timber surfaces exposed by minor cutting and drilling with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.
Ensure preservative solution is compatible with wood priming paint, wood stain, sealants and adhesives to be used.

695D SELECTION AND USE OF TIMBER

Do not use timber members that are damaged, crushed or split beyond the limits permitted by their grading.
Ensure that notches and holes are not so positioned in relation to knots or other defects that the strength of members will be reduced.
Do not use scarf joints, finger joints or splice plates without approval.
Select timber with due regard to the particular purpose for which is to be used

705D CUTTING EXISTING TIMBER

Avoid where possible.
Obtain approval of dimensions and locations before cutting.

745D MAKING GOOD

Where local decoration remains, and whole area is not to be stripped of paint, rub back locally to reveal timber face. Where lead paint is to be removed abrade surface using water and waterproof sandpaper.
Cut out timber that is to be replaced and piece in new, flush with timber finished faces.
Reproduce exactly all features of adjacent existing work.

755D RETAINED TIMBERS

Clean off superficial dirt and debris. De nail and remove redundant fixings, etc.
Adapt or renew as required to accommodate new timbers.
Set aside removed metal items for the CA.

865D MOISTURE CONTENT

of timber at time of erection to be not more than:

Under cover in generally unheated spaces:	19%
Under cover in generally heated spaces:	16%
Internal in continuously heated spaces:	14%

875D PROTECTION

Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.

Store timber and components under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.

Arrange sequence of construction and cover timber as necessary during and after erection to ensure that specified moisture content is not exceeded

878D ADDITIONAL SUPPORTS

Where not shown on drawings, position and fix additional studs, noggings or battens for appliances, fixtures, edges of sheets, etc., in accordance with manufacturers' recommendations.

All additional studs, noggings or battens to be of adequate size and have the same treatment, if any, as adjacent timber supports.

906D INSPECTION

Give CA reasonable opportunity to inspect structural timberwork before covering up.

G20
Carpentry/ timber framing/ first fixing

G20 Carpentry/ timber framing/ first fixing

To be read with Preliminaries/ General conditions.

GENERAL

105 TIMBER PROCUREMENT

- Timber (including timber for wood-based products): Obtained from well managed forests/ plantations in accordance with:
  - The laws governing forest management in the producer country or countries.
  - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
- Documentation: Provide either in accordance with chain of custody certification scheme requirements:
  - 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.
- Chain of Custody Certification scheme: Forest Stewardship Council (FSC), Grown in Britain (GiB) or Programme for the Endorsement of Forest Certification (PEFC).
  - Other evidence: None.

115A CONTRACTOR'S DESIGN

- Design responsibility: Design and detail the partition and formwork to support the infill area between the new flat ceiling and void above as shown on DIA drawing 2311 Detail 05.
- Requirement:
  - Design Loads and Performance specification: As advised by Strucutral Engineer.
  - Design: Complete the design in accordance with the requirement for reinstating the new section of decorative plaster ceiling matching the existing details and proportions.
- Contractor Design: Contractor to submit proposals to the strucutral engineer for approval prior to the commencement of the work.
- Maintenance: Make provision for and submit details of requirements to ensure the safety and serviceability of the structure, including:
  - Critical parts that should be regularly inspected, with recommendations for the frequency of inspection.
  - Elements susceptible to corrosion, mechanical wear or fatigue that may need to be reconstructed or replaced during the design working life of the structure.
  - Means of safe access for maintenance and repair.

160 GRADING AND MARKING OF SOFTWOOD

- Timber of a target/ finished thickness less than 100 mm and not specified for wet exposure: Graded at an average moisture content not exceeding 20% with no reading being in excess of 24% and clearly marked as 'DG' (Dry-Graded).
- Timber wet-graded and specified for installation at higher moisture contents: graded at an average moisture content above 20% and unmarked.
- Structural timber members cut from large graded sections: Regraded to approval and marked accordingly.

PRODUCTS

210A STRUCTURAL SOFTWOOD (GRADED DIRECT TO STRENGTH CLASS) For new lead cladding and roof strucutre, lead gutter boards, gutter bearers, vallery boards and all other strucutral roof joinery
Species: American Douglas Fir
- Selected for its slow grown quality
  " Grading standard: To permissible limits of GS and SS visual strength guides and marked under BS 4978:2007+A1:2011
- no. 2/3 Clear and Better grade
  " Strength class to BS EN 338: minimum equivalent of C16 unless otherwise specified.
  " Moisture content: Kiln dried under cover, not more than 19% upon laying.
  " Treatment:
- Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8 (unless in direct contact with lead and then to remain
  untreated).
- Fire retardant treatment: None required.
- Design service life: 40 years.
  " Environmental Credentials: PEFC, FSC

220A SOFTWOOD (GRADED DIRECT TO STRENGTH CLASS) Internal use only: Joinery repairs and replacement sections
" Timber: To permissible limits of GS and SS visual strength guides and marked under BS 4978:2007+A1:2011
- Species: Douglas fir or Accoya.
- Appearance class: J2 for glazing beads, drip mouldings and the like. J30 or better for all other members. Finger jointing and knots on arrises not permitted.
- Moisture content on delivery: 12-19%.
  " Preservative treatment: Organic solvent as section Z12 and WPA Commodity Specification C5; Desired service life 30 years.

271 UNGRADED SOFTWOOD EXTERNAL FASCIAS
- Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
- Surface finish: Planed all round.
- Treatment:
  - Preservative treatment: None required, painted as M60/130.
  - Design service life: 30 years.
  - Species: Douglas fir or Accoya.
  - Moisture content on delivery: 12-19%.

310 STRUCTURAL PLYWOOD To rooflights in Gallery Room 03

- Standard: To BS EN 636.
- Service class to BS EN 1995-1-1: Class 1.
- Use class to BS EN 335: Use class 1.
- Load duration class to BS EN 12369-2: Permanent.
- Characteristic strength class to BS EN 12369-2: F30.
- Characteristic modulus class to BS EN 12369-2: E40.
- Appearance class to BS EN 635: E.
- Bonding quality to BS EN 314-2: Class 1.
- Nominal thickness: As stated on drawing.
- Finish: Sanded.
- Treatment: None.
  - Preservative treatment: None required.
    Design service life: Not applicable.
  - Flame retardant treatment: Flame retardant impregnation to NBS section Z12 and Wood Protection Association Commodity Specification FR2, Type INT1.

WORKMANSHIP GENERALLY

401 CROSS-SECTION DIMENSIONS OF STRUCTURAL SOFTWOOD AND HARDWOOD

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

402 CROSS-SECTION DIMENSIONS OF NONSTRUCTURAL SOFTWOOD

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

403 CROSS-SECTION DIMENSIONS OF NONSTRUCTURAL HARDWOOD

- Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
- Maximum permitted deviations from finished sizes: As stated in BS EN 1313-2:
  - Clause 6 for sawn sections.
  - Clause NA.3 for further processed sections.

430 SELECTION AND USE OF TIMBER

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

435 NOTCHES, HOLES AND JOINTS IN TIMBER

- Notches and holes:
  - General: Avoid if possible.
  - Sizes: Minimum needed to accommodate services.
  - Position: Do not locate near knots or other defects.
  - In same joist: Minimum 100 mm apart horizontally.
  - Notches in joists:
    Position: Locate at top. Form by sawing down to a drilled hole.
    Depth (maximum): 0.15 x joist depth.
    Distance from supports: Between 0.1 and 0.2 x span.
  - Holes in joists:
    Position: Locate on neutral axis.
    Diameter (maximum): 0.25 x joist depth.
    Centres (minimum): 3 x diameter of largest hole.
    Distance from supports: Between 0.25 and 0.4 of span.
  - Notches in roof rafters, struts and truss members: Not permitted.
  - Holes in struts and columns: Locate on neutral axis.
    Diameter (maximum): 0.25 x minimum width of member.
    Centres (minimum): 3 x diameter of largest hole.
    Distance from ends: Between 0.25 and 0.4 of span.
- Scarf joints, finger joints and splice plates: Do not use without approval.

440 PROCESSING TREATED TIMBER

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

450 MOISTURE CONTENT

- Moisture content of wood and wood-based products at time of installation: Not more than:
  - Covered in generally unheated spaces: 24%.
  - Covered in generally heated spaces: 20%.
  - Internal in continuously heated spaces: 20%.

451 MOISTURE CONTENT TESTING

- Procedure: When instructed, test timber sections with an approved electrical moisture meter.
- Test sample: Test 5% but not less than 10 lengths of each cross-section in the centre of the length.
- Test results: 90% of values obtained to be within the specified range. Provide records of all tests.

510 PROTECTION

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

540 CLEAR FINISHES

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

550 EXPOSED TIMBER

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

JOINTING TIMBER

570 JOINTING/ FIXING GENERALLY

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

670 ANTI-CORROSION FINISHES FOR FASTENERS

- Galvanizing: To BS 7371-6, with internal threads tapped and lightly oiled following treatment.
- Sherardizing: To BS 7371-8, Class 1.
- Zinc plating: To BS EN ISO 4042 and passivated.

