

1. Outline Schedule of Work

To be read with the Outline Specification (included below) and drawings:

- EX900 South Chapel N, Existing and Removals
- GA400 South Chapel N, South Elevation
- RF100 South Chapel N, Roof Plan
- RF900 South Chapel N, Proposed Roof Form and Details

1.1. Preamble

- 1.1.1. The Quinquennial prescribes the need for the renewal of the side chapel roof coverings, which are in various states of decay having suffered significant underside lead corrosion. In the worst instances, the roof coverings have already failed and are currently patched in an attempt to make weather-tight. The others appear to be approaching this point.
- 1.1.2. This schedule pertains to the roof of side Chapel N which shows the most advanced deterioration and will be addressed first, forming a prototype repair. Tobit Curteis Associates have been consulted in the development of the proposals and will install environmental monitoring equipment to the roof spaces of Chapel N and the adjacent Chapel M to test the success of the intervention, before wholesale implementation across the remaining south side chapel roofs.

1.2. Scaffolding and Protections

- 1.2.1. Provide an exterior access scaffolding to complete works to the roof of South Chapel N, with a temporary sheet metal roof between the adjacent buttresses. This is to be a traditional tube and clamp system in accordance with all current safety legislation and designed by a qualified scaffolding designer; drawings to be submitted to the Chapel Architect and College Clerk of the Works before commencement. The base is to be surrounded with min 4m high hoarding and all ladders are to be removed and locked away at the end of each working day. Include for temporary extension/diversion of the clerestory downpipe.
- 1.2.2. Temporary Protections: Protect any part of the parapet over which tools or materials are to be transported, and also the glazing adjacent to and below the working area, against impact damage with 25mm sterling board. Remove on completion of the works.

1.3. Removals and Enabling Works

- 1.3.1. Detach lightning conductor from south west corner and earth for the duration of the works. On completion, re-attach to the new lead roof covering in accordance with current regulations.
- 1.3.2. Remove fixings for electrical cables running along the north abutment. Clip back to allow works to be undertaken then reinstate to original location on completion.
- 1.3.3. Carefully lift lead over cloak of passageway linings to either side, then take up existing lead roof covering, point ventilators (4no), parapet gutter lining and cover flashings from each abutment. Retain dated plaques and hand to the College CotW. Transport all remaining lead to foundry for recasting.

- 1.3.4. Take up and cart away modern batten rolls, sarking boards, sub-structure and associated fixings for the current roof form and parapet gutter. Clear debris any dust/debris from the roof void for inspection by the Architect.

1.4. Roof Structure and Boarding

- 1.4.1. Provide materials for and construct new tanalised timber roof over the original members, to the form shown in the drawing; dimensions to be confirmed following removals.
- 1.4.2. Provide materials for and construct new tanalised timber sub-structure for the parapet gutter, to the form shown in the drawing with min 1:80 continuous falls towards the outlet.
- 1.4.3. Provide and fix new 20 x 150mm tanalised timber, penny jointed boarding to form new sarking deck and gutter boarding. Nail heads to be well punched below the surface/screws to be counter-sunk and any sharp corners of external angles to be rounded off.

1.5. Ventilation

- 1.5.1. Top step: Provide and install Nicholson Specialist Trade Supplies: Airtrak EA100 Eaves Ventilator, or similar approved bespoke product, modified to suit roof pitch and cut around the rolls. To be fixed as per manufacturer's specification. Material; 0.7mm stainless steel, vinyl coated GRP insect mesh, to be clad with lead roof covering.
- 1.5.2. Eaves step: Provide and install Nicholson Specialist Trade Supplies: Airtrak EA150 Eaves Ventilator, or similar approved bespoke product, modified to suit roof pitch and fixed as per manufacturer's specification. Material; 0.7mm stainless steel, vinyl coated GRP insect mesh, to be clad with lead roof covering.
- 1.5.3. Additional ventilation requirements subject to environmental monitoring.

1.6. Roof Covering

- 1.6.1. Provide and install new solid core roll, 8lb sand-cast lead roof covering over new geotextile underlay, as described in the specification below, and incorporating continuous ventilation at each drip. Bay widths to be 665mm c/c, subject to setting out; max 3000mm between drips. Redress passageway linings over new leadwork on completion.