ERECTION AND INSTALLATION

750 MODIFICATIONS/REPAIRS

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

760 TEMPORARY BRACING

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

770 ADDITIONAL SUPPORTS

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

775 BEARINGS

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

784 JOISTS GENERALLY

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

850 INSPECTION GENERALLY

- Structural timber-work: Give reasonable notice before covering up.

H62
Natural slating

H62 Natural slating

To be read with Preliminaries/ General conditions.

TYPES OF SLATING

110 ROOF SLATING WITH COUNTERBATTENS to roofs 18, 19, 22 and 22
- Substrate: Schneider TOP 180 T&G insulated sarking board on rafters.
- Pitch: to match existing.
- Underlay: Proclima Solitex Plus Membrane or equal approved.
  - Recycled content: n/a.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): 100 mm.
- Counterbattens:
  - Size: 38 x 25 mm.
  - Fixing: 65 x 3.35 mm galvanized annular ring shank nails.
- Battens:
  - Size: 50 x 25 mm.
  - Fixing: nail type and length to comply with BS 1202 : parts 2 & 3 and be calculated in accordance with BS 5534..
- Slates:
  - Supplier: Welsh Slate.
    Product reference: Penrhyn .
  - Type: to match existing, to be confirmed on site via samples allow for Cwt-y-Bugail.
  - Size: to match existing.
  - Head-lap (minimum): to slate suppliers recommendations according to slate sizes matching existing on site.
  - Fixing: Two nails each slate.
- Accessories: allow to rehole salvaged 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.

240 UNDERLAY
- Handling: Do not tear or puncture.
- Laying: Maintain consistent tautness.
- Vertical laps (minimum): 100 mm wide, coinciding with supports and securely fixed.
- Fixing: Galvanized steel, copper or aluminium 20 x 3 mm extra large clout head nails.
- Eaves: Where exposed, use an external grade (UV resistant) underlay or a proprietary eaves support product.
- Penetrations: Use proprietary underlay seals or cut underlay to give a watertight fit around pipes and components.
- Ventilation paths: Do not obstruct.

245 BATTENS/ COUNTERBATTENS - TREATED
- Timber: Sawn softwood.
  - Species: In accordance with BS 5534, clause 4.11.1.
  - Permissible characteristics and defects: Not to exceed limits in BS 5534, Annex D.
  - Grading: Fully factory pre-graded in accordance with BS 5534.
  - Moisture content at time of fixing and covering (maximum): 22%.
- Preservative treatment: As section Z12 and Wood Protection Association Commodity Specification C8.
  - Type: Contractor's choice.

255 COUNTERBATTENS ON RIGID SARKING
- Fixing: Through rigid sarking into rafters at not more than 300 mm centres.

265 BATTEN FIXING
- Setting out: Align parallel to ridge in straight horizontal lines to gauge of slates. Align on adjacent areas.
- Batten length (minimum): Sufficient to span over three supports.
- Joints in length: Square cut. Butt centrally on supports. Joints must not occur more than once in any group of four battens on 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.

276 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: stainless steel clout to BS 1202-3 (allow for Copper clout to BS 1202-2 for fixing of salvaged slates)
  - Nail dimensions: Determine in accordance with BS 5534 to suit site exposure, withdrawal resistance and slate supplier's recommendations.
  - Allow for reholing of salvaged slates

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.

325 FIRE SEPARATING WALLS

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

345 VENTILATED EAVES WITH INTEGRATED GRILLES/ TRAYS

- Fascia grilles and ventilator trays:
  - Manufacturer: Nicholson or equal approved.
    Product reference: Airtrack F10.
  - Fix to carry underlay, form drip into gutter and provide free passage of air over insulation.
- Undercourse and first course slates: Fix with tails projecting 50 mm over gutter or to centre of gutter, whichever dimension is the lesser.

670 TOP EDGE ABUTMENTS

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

675 TOP EDGE VENTILATED ABUTMENTS

- Underlay: Provide air gap at abutment as recommended by ventilator manufacturer.
- Abutment ventilator:
  - Manufacturer: Nicholson or equal approaved.
    Product reference: Airtrack.
  - Fixing: As recommended by manufacturer.

740 MORTAR BEDDED AND MECHANICALLY FIXED TILE RIDGES

- Underlay: Lay courses over ridge.
  - Overlap (minimum): 150 mm.
- Ridge tile fixing battens: to manufacturer recommendion.
- Ridge tiles:
  - Manufacturer: Submit proposals.
    Product reference: to match existing, allow 60% new.
  - Bedding: On mortar, continuous to edges and solid to joints.
  - Fixing: Secure all ridge tiles to ridge boards or supplementary ridge battens with self-sealing non-ferrous fixings.
  - Gable end ridge tiles: Fill ends with mortar and slips of tiles finished flush.
- Ridge terminals:
  - Manufacturer: Nicholson or equal approved.
    Product reference: Airtrack RTV.

VERTICAL SLATING EDGES/ JUNCTIONS

910 BOTTOM EDGES

- Slating substrate work: Fix timber tilting fillet to support bottom course of slates in correct vertical plane. Fix flashing to tilting fillet.
- Underlay: Dress over flashing.
- Undercourse and bottom course slates: Fix with tails neatly aligned.

920 TOP EDGES

- Top slate courses: Fix under abutment and make weathertight with flashings dressed down not less than 150 mm.

930 SIDE ABUTMENTS

- Slating substrate work: Chase abutment wall and insert stepped flashing.
  - Flashing: Return not less than 75 mm behind slating, overlapping underlay and battens. Turn back to form a vertical welt.
- Abutment slates: Cut and fix neatly.

960 JUNCTION WITH ROOF VERGES

- Slating substrate work: Fix additional slating batten parallel to and below verges.
- Course end slates: Splay cut slate and a half width slates to angle of verge rake. Fix to additional slating batten with cut edge parallel to and below verge.

H71
Lead sheet fully supported roof and wall coverings/ flashings

H71 Lead sheet fully supported roof and wall coverings/ flashings

To be read with Preliminaries/ General conditions.

TYPES OF LEADWORK

110 LEAD SHEET FULLY SUPPORTED ROOF COVERING roof 01

- Covering system: Rolled lead sheet batten roll.
- Fire performance:
  - Roof: As clause 202.
  - Inner lining: As clause 203.
  - Cavity fire barriers: As clause 204.
- Insurance and warranties: As clause 205.
- Sarking or roof boarding: As P10/141.
- Membrane: Proclima Solitex Plus Membrane or equal approved.
- Insulation: As P10.
- Air and vapour control layer: Existing AVCL.
- Substrate: Softwood timber boarding (minimum 22 mm) with 'penny gaps' on (50 x 50 mm) treated timber battens forming ventilated cavity.
  - Preparation: Make good, as clause 620.
- Sheet underlay: Building paper to BS 1521, Class A1.
- Type of lead: Rolled to BS EN 14783Machine cast and BBA certified.
  - Thickness: 3.00 or 3.15 mm (Code 7).
- 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: Wood cored rolls with splashlap.
  - Spacing: Regular, not more than 675 mm.
- Eaves detail: Cut off roll with welted apron.
- Cross joints: Not permitted, notify CA.
  - Spacing: na.
  - Lap: na.
  - Alignment: na.
- Intermediate fixings: Brass cup and screw with die-cast lead dome.
- Ridge/ Hip detail: ventilated roll, see drawing 3300.
- Accessories: proprietary penetrations for M&E srvices .

209 GUTTER LINING - BOX, PARAPET, TAPERED AND FLAT ROOF VALLEY

- Substrate: timber boarding (minimum 22 mm) with 'penny gaps' on (50 x 50 mm) treated timber battens forming ventilated cavity.
  - Preparation: Make good, as clause 620.
- Sheet underlay: Building paper to BS 1521, Class A1.
- Type of lead: Rolled to BS EN 12588.
  - Thickness: 2.50 or 2.65 mm (Code 6).
- Pretreatment: Apply thin coating of patination oil to underside of lead and allow to dry before laying.
- Joints in direction of fall: not required.
  - Spacing: n/a.
- Cross joints: not required.
  - Spacing: max 1500mm.
- Outlets: Turn down onto flat roofing.

310 RIDGE/ HIP ROLLS TO LEAD ROOFS

- Core: Rounded timber.
  - Size: 45 mm high x 45 mm wide.
  - Shape: Tapered to a flat base 30 mm wide.
  - Fixing: To ridge/ hip board with brass or stainless steel countersunk screws at not more than 600 mm centres.
- Roof covering: Dress roofing sheets up roll to form Butt joint at apex.
  - Fixing: Nail each sheet at underlapping end.
- Lead capping:
  - Thickness: As roof covering.
  - Lengths: Not more than 2500 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.

410 APRON FLASHINGS generally

- Lead:
  - Thickness: (Code 6).
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 100 mm.
  - Upstand: Not less than 75 mm.
  - Cover to abutment: Not less than 100 mm.
- Fixing: Lead wedges into bed joint, clips to bottom edge at laps and 500 mm centres.

420 COVER FLASHINGS generally

- Lead:
  - Thickness: (Code 6).
- 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.

GENERAL REQUIREMENTS/ PREPARATORY WORK

510 WORKMANSHIP GENERALLY

- Standard: In accordance with BS EN 14783 and BS EN 12588 and to BS 6915 and latest edition of 'Rolled lead sheet. The complete manual' published by the Lead Sheet Training Academy.
- Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.
- Operatives: Trained in the application of lead coverings/ flashings. Submit records of experience on request.
- Preforming: Measure, mark, cut and form lead prior to assembly wherever possible.
- Marking out: With pencil, chalk or crayon. Do not use 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.

515 LEADWELDING
- In situ leadwelding: Not permitted.

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

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

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%.

625 EXISTING MEMBRANE
- Defective, unsuitable or missing membrane: Give notice.

627 EXISTING AVCL
- Defective, unsuitable or missing AVCL: Give notice.

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

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

FIXING LEAD

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

710 FIXINGS

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

715 CLIPS

- Manufacturer: Contractor's choice.
- Material:
  - Lead clips: Cut from sheets of same thickness/ code as sheet being secured.
  - Copper clips:
    Thickness: 0.70 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, 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.

760 CONTINUOUS CLIPS

- Material:
  - Lead continuous clips:
    Thickness: code 8.
  - Copper continuous clips:
    Thickness: 0.70 mm.
    Temper: BS EN 1172, designation R220 in welts, seams and rolls, R240 elsewhere.
  - Stainless steel continuous clips:
    Thickness: 0.46 mm.
    Grade: BS EN 10088-1, 1.4301(304).
- Dimensions:
  - Width: To suit detail.
- Fixing clips: Secure at 200mm centres max (75mm for lead).
- Fixing lead sheet: Welt edge around continuous clip and dress down.

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: Burnt Sand Mastic by Ty Mawr or equal approved.
  - 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: Burnt Sand Mastic by Ty Mawr or equal approved.
  - 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.

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.

970 PATINATION OIL

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Location: roof 01.
- Application: As soon as practical, apply a smear coating to lead, evenly in one direction and in dry conditions.

H74
Zinc strip/ sheet coverings/ flashings

H74 Zinc strip/ sheet coverings/ flashings

PLEASE REFER TO STAND-ALONE MANUFACTURER SPECIFICATION SUPPLIED SEPARATELY

To be read with Preliminaries/ General conditions.

J31
Liquid applied waterproof roof coatings

J31 Liquid applied waterproof roof coatings

PLEASE REFER TO STAND-ALONE MANUFACTURER SPECIFICATION SUPPLIED SEPARATELY

To be read with Preliminaries/ General conditions.

K10
Gypsum board dry linings/ partitions/ ceilings

K10 Gypsum board dry linings/ partitions/ ceilings

To be read with Preliminaries/ General conditions.

245 CEILING LINING ON TIMBER Joists
- Background: New timber joists as specified by Structural engineer..
- Metal resilient (acoustic) bars: Not required.
- Linings: Two layers of 12.5mm plasterboard as clause 401.
  - Fixings: Screws.
- Finishing: Skim coat plaster.
  - Primer/ Sealer: Primer to painted areas.
  - Accessories: Metal beads/ stops recommended by board manufacturer .
- Other requirements: Contractor to form plastered boarded using additional layer of plasterboard and beading around the opening of the central raised area.

GENERAL/ PREPARATION

325 PREPARATION OF MASONRY TO RECEIVE WALL LININGS
- General: Suitable to receive lining system. Redundant fixtures and services removed. Cutting, chasing and making good completed.
- Holes, gaps, service penetrations, perimeter junctions and around openings: Seal.
- Adhesive fixings: Prepare substrate to achieve effective bonding.
  - Contaminants: Remove loose material, dirt, grease, oil, paper, etc.
  - Absorption: Control by dampening, priming or applying bonding agents as necessary.

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

COMPONENTS

400 GYPSUM BOARDS GENERALLY
- Standard:
  - Gypsum plasterboard to BS EN 520.
  - Gypsum fibre board to BS EN 15283-2.
  - Evidence of compliance: All sheets to be CE marked. Submit Declaration of Performance (DoP).

401 GYPSUM PLASTERBOARD
- Type: TO BS EN 520. Thickness as specified on drawings.
- Core density (minimum): 650 kg/m³.
- Reaction to fire: Manufacturer's standard.
- Water vapour resistance factor: Manufacturer's standard.
- Thermal conductivity: Manufacturer's standard.
- Other BS EN 520 characteristics: None.
- Recycled content: Contractor's choice.
- Exposed surface and edge profiles: Clean and undamaged.

401A GYPSUM PLASTERBOARD To timber boarded internal walls.

- Type: British Gypsum Gyprox WallBoard.
- Thickness: 9.5mm
- Reaction to fire: Manufacturer's standard.
- Water vapour resistance factor: Manufacturer's standard.
- Thermal conductivity: Manufacturer's standard.
- Exposed surface and edge profiles: Clean and undamaged.
- Fixing: Fix boards with decorative side out to receive joint treatment or a skim plaster finish. Lightly butt boards together. Never forceboards into position. Install fixings not closer than 13mm from cut edges and 10mm from bound edges. Position cut edges to internal angles whenever possibl e, removing paper burrs with fine sandpaper. Stagger horizontal and vertical board joints between layers by a minimum of 600mm. Locate boards to the centre line of framing where this supports board edges or ends.
- Other requirements: As NBS K10 generally.
  It is assumed that the timber board substrate may be out of aligment in areas. The contractor should allow to accomodate this within the installation and where possible correct the alignment prior to the installation of the plasterboard.

INSTALLATION

435 DRY LININGS GENERALLY

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

445 CEILINGS

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

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.

610 FIXING GYPSUM BOARD TO TIMBER

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

FINISHING

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.

680 SKIM COAT PLASTER FINISH

- Plaster type Thistle BoardFinish or Thislte MultiFinish.
  - Thickness: 2-3 mm.
- Joints: Fill and tape except where coincident with metal beads.
- Finish: Tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks.

692 RIGID BEADS/STOPS

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

695 INSTALLING BEADS/ STOPS

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

L20
Doors/ shutters/ hatches

L20 Doors/ shutters/ hatches

To be read with Preliminaries/ General conditions.

GENERAL

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

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

PRODUCTS

480 DOORSETS EXTERNAL ALUMINIUM ACCESS DOORS
- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Door leaf: roof void access.
  - Finish as delivered: Polyester powdercoated, black.
- Frame and architraves: roof void access.
  - Finish as delivered: Polyester powdercoated, black.
- Glazing/ Infill details: Not applicable.
  - Manifestation: Not applicable.
  - Beading: Not required.
- Ironmongery: manufacturer standard, allow for stainless steel, to include handles inside and outside, locking escutcheon externally, thumbturn internally.
- Perimeter seals: EPDM weatherseal.
- Thermal performance (U-value maximum): 1.2 W/m²K.
- Other requirements: dimensions to coordinate with brick dimensions and coursing.
- Fixing: to manufacturers details and guidance.

EXECUTION

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

760 BUILDING IN
- General: Not permitted unless indicated on drawings.

820 SEALANT JOINTS

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

830 FIXING IRONMONGERY GENERALLY

- Fasteners: Supplied by ironmongery manufacturer.
  - Finish/ Corrosion resistance: To match ironmongery.
- Holes for components: No larger than required for satisfactory fit/ operation.
- Adjacent surfaces: Undamaged.
- Moving parts: Adjusted, lubricated and functioning correctly at completion.

L40
General glazing

L40 General glazing

To be read with Preliminaries/ General conditions.

GENERAL REQUIREMENTS

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

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

155 GLASS GENERALLY
- Standards: To BS 952 and relevant parts of:
  - BS EN 572 for basic soda lime silicate glass.
  - BS EN 1096 for coated glass.
  - BS EN 1748-1 for borosilicate glass.
  - BS EN 1748-2 for ceramic glass.
  - BS EN 1863 for heat strengthened soda lime silicate glass.
  - BS EN 12150 for thermally toughened soda lime silicate safety glass
  - BS EN 12337 for chemically strengthened soda lime silicate glass.
  - BS EN 13024 for thermally toughened borosilicate safety glass.
  - BS EN ISO 12543 for laminated glass and laminated safety glass.
- Panes/ sheets: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.
  - Edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

180 BEAD FIXING WITH PINS
- Pin spacing: Regular at maximum 150 mm centres, and within 50 mm of each corner.
- Exposed pin heads: Punched just below wood surface.

181 BEAD FIXING WITH SCREWS
- Screw spacing: Regular at maximum 225 mm centres, and within 75 mm of each corner.

TYPES OF GLAZING

240 BEAD FIXED SINGLE GLAZING To Rooflights of Gallery Room 03

- Pane material: 7mm Pilkingtons Stippoyte Laminated Glass (Obsqure Glazing).
- Surround/ bead: Softwood.
  - Preparation: Paint primer.
  - Bead location: Assummed - Outside.
  - Bead fixing: Detail to match existing.
- Glazing compound: Soft latex compound.
- Glazing installation:
  - Glass: Located centrally in surround using setting and location blocks and distance pieces.
  - Finished thickness of back bedding after inserting glazing (minimum): 3 mm.
  - Front bedding: Applied to fill voids.
  - Beads: Bedded in glazing compound and fixed securely.
  - Visible edge of glazing compound: Finished internally and externally with a smooth chamfer.