1.7. Parapet Gutter Lining

- 1.7.1. Provide and install new 8lb sand-cast lead gutter lining to the new form of the parapet gutter shown on the drawing and as described in the specification below. Sump lining to include 100mm dia. Outlet with spigot taken through the existing parapet opening, to discharge into the existing hopper below. Any welding to be undertaken off site, with the lead then dressed into position.

1.8. Abutments

- 1.8.1. To all four abutments, provide and install code 5 lead cover flashings, fixed into the bed joint over the stringcourse as per the existing detail; max sheet lengths of 1200mm with min 100mm lap between sheets.

2. Outline Specification

2.1. Lead Roofing

- 2.1.1. Structure/Substrate: New penny jointed sarking boards. All new boarding to be wrought; all boarding and timber members to be well-seasoned and preservative treated. Max moisture content of 19% before installation, and left to acclimatise on site for one week before fixing.
- 2.1.2. Underlay: 200-220g/sqmm needle punched nonwoven polyester geotextile.
- 2.1.3. Lead sheet: min 8lb sand-cast lead.
- 2.1.4. Apply chalk slurry coat to underside of all lead sheets and allow to dry before laying.
- 2.1.5. Joints in direction of fall: Properly shaped 45 x 45mm wood cored roll with a 25mm wide base. Undercloak to be taken well over the roll; overcloak to include 40mm splash lap. End caps are to be bossed; welding is not permissible.
- 2.1.6. Cross joints: Ventilated drips; each bespoke details.
- 2.1.7. Min. 75mm vertical upstand at each abutment. Lead upstand to be dressed around the stringcourse where applicable but min vertical upstand to be maintained.

2.2. Lead lining to Parapet Gutter

- 2.2.1. Underlay: 200-220g/sqmm Needle punched nonwoven polyester geotextile.
- 2.2.2. Lead sheet: min 8lb sand-cast lead.
- 2.2.3. Apply chalk slurry coat to underside of lead and allow to dry before laying.
- 2.2.4. Cross joints: Steps not less than 60mm in depth. The end of the undercloak shall be rebated into the boarding with a minimum 25mm lap, copper nailed at 50mm intervals.
- 2.2.5. Min. 75mm vertical upstand at each abutment.

2.3. Materials and Workmanship Generally

- 2.3.1. Lead production method:
 - 2.3.1.1. Rolled, to BS EN 12588.
 - 2.3.1.2. Machine cast: BBA certified.
- 2.3.2. Identification: Colour marked for thickness/ code, weight and type.
- 2.3.3. Workmanship standard: To BS 6915 and latest editions of 'Rolled lead sheet. The complete manual' published by the Lead Sheet Association.
- 2.3.4. Fabrication and fixing: To provide a secure, free draining and weathertight installation.
- 2.3.5. Marking out: Do not use scribes or other sharp instruments to mark out lead without approval.
- 2.3.6. Finished leadwork: Fully supported, adequately fixed to resist wind uplift but also able to accommodate thermal movement without distortion or stress.
- 2.3.7. Patination oil: Apply smear coating to all visible lead, evenly in one direction and in dry conditions.

2.4. Underlay

- 2.4.1. Handling: Prevent tears and punctures.
- 2.4.2. Laying: Butt or overlap jointed onto a dry substrate.
- 2.4.3. Fixing edges: With copper or stainless steel staples or clout nails.
- 2.4.4. Do not lay over roof edges.
- 2.4.5. Turn up at abutments.

- 2.4.6. Wood core rolls: Fixed over underlay.
- 2.4.7. Protection: Keep dry and cover with lead at the earliest opportunity.

2.5. Fixing Lead Sheet

- 2.5.1. Hot works, including welding/lead-burning are prohibited.
- 2.5.2. Top edge: Secured with two rows of fixings, 25 and 50 mm from edge.
- 2.5.3. Fixings to timber substrates: Copper clout nails to BS1202-2. Shank type: Annular ringed, helical threaded or serrated. Length: Not less than 20 mm or equal to substrate thickness.