241 BEAD FIXED SINGLE GLAZING To Rooflights of Gallery Room 02

- Pane material: 7mm Pilkingtons Stippoyte Laminated Glass (Obsqure Glazing).
- Surround/ bead: Reinstate missing softwood glazing bars. New internal beading to detail.
  - Preparation: Paint primer.
  - Bead location: Internally.
  - Bead fixing: Screw fixing.
- Glazing compound: Soft latex compound.
- Glazing installation:
  - Glass: Located centrally in surround using setting and location blocks and distance pieces.
  - Finished thickness of back bedding after inserting glazing (minimum): 3 mm.
  - Front bedding: Applied to fill voids.
  - Beads: Bedded in glazing compound and fixed securely.
  - Visible edge of glazing compound: Finished internally and externally with a smooth chamfer.

242 BEAD FIXED SINGLE GLAZING To Laylights of Gallery Room 01

- Pane material: 7mm Pilkingtons Stippoyte Laminated Glass (Obsqure Glazing).
- Surround/ bead: The existing metal window frame is flush (no rebates) on the upperside to be glazed. Allow for a new slimline subframe to secure the glazing on the frame, any jointing in the new frame or breaks in the glazing to be above the glazing bars of the existing frame so that it is not visible from below)..
  - Preparation: TBA.
  - Bead location: Top.
  - Bead fixing: Detail TBA.
- Glazing compound: TBA.
- Glazing installation:
  - Glass: Located centrally in surround using setting and location blocks and distance pieces.
  - Finished thickness of back bedding after inserting glazing (minimum): 3 mm.
  - Front bedding: Applied to fill voids.
  - Beads: Bedded in glazing compound and fixed securely.
  - Visible edge of glazing compound: Finished internally and externally with a smooth chamfer.

M20DIA
PLASTERED/ RENDERED/ ROUGHCAST COATING

M20DIA PLASTERED/ RENDERED/ ROUGHCAST COATING

GENERAL REQUIREMENTS FOR WORKMANSHIP

100 GUIDANCE, ADVICE, CODES AND BS EN DOCUMENTATION Fiberous plaster ceilings, cornices, frieeze and any other architectural detailing.
All plasterwork inspections, surveys, repairs and replacement sections must comply with the following guidance, advice, codes and BS EN documentation:

- BS7913:2013 Guide to the conservation of historic building.
- BS EN 15319:2007 -General principles of design for fibrous (gypsum) plasterworks.
- BS EN 13815:2006- Fibrous gypsum plaster casts, definition requirements and testing methods.
- BS 8481 Design, preparation and application of internal gypsum, cement, cement and lime plastering systems.
- ABTT Guidance Note 20 2015, for baseline plaster ceilings inspection and annual certification.
- Technical Standards for Places of Entertainment 2017, Section- D1 Stability/ M1 Certification.
- Historic England Technical Advice-Inspection and Maintenance of Fibrous Plaster Ceilings.
- HEAG 269-Guidance from Institute of Historic Building Conservation on Fibrous Plaster Ceilings.
- Guidance from Finishes & Interior (FIS) for heritage buildings.
- BS 8000 – Workmanship on Construction Sites
- Load Bearing and Failure Analysis of Fibrous Plaster Wads with Different Design Configurations, L&R & Department of Architecture & Civil Engineering-University of Bath 2019

441D SAND FOR MORTARS
To BS EN 13139:2002 unless specified otherwise.
For facework, to be from the same source(s) throughout the contract.
Ensure consistency of colour and texture, mix different loads if necessary.
To be sharp, angular and well graded from 2.36mm to 0.15mm unless specified otherwise.
Store different sands in different piles on clean hard bases allowing free drainage.
Avoid intermixing and contamination.

458D CONTAMINATION
Do not allow contamination of one type of material by another, or by any set material.

461D INITIAL SET
Do not use mixes after initial set has taken place. Do not retemper or reconstitute mixes, unless permitted by the manufacturer of proprietary mixes.

466A SCAFFOLDING Internal scaffold within Gallery Rooms
Contractor to supply and install an independent scaffolding to avoid put log holes and other breaks in coatings. Fixing to the existing fabric or surfaces are strictly prohibitted.
Contractor to submit scaffold design proposals to CA and Strucutral Engineer for comment prior to installation. The scaffold design must provide sufficient access to inspect and execute the work.

469D CLEANLINESS
Protect thoroughly all existing work and approaches using suitable boards, sheets, etc.
Clean off all droppings on to finished work immediately.

485D SITE PREPARED NONHYDRAULIC LIME:SAND MORTAR
Lime putty: As clause 481.
Thoroughly mix lime putty with sand (or knock up previously prepared mortar) either mechanically or manually. Add only sufficient water to produce a workable mix.

488D SITE PREPARED HYDRAULIC LIME:SAND MORTAR
Thoroughly mix hydraulic lime powder with sand, first in the dry state and then with water. Add only sufficient water to produce a workable mix.
Do not re-temper or use mortar that has begun to stiffen.

TYPES OF COATING

492 LIME PLASTERING
- Substrate: Varies.
  - Preparation: Clean down and dampen as recommended by manufacturer.
- Lime manufacturer: St Astier.
  - Product reference/ Type: Hydraulic NHL3.5.
- Undercoats:
  - Mix: First Coat: 1 Lime : 2 Sand.
    Second Coat 1 Lime : 2.5 sand. .
    Sand: Course sharp sand to architects approval.
  - Thickness (excluding dubbing out and keys): First coat 12-15mm (8-10mm cover), second coat 10-20mm to suit other surrounding plasterwork.
- Final coat:
  - Mix: 1 Lime : 2.5 sand.
    Sand: sharp fine sand to Architects approval .
  - Thickness: 2-3mm.
  - Finish: Plain wood float as 778.
- Accessories: None.
- Other requirements: Ensure sufficient reinforcing fibres / hair is included within each coat as M20/493.

493 HAIR REINFORCEMENT
- Manufacturer/ Supplier: Ty Mawr .
  - Product reference: Reinforcing fibres.
- Proportions (approximate): 5 kg hair to 1 m^3 of coarse stuff.
- Condition: Clean, free from grease and other impurities. Well teased before adding to the mix.
- Distribution: Evenly throughout with no balling into lumps.
- Storage period for haired mortar (maximum): Four weeks.

PREPARING BACKGROUNDS

498D PROTECTION OF HISTORIC PLASTERWORK
Prevent damage and disfigurement to plain and decorative plasterwork during the course of the works:
Provide or ensure provision of protection and/or temporary support to all vulnerable areas of plasterwork using methods agreed with the CA.
Adopt careful working methods when working alongside or above plasterwork to prevent disturbance from vibration and impact.
Do not make temporary fixings into decorative plasterwork or apply adhesive tape to plaster surfaces.
Do not allow rigid boards, battens, etc. to touch plasterwork directly. Sandwich an isolating layer of mineral wool or other approved soft material between the boards and plaster face. Ensure that the isolating layer is firmly pressed against the plaster face.

512D PREPARATION FOR REPAIR OF PLASTER ON SOLID BACKGROUND
Prior to commencing repair, clean out cracks and voids with vacuum cleaner, and wash away any remaining dust.

514D AREAS OF HISTORIC MODELLED OR MOULDED PLASTERWORK AT RISK
Have due regard to the fragility of this type of finish and when working on or close to such areas take all necessary steps to record and protect the items at risk.
Progressively fix back all loose edges to substrate either directly or with softwood noggings. The maximum permitted unsecured length of finish of background plaster edge is to be 120mm.
Stop work immediately if the finish or background plaster shows signs of movement, and introduce temporary supports until loose area can be secured.

515D KEYING/BONDING
Prepare backgrounds as specified for the type of coating to be applied. Methods other than those specified may be submitted for approval.

524A CLEANING PREVIOUSLY DECORATED PLASTER SURFACES

- Reason for cleaning: Cleaning to be undertaken to remove thick layers of paint which is obscuring the mouldings and detail, inappropriate modern paints, dust, any debris and/or any microbiological growth on the surface of the plaster.
- Earlier decorative schemes: Contractor to notify CA of any pigments or earlier decorative schemes uncovered during the cleaning process.
- Contractor to undertake trials of each of the following cleaning methods for CA approval. Contractor to allow 10.no working days for Conservation Architect and Local Conservation Officer to inspect and review the trials.
- Cleaning methods:
  Dry Brushing. Dry brushing with soft britle brushes to remove dust and loosely adhered soiling. Use in conjunction with a vacuum cleaner. Specialist vulcanised latex sponges to be used for removing stubborn marks .
  Mechnical lifting . Encursted soiling may require scraping and picking with scalpels and spatulas to loosen and lift the dirt layer.
  Removal of oil and modern paint : The use of methylene chloride (such as Nitromors Green Label) to remove coatings such as oil based paints and modern coatings. The translucent liquid and thickening waxes incorporated in these cleaning agents do not obscure the work in hand, enabling the conservator to proceed with care. Importantly, if this process is carried out with the necessary care and skill, any particulate residues may subsequently be removed with nothing more than a gentle dusting with a soft bristle brush.
  Treatement and control of organic growth : As M60/622.
- Health and Saftey: Dust will need to be controlled using sheeting or extraction system to prevent nuisance to the surrounding area. Operators will be required to wear all necessary PPE to proect from dust and noise.
- Personnel: All personnel undertaking the cleaning to be suitably qualified and experienced in the cleaning and repair of decorative plaster ceilings. Contractor to provide CVs of all personnel undertaking the cleaning work to the CA

532D HISTORIC LIME PLASTER/RENDER DIRECTLY ON BRICK/STONEWORK
Remove only those areas of failed plaster as agreed with CA.
Repoint and flush up areas where pointing missing.
Wet and re-wet surfaces as required to equalise suction before applying first coat of plaster or render.
Dub out hollows in max. 9mm thick coats in same mix as first coat. Insert small stone pieces into wide joints by pressing into dubbing.

548D JUNCTION OF NEW WORK WITH OLD
Where possible make these at changes in direction.

567D REPAIRING EXISTING PLASTER

Remove plaster that is loose, soft, friable, badly cracked or affected by efflorescence, using a sharp knife to give a square cut edge and the minimum impact necessary.
Gently tap all remaining intact surfaces and remove hollow sounding areas of plaster, unless otherwise agreed with the CA.
Remove stained plaster to 300 mm beyond last point of visible staining, unless otherwise agreed with the CA.
Advise CA if any built-in timbers, structural deficiencies or sources of damp are revealed.
Thoroughly dry brush the background and edges to remove dust, loose material and efflorescence.

569D REPAIRING EXISTING DAMP AFFECTED PLASTER

Remove plaster on walls affected by rising damp up to a height of 300 mm above the highest point reached by the damp or 1 m above the dpc, whichever is higher.
Rake out perished and salt contaminated mortar joints and cut out and renew any heavily salt contaminated bricks or blocks in the background.
Advise CA if any built-in timbers, structural deficiencies or additional sources of damp are revealed.
Provide the maximum ventilation possible and leave walls to dry for as long as possible before applying new plaster.
Thoroughly dry brush background to remove dust, loose material and efflorescence.

573D TREATMENT OF ORGANIC GROWTHS

Biocides must be approved and registered by the Health and Safety Executive (HSE) and listed in the current 'Reference Book 500', as surface biocides.

581D ESTABLISH ORIGINAL PLASTER FACE

Removal of decorative finishes:
Before carrying out repairs to plasterwork ensure that decorative finishes and fillers have been removed from:
Repair area(s) at junctions with new plasterwork.
Decorative plasterwork before making any castings.
Where paint coatings are suspected of containing lead, obtain instructions before proceeding.

584A RECORD CASTINGS

- Before commencing repair work make accurate plaster castings of the following items of decorative plasterwork to enable reproductions to be made:
- Cornices, skirtings, picture rail mouldings and the like as identified on the room data sheets and drawings.
  - Store record casting(s) safely until required for use or as otherwise instructed by the CA..

587 REPAIRING TIMBER LATH TO WALLS AND CEILINGS

- Remove area(s) of defective plaster and laths being careful not to disturb adjacent sound plaster. Cut defective laths back to supporting timbers. Prevent plaster and laths from falling into voids.
- Ensure supports for laths are sound and firmly fixed. Where necessary provide or ensure provision of additional fixings, timber battens, etc.
- Fix new laths as clause 626

589 REFIXING TIMBER LATHS THROUGH EXISTING PLASTER

- Screw sound, loose laths and plasterwork gently back to supporting timbers using screws and washers recessed into plaster:
  Screws: 38 long x 8 gauge at 100 mm centres.
  Washers: Stainless steel 25 mm diameter inner washer and stainless steel 38 mm diameter fine mesh outer washers (mesh size 1.5 mm.)
- Fill fixing recesses with plaster as M20 finished flush with existing plaster surface.

596 REPAIRING HOLES AND CRACKS IN PLAIN PLASTER ON TIMBER LATHS

- Repair areas with missing or unsound laths as specified.
- Carefully cut away any loose plaster from around edges of holes or along lines of cracks. Do not disturb adjacent sound plaster.
- Remove all loose plaster and dust by brushing and vacuuming. Dampen laths and edges of plaster to control suction before applying plaster.

597 CRACKS IN LIME PLASTER

Fill cracks less than 3mm wide with Lime putty

598 REPAIRING MINOR CRACKS IN PLASTERWORK

Thoroughly brush cracks clean. Where necessary carefully cut back edges of plaster either side of cracks to produce a firm edge. Lightly dampen cracks to control suction, fill with filler to approval of the CA and finish flush with surrounding plaster. For decorative plasterwork, ensure that surface profiles/patterns are continued accurately.

599 REPAIRING FINAL COAT PLASTER ON SOUND UNDERCOAT

Carefully remove area(s) of loose or flaking final coat plaster. Brush clean background plaster to repair area and apply PVAC sealer to control suction.
Final coat plaster: Lime putty:silver sand (1:3) or neat lime putty as directed

BACKINGS/BEADS/JOINTS

626 TIMBER LATHING

- Type: Riven (not sawn) Chestnut
  Size: 25 x 6mm, each lath minimum 1350 long
  Free from decay, insect attack (except pinhole borers), splits, shakes and with no knots wider than half the width of the section.
- Preservative treatment (for softwood) as section Z12 and BWPDA Commodity Specification C8.
  Type/desired service life: 60yrs
- Moisture content at time of installation: Not exceeding 16%.
- Space laths 7-9 mm apart in straight lines with 3 mm wide butt joints centred accurately over supports. Stagger butt joints at not more than every eighth lath.
  - Nails at every support: 30-35 mm long annular ring shank stainless steel nails

628 TIMBER COUNTER LATHS

Where timber laths cross the face or side(s) of timber supports wider/deeper than 75 mm, install counter laths and/or branders.
Branders: 25x38 Fix securely at 400 mm centres.

645 DISSIMILAR SOLID BACKGROUNDS FOR PLASTERING
Where plaster is to be continued without break and without change of plane across the face of a column/beam/lintel which is not wider than 450 mm and is rigidly bonded or tied to the surrounding background:
- Cover the face of the column/beam/lintel with building paper to BS 1521 extending not less than 25 mm on to the adjacent background.
- Overlay with expanded stainless steel lathing extending not less than 100 mm beyond the edges of the paper. Orientate lathing in accordance with manufacturer's recommendations and fix securely at 300 mm staggered centres along both edges using fixings appropriate to the backgrounds

648 DISSIMILAR SOLID BACKGROUNDS FOR PLASTERING/ RENDERING
Where coating is to be continued without break across joints between dissimilar solid backgrounds which are in the same plane and rigidly bonded or tied together, cover joints with a 150 mm wide strip of building paper to BS 1521 and overlay with 300 mm wide expanded stainless steel lathing. Orientate lathing in accordance with manufacturer's recommendations and fix securely at 300 mm staggered centres along both edges using stainless steel screws and washers.

650 MOVEMENT JOINTS
- Form joints in coatings to coincide with movement joints in background using: Proprietary movement bead
- Ensure that joints extend through coating to background.

651 CLEANING VOIDS TO REAR OF PLASTERWORK Generally
All accessible voids between the plaster and the substrate to be clean to remove all loose, friable and waste material collected over time. Any debris greater than 50mm to be lifted by hand. Voids to be hoovered with approved cleaning methods and particulate management. CA to confirm extent of cleaning onsite once access and any opening up works have commenced.

MOULDINGS/DECORATIVE PLASTERWORK

680 FIBROUS PLASTER MOULDINGS Generally
- Type: various
- Fixing: apply with suitable adhesive
- Ensure that noggings, bearers, etc. required to support mouldings are accurately positioned and securely fixed.
- Fix securely, true to line and level. Bed direct fixed mouldings solid.
- Reinforce framing, fixing points and joints with wads.

681 REPAIR OF CRACKED PLASTER Decorative Fiberous Plaster
Cracking to plaster surfaces to be filled with Toupret. Check substrate is sound, prepare surface for finish to match original. Remove all loose surface applications (flaking paint etc.), apply light grade sanding paper to clean down area to prepare for suface finish. Repairs to be smooth and in line with existing surrounding surfaces and plains with surrounding and no visible protrusions. Profile to match with all surrounding decorative features.

682 REPAIR HOLES IN SURFACE OF PLASTER Decorative Fiberous Plaster

- Holes, chips or damage less than 20mm, to be filled with Toupret Product (fine filling could be carried out by specialist decorator).
- Holes more than 20mm and less than 100mm, cut out to clean sound substrate with hand formed carving chisels, modelling knives and suitable blades. Fill in new Fibrous plaster piece of the same profile with profiles taken from reverse moulds, resin, blocks produced from in situ silicon/ clay squeezes.
- Holes greater than 100mm, cut out to clean sound substrate with hand formed carving chisels, modelling knives and suitable blades. Holes in fibrous plaster ceiling to be blanket wadded with traditional jute hessian soaked in plaster of paris, size of hole to be assessed and if required timber lath on edge to be formed around perimeter of damaged fibrous plasterworks. Timber lath if required to be formed over holes for additional bridging strength and support for blanket wadding.
  Cut jute hessian larger than hole repair, gauged up suitable amounts of Herculite fibre fix (formulated hemihydrate plaster) in plaster bowl. Soak hessian and fold and lap as being removed from plasterers' bowl/bucket.
  Lay hessian over timber lathing and unfold and apply laps onto existing fibrous plaster ceiling to form well bonded connection onto existing ceiling.
  Wait for hessian and plaster to gain strength and when at setting point apply hand pressure to lay up hessian to ensure all areas are above finished ceiling line.
  Wait for hessian/plaster to achieve full strength, then apply first gauge of well-rounded plaster of paris, apply with gauging trowel, small tool and trowel off to level.
  Wait for full set to take place, achieve mechanical key to plaster face and then apply finishing coat of fine casting plaster if required , apply with gauging trowel, use suitable joint rules, straight edge, steel plasterers busk, zinc templates, to achieve finished face and finish/polish for decoration.
  Ensure all edge are smooth, flat with no surface deviation from existing fibrous plaster, avoid feather edges and poor edge alignment, review additional weight of fibrous plaster repair and assess if supplemental plaster wadding to back of ceiling is required.
- Ensure all enrichments, embelishments or decorative detailing is accuretly reinstated, as M20DIA/695D, and secured.

683 REPAIR OF DETACHED OR LOOSE DECORATIVE PLASTER Decorative Fiberous Plaster

Any detaching/de-bonding/loose carton-pierre will be pilot drilled first and injected with Primal Rhoplex B60A and then re-screwed with stainless steel screws. Loose, dislodged pieces should be eased back into position where possible and injected with Primal Rhoplex B60A and then re-screwed with careful manipulation. Please note any repairs will not necessarily resolve any alignment issues and will be made secure in their current locations.

Pilot holes will be formed carefully with high speed steel drill bits and non-percussive drills. All fixings of screws are to be carried out by hand to reduce all impact onto the historical carton pierre fabric. Fine counter sinking to enable heads of screws to be recessed in sufficiently for making good of screw hole with suitable Toupret products.

Trial fixings to be carried out on 1no dome to assess locations of timber battens and suitability of fixation technique. Minor exploratory works to be carried out to assess the location of the battens located within the fibrous plaster octagonal dome. Supplemental timber cleats to be provided where required to back of ceiling for correct embedment of stainless-steel screw fixation. Carton pierre is a brittle material and could be subject to fracturing and failing if too much pressure is applied.

692 REFIXING EXISTING PLASTER MOULDINGS

- Prepare or ensure preparation of suitable backgrounds to receive mouldings and enable them to finish flush with existing abutting work.
- Clean background and contact surfaces of mouldings. Apply diluted PVAC sealer to control suction.
- Fix securely and accurately on solid bed of gypsum based cove adhesive.
- Additional mechanical fixing(s): stainless steel screws recessed below the plaster surface the filled flush.
- Fill all joints and any holes with lime putty:silver sand (1:3) or neat lime putty or other agreed with the CA and the contractor's chosen specialist. And finish flush and smooth to correct profile.

695 REPRODUCTION OF EXISTING PASTER MOULDINGS

Agree section(s) of mouldings to be reproduced and casting methods with the CA before commencing work.
Ensure that any paint is removed from the original moulding (model) as clause 581D.
Form reverse mould using methods and materials which allow the profile and detail of the original to be reproduced accurately and without damaging original moulding.
Make sufficient moulds to complete the required number of casts and maintain a consistent appearance.
Cast reproductions using plaster of Paris and include all necessary inserts to give strength and rigidity to the moulding section and allow secure fixing to the background.

697 REPAIRING CRACKS/STEPS IN PLASTER MOULDINGS

Remove any applied ornament and keep for reuse. Cut back moulded plasterwork carefully each side of crack to an extent agreed with the CA. Replace any defective timber laths.
Clean surfaces and apply diluted PVAC sealer to control suction.
Build up plaster to follow and finish flush with the existing moulding profile:
Backing coat: lime/sand mix (coarse stuff) lime putty:sand 1:3 with hair reinforcement as 492, or other agreed with the CA and the contractor's chosen specialist Key to receive finishing coat.
Final coat: lime putty:silver sand (1:3) or neat lime putty or other agreed with the CA and the contractor's chosen specialist
Refix any applied ornaments accurately using gypsum based cove adhesive.

699A REPAIRING HAND MODELLED PLASTERWORK

Agree the form and pattern of the in situ modelling with the CA before commencing repair work.
Install stainless steel armatures where necessary to suit the relief and profile of the modelling.
Build up new modelling using suitable materials to match the existing, having regard for the extent of the repair and intricacy of the work

PLASTERING

710 APPLICATION GENERALLY

- Apply each coating firmly to achieve good adhesion and in one continuous operation between angles and joints.
- All coatings to be not less than the thickness specified, firmly bonded, of even and consistent appearance, free from rippling, hollows, ridges, cracks and crazing.
- Finish surfaces to a true plane, to correct line and level, with all angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.
- Prevent excessively rapid or localised drying out.

716D ACCURACY OF PLASTER 13 MM THICK OR MORE
The variation in gap under 1.8 m straight edge (with feet) placed anywhere on the surface to be not more than 3 mm.

718 JUNCTION OF NEW PLASTERWORK WITH EXISTING
Finish new plasterwork flush with the original face of existing work to form a seamless junction.

767D DISSIMILAR BACKGROUNDS
Where tape (scrim) or lathing or beads are not specified, cut through plaster with a fine blade in a neat, straight line at junctions of:
Plastered rigid sheet and plastered solid backgrounds.
Dissimilar solid backgrounds.

786 TIMBER LATHING
Apply undercoat with sufficient pressure to force it between laths and form continuous keys.

788 NONHYDRAULIC LIME PLASTER UNDERCOATS
- Dampen background to control suction.
- Apply plaster firmly and trowel to an even surface. Allow to stiffen and cross scratch to provide an undercut key for the next coat. Do not penetrate through the coat. After completion of consolidation/scouring, lightly scratch the second undercoat using a wood 'devil' float to provide a key for the final coat.

789 THREE LAYER NONHYDRAULIC LIME PLASTER FINAL COAT
- Remove any dust from undercoat and dampen to control suction.
- Apply first layer with a steel trowel. Apply second layer with a wood float in the opposite direction to the first layer. Apply third layer with a steel trowel in the same direction.
- Thoroughly consolidate/scour the plaster with a wood cross grain float. Dampen the surface using a stock brush and polish with a steel trowel. Finish with a damp stock brush.

791D DRYING OF NONHYDRAULIC LIME PLASTER
Work in the shade and out of drying winds.
Keep each undercoat and final coat damp by spraying with water until coating is sufficiently firm.
Thoroughly consolidate/scour second and final coats one or more times as necessary to control shrinkage.

856D FINAL COAT - PLAIN FLOATED FINISH
Finish with wood or other suitably faced float to give an even, open texture. Do not apply water while working up. Do not draw excessive laitance to surface (either by overworking or by use of steel trowel).

940D FINISH
With a wood or other suitably faced float to give an even texture. Do not apply water to final coat while working up. Do not draw excessive laitance to surface (either by overworking or by use of steel trowel).

941A OPENING UP, MAKING GOOD AND FINISH TO PLASTER COVING Gallery Room 02 where M&E extract ducts are fitted within the deep plaster coving.

- Setting out - Contractor to set out and mark on the surface of the plaster the centre point of the new fitting on the surface of the plaster. CA to review and confirm position prior to any opening up work commencing.
- Opening up - Contractor is permitted to form and opening with 250mm greater than fitting in height and width to provide sufficient working space to install the fitting and ensure that sufficient bonding and integrity between the existing backing to the plaster and new. Holes in the plaster coving to be hand formed using carving chisels, modelling knives and suitable blades.
- Timber fromwork and support: It is assumed that the deep plastered coving is supported by timber laths and formwork to the rear. Contractor to allow to alter formwork to accomodate ductwork of new M&E installation, please note it is probable that this will involve extensive work in altering the timber formwork to rear of the plaster to accomodate the ducting. The contractor may also provide additional support and bracing to provide fixing points and marine plywood board backing (with void cut out for fitting and ducting) to support the new M&E fitting. Contractor to make good all timber formwork and install new and new laths as M20/786 to suit the design and finish to the plaster surface. Given the scale and curvature of the new plaster detail around the fitting, the contractor is permitted to use Metal Lathing, as NBS M20DIA/594 & 726, to the infill sections in place / addition to the timber laths.
- Inspection: Contractor to notify Strucutral Engineer when all opening up work has been completed and confirm any proposed alterations to the formwork with the CA and Strucutral Engineer prior to altering the timbers to ensure that any alterations do not impact the strucutral integrity of the plaster support.
- Plaster: Three coat lime plaster finish as NBS M20/492.
- Plaster finish: Ensure all edge are smooth, flat with no surface deviation from existing adjacent plaster, avoid feather edges and poor edge alignment.

M60
Painting/ clear finishing

M60 Painting/ clear finishing

To be read with Preliminaries/ General conditions.

COATING SYSTEMS

113 PAINT TO CAST IRON RAINWATER GOODS
- Manufacturer: Sherwin Williams.
  Contact: Technical Advisor Customer Support, 01204 556429
- Use/location: New and old cast iron gutters.
  - Preparation: Prepare as M60/651 and in strict accordance with the manufacturers recommendation.
- Site Primer: Macropoxy L425 Zinc Phosphate Primer
  - Number of coats: 1
  - Dry film thickness: 50 microns nominal as defined in BS EN ISO 12955-5.
  - Special requirmeents: Stipple on by brush.
    " Initial coats: Macropoxy C123 Epoxy Glass Flake.
  - Number of coats: 2.
  - Dry film thickness: 250 microns nominal as defined in BS EN ISO 12944-5.
- Finishing coats: Acrolon C137V2 Gloss or Acrolon C237 Sheen Finish .
  - Number of coats: To be confirmed onsite. Project Manager to inspect after each coat. Allow 2 number of coats.
  - Dry film thickness (per coat): 50-75 microns nominal as defined in BS EN ISO 12944-5 .
  - Colour: RAL colour to be confirmed.

120 CLASSIDUR To new and existing plaster.
- Manufacturer: Promain House, Knowl Piece Business Park, Wilbury Way, Hitchin, Hertfordshire, SG4 0TY
- Product: Classidur Tradition
- Surface(s): new and existing plaster.
- Preparation: Generally as M20/ M60/400, M20DIA/524A and manufacturers details
- Coatings: Apply two coats. It is possible that 1 coat will be sufficient to previously decorated decorative plasterwork.
- Colours: TBA
- Sample: Provide sample area for CA approval. Provide sample of 1no. coat and a seperate sample of 2no. coats. Locations for samples to be agreed. Provide up to 3no. different colour samples, CA to confirm colours for samples.

120A EMULSION PAINT
- Manufacturer: Dulux Trade, brand of AkzoNobel.
  - Web: www.duluxtrade.co.uk.
  - Email: project.support@akzonobel.com.
  - Product reference: Diamond Matt
- Number of Coats: As Manufactruers recommendation.
- System code: D261W - Painted (water based) wall and ceiling surfaces.
- Colour: To be confirmed.

130C GLOSS PAINT TO NEW EXTERNAL SOFTWOOD

- Manufacturer: Brouns & Co, https://www.linseedpaint.com; T: 01423 500694; sales@linseedpaint.com..
  - Product reference: Linseed Paint Exteriour Blackout.
- Previously decorated timber: Generally as M60/400 and manufacturer's recommendation, all existing paint to be removed.
  Prior to preparation all existing surfaces are to be made good as follows:
  - Remove all minor projections; nails, clips redundant fixings and the like and fill any resultant holes.
  - Fill any surface, damage: dents, scratches and the like.
  - Fill any open joints and or cracks.
  - Make good damage to arrises and external corners.
- Initial coats: Linseed Paint Exteriour Blackout, thinned with boiled linseed oil and turpentine as recommended by manufacturer.
  - Number of coats: 1.
- Finishing coats: Linseed Paint Exteriour Blackout.
  - Number of coats: 2.

150A EGGSHELL/ SATIN PAINT TO INTERNAL EXPOSED SOFTWOOD

- Manufacturer: Dulux Trade, brand of AkzoNobel.
  - Web: www.duluxtrade.co.uk.
  - Email: project.support@akzonobel.com.
  - Product reference: Eggshell
- Surfaces: New and existing painted timberwork. .
  - Preparation: As manufacturer's guidance. .
- Initial coats: New or bare surfaces .
  - Number of coats: Primed with an appropriate Dulux Trade primer .
- Undercoats: Use if required .
  - Number of coats: as appropriate .
- Finishing coats: Trade eggshell .
  - Number of coats: at least 2 - to achieve a high quality finish .Colour: To be confirmed.

161 SEALER TO EXISTING TIMBER FLOORS

- Manufacturer: Bona Ltd
- Base: Existing timber flooring
- Preparation:
  - Punch down all nails, ensure all timber floor boards are secure and prepare as M60/400.
  - Degrease and clean the surface thoroughly using the Bona PowerScrubber (red brushes) and diluted Bona Deep Clean Solution in the tank (10%).
  - Abrade the surface with Bona Diamond Abrasives grit 80.
  - Clean surface with the Bona PowerScrubber and clean water.
  - Abrade the surface once more with Bona Diamond Abrasives grit 240.
  - Vacuum to remove loose sanding dust or wipe with Bona's Dusting Pad
- Finishing coats: 2no. coats of Bona Traffic HD Anti-slip Traffic HD/Traffic lacquer with roller or T-bar (8-10 m2/lit).
- Tinting: ClassiMix up to 5 % or concentrated universal pastes (subject to preliminary compatibility tests). Contractor to provide samples of different tones/colours for CA approval.
- Other requirements: The decorating contractor should to allow for staining any new timbers in order that they match the existing surrounding timbers. The stain is to be a solvent based soluble dye; the colour is to be mixed by the decorating contractor, to the satisfaction of the CA, for each area being treated.

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.

401A PREPARATION OF METAL SURFACES Frames of Laylights within Gallery Room 01
- Standard in accordate with BS EN ISO8501-3:2007, BS7079-A3:2006 and BS EN ISO 8501-3:2007.
- Overpainting: Overpainting existing coatings in whole or part will be permitted as long as the earlier coating is still well adhered.
- Brush down: All surfaces to be brushed down metalwork to remove loose paint and any rust. De-rust metalwork by dry abrasive.
- Other Requirements: Comply with the manufacturers preperation guidance of the decorative coating system specified.

420 FIXTURES AND FITTINGS
- Removal: Before commencing work remove: All grilles, coverplates, picture hanging rails and other surface mounted fixtures to be carefully recorded and reinstalled following the completion of the decoration .
- Replacement: Refurbishment as necessary, refit when coating is dry.

425 IRONMONGERY

- Removal: Before commencing work remove ironmongery from surfaces to be coated.
- Hinges: Do not remove.
- Replacement: Refurbish as necessary; refit when coating is dry.

430 EXISTING IRONMONGERY

- Refurbishment: Remove old coating marks. Clean and polish.

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.

460 PREPARATION OF PREVIOUSLY DECORATED/NEW JOINERY FOR PAINTING

- Brush down:
  Clean off all loose material and dust with stiff brush.
  Wash down previously decorated joinery:
  Wash down painted surfaces with Sugar soap, to remove all traces of grease, taking care not to wet more than absolutely necessary areas of bare timber. Allow for following the manufacturer's instructions precisely.
  Dilute Sugar soap as required for the work in hand. Start cleaning at the bottom of walls and work upwards to avoid run streaks and prolonged action of the cleaning solution.
  Thoroughly rinse off residue with a wet cloth frequently rung out in clean water.
- Remove loose paint from joinery:
  Lift or scrape off all loose paint layers.
- Partial removal of paint finishes from existing timber: As M60/536
- Timber Repairs: Where necessary undertake timber repairs as M60/461, M60 471, M60/481. CA to confirm exact scope of work following inspection of cleaned and rubbed down joinery.

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.

471 PREPRIMED WOOD

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

481 UNCOATED WOOD

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

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.

536 PARTIAL REMOVAL OF PAINT FINISHES FROM EXISTING TIMBER

- Use methods which will not damage the substrate or adjacent surfaces or adversely affect subsequent coatings.
- Manually strip and scrape existing defective paint finishes (e.g.: where blistering, cracking or peeling, etc).
- Feather-out sound areas of paint at edges and lightly sand.
- Clean, sharp mouldings will not be required.
- Chemical stripping will only be permitted on the express authorisation of the CA where all paint must be removed.
- Where removal of coatings reveals further decay of timber, obtain instructions from CA before proceeding.

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.

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.

715 PROTECTION OF SURROUNDING SURFACES

At each stage of painting provide protection to existing floors and newly coated surfaces to prevent contamination from dust, dirt, other deleterious matters, and paint.
Protection will comprise, at least, on vertical surfaces of polythene sheet held by low tack masking tape and on horizontal surfaces, clean or new absorbent 'dustsheets'.
Old or dirty dustsheets will not be permitted and the decorator will be instructed to remove them from the site.
Where polythene protection is used on floors it must be covered with sheets of hardboard to ensure a safe non-slip working area. Loose dustsheets on polythene will not be accepted as an appropriate floor covering.

M60 DIA
Painting/ clear finishing

M60 DIA Painting/ clear finishing

140A MARBLING
Surface(s): As schedule ref. Skirtings within Gallery Room 03 and 04
Approved contractor: Works to be undertaken by a specialist contractor, with experience in the conservation and cleaning of marbling to timber surfaces.
Scope of work: Exact scope of work to be confirmed following trials onsite. Clean all surfaces as 400D. Touch up areas of missing decoration as 404D. Provide sample for CA approval prior to commenecement of work.

280D PROTECTION
Adequately protect internal and external surfaces, fixtures and fittings which are not to be coated, by covering with dust sheets, masking or other suitable materials.
Exhibit 'Wet paint' signs and provide barriers where necessary to protect other operatives and the general public, and to prevent damage to freshly applied coatings.

290D TESTING OF VISCOSITY ETC
The CA may, with discretion, take samples of materials from each manufacturing batch as follows:
- Unopened containers, or samples from previously unopened containers, for submission to manufacturer for comparison with manufacturer's own retained samples from the same batch.
- Unopened containers, or samples from previously unopened containers, as a control sample for assessment of samples taken from painters' kettles.
- From painters' kettles for submission with control sample to manufacturer and/or independent testing laboratory for comparative testing.

400D PREPARATION GENERALLY

To BS 6150:2006 unless otherwise specified or shown on drawings.
Materials used in preparation must be types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
Prevent or control exposure of operatives to dust, vapour and fumes exceeding occupational exposure standards set in the current Health and Safety Executive (HSE) document EH40.
Substrates must be sufficiently dry in depth to suit the coating to be applied.
Remove but do not wet efflorescence salts from surfaces. Repeat removal if efflorescence recurs.
Clean off dirt, grease and oil from surfaces. If contamination of surfaces/substrates has occurred, obtain instructions before proceeding.
Smooth surface irregularities. Fill joints, cracks, holes and other depressions with stoppers/fillers worked well in and finished off flush with surface.
Abrade to a smooth finish.
Apply oil based stoppers/fillers after priming. Apply water based stoppers/fillers before priming unless recommended otherwise by manufacturer. Patch prime water based stoppers/fillers when applied after priming.
Remove dust and particles from dry abrasive preparation of surfaces with vacuum cleaner.
Remove residues from wet preparation of surfaces by rinsing with clean water and wiping dry.
Ensure that doors, opening windows, etc., are 'eased' as necessary before coating. Prime any resulting bare areas.
Provide sufficient clean dust sheets and coverings to protect floors and all other surfaces.
Exhibit 'Wet Paint' signs and provide protective barriers as required.
Use only non-ferrous bristle brushes to clean surfaces.
Remove all dry dust by vacuum. Remove wet abrasion dust by washing with clean water.

404D PREPARATION FOR MARBLING

Wash previously painted areas to be marbled with water and mild detergent, and then rinse thoroughly with clean water.
Prime, undercoat, fill minor defects, rub smooth, apply second undercoat, first oil based gloss ground coat and second oil based gloss ground coat ready to receive marbling

P10
Sundry insulation/ proofing work

P10 Sundry insulation/ proofing work

To be read with Preliminaries/ General conditions

TYPES OF INSULATION

110 EAVES ROOF VENTILATORS FOR EXISTING ROOFS
- Manufacturer: Nicholson.
  - Product reference: Airtrack F10.
- Eaves free air space (minimum): As recommended in BRE Report 262.

140 INSULATION FITTED AT RAFTER LEVEL
- Manufacturer: Ty Mawr, www.lime.org.uk, 01874 611350.
  - Product reference: Thermafleece Welsh CosyWool or equal approved.
- Location: Between rafters.
- Material: Sheep's wool.
- Facing: Not required.
- Recycled content: Not applicable.
- Thickness: full fill to suit rafters.
- Installation requirements:
  - General: Insulation to be friction fitted between rafters with no gaps.
  - Joints: Butted, no gaps.
  - Fasteners: Used where necessary to retain insulation and/ or prevent slumping.
  - Vapour control facing (if specified): Fit insulation with facing on warm side. Staple overlap (if provided) to underside of rafters; tape joints between adjacent overlaps using vapour impermeable adhesive tape.
  - Air space above insulation: Not restricted.
  - Eaves ventilation: Unobstructed.

141 INSULATION FITTED ABOVE RAFTER LEVEL
- Manufacturer: Ty Mawr, www.lime.org.uk, 01874 611350.
  - Product reference: Schneider Top 180 insulated sarking board or equal approved.
- Location: above rafters.
- Material: wood fibre.
- Facing: anti-slip latex coating.
- Recycled content: Not applicable.
- Thickness: 35mm generally, 65mm to Roof 01.
- Installation requirements:
  - Joints: T&G, no gaps.
  - TOP 180 is to be laid on pressure and joint free. Even the smallest joints have to be closed with best wood underlays-adhesive sealant UDB or equal approved before installing the counter batten
  - Air space above insulation: Not restricted.
  - Eaves ventilation: Unobstructed.
    Accessories: Schneider UDB for sealing joints in Wood Fibre Sarking boards, TOPIX countersunk head screws or equal approved

310 VAPOUR CONTROL LAYER TO TIMBER STUDS where not already existing and accessible

- Manufacturer: Proclima.
  - Product reference: Intello Plus.
- Material: Polyethylene (PE) copolymer.
- Minimum vapour resistance: 35000 µ.
- Installation requirements:
  - Setting out: Joints minimized.
  - Method of fixing: galvanised staples that are at least 10mm wide and 8mm long to attach the membrane. Staple every 10 to 15cm and overlap lengths of membrane by least 10cm..
  - Joints: At supports only, lapped 150 mm minimum.
  - Openings: Membrane fixed to reveals.
  - Joints and edges: Sealed with double sided tape with vapour resistivity not less than the vapour control layer.
- Penetrations: Sealed.
- Other requirements: sealed at overlaps without strain or loading, using Tescon Vana or Tescon No 1 adhesive tape. sealing of joints to adjacent structural components with Tescon Vana and Tescon No 1, ORCON F joint adhesive is used at rough timber, rafters, purlins or other roof timbers. All applied following manufacturer's recommendation and guidance..

320 BREATHER MEMBRANE

- Manufacturer: Proclima.
  - Product reference: Solitex Plus.
- Installation requirements:
  - Setting out: Joints minimized. Membrane to form a continuous barrier to prevent water, snow and wind blown dust reaching the substrate.
  - Method of fixing: Use clout nails or galvanised staples that are at least 10mm wide and 8mm long to attach the membrane. Staple every 10 to 15cm. Overlap lengths of membrane by at least 10cm. A larger overlap is recommended on less steep roofs. .
  - Joints: Lapped 100 mm minimum horizontally and 150 mm minimum vertically.
  - Openings: Membrane fixed to reveals.
  - Bottom edges: Membrane lapped over flashings, sills, etc. to allow free drainage to the exterior.
- Penetrations: Sealed.

R10
Rainwater drainage systems

R10 Rainwater drainage systems

To be read with Preliminaries/ General conditions.

PRODUCTS

311 ALUMINIUM GUTTERS
- Standard: Agrément certified.
- Manufacturer: Alumasc Water Management Solutions.
  - Web: www.alumascwms.co.uk.
  - Email: info@alumascwms.co.uk. .
  - Product reference: EHR12 Aqualine 120 mm Half Round gutter. or equal approved.
- Profile: Half round.
- Type/ Thickness: Extruded, 1.6 mm thickness.
- Nominal size: 100 mm.
- Finish: Polyester powder coating.
- Colour: RAL 7015m Slate Grey.
- Brackets: EHR12/FB fascia brackets.
  - Fixings: Stainless steel screws.
    Size: manufactuer standard.
- Accessories: EHR12/RO30A standard running outlet at each end, 75 mm diameter; EHR12/SELHA left hand stop end; EHR12/SERHA right hand stop end.

370A ALUMINIUM PIPEWORK
- Manufacturer: Alumasc Water Management Solutions.
  - Web: www.alumascwms.co.uk.
  - Email: info@alumascwms.co.uk.
  - Product reference: CP30 Flushjoint 75 mm round pipework
- Colour/ finish: RAL 7015m Slate Grey.
- Pipes: Contractor's choice.
- Fittings:
  - Bends: Not required.
  - Branches: Not required.
  - Access pipe: Not required.
  - Offset (two part): Not required.
  - Shoe: CP30/SHA.
  - Pipe clips: RW2/237 standard pipe clip.

EXECUTION

600 PREPARATION
- Work to be completed before commencing work specified in this section:
  - Below ground drainage. Alternatively, make temporary arrangements for dispersal of rainwater without damage or disfigurement of the building fabric and surroundings.
  - Painting of surfaces which will be concealed or inaccessible.

605 INSTALLATION GENERALLY
- Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
- Plastics and galvanized steel pipes: Do not bend.
- Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
- Protection:
  - Fit purpose made temporary caps to prevent ingress of debris.
  - Fit access covers, cleaning eyes and blanking plates as the work proceeds.

610 FIXING AND JOINTING GUTTERS

- Joints: Watertight .
- Brackets: Securely fixed.
  - Fixings: Screwed into softwood fascia board .
    Fixing centres: to manufacturer's recommendation .
  - Additional brackets: Where necessary to maintain support and stability, provide at joints in gutters and near angles and outlets.
- Roofing underlay: Dressed into gutter.

615 SETTING OUT EAVES GUTTERS - TO FALLS

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

635 FIXING PIPEWORK

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

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.

COMPLETION

910 GUTTER TEST

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