Lead roof spec 7 Onslow Square

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Table of Contents

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>H Cladding/Covering</td>
<td>3</td>
</tr>
<tr>
<td>H71 Lead sheet coverings/ flashings</td>
<td>5</td>
</tr>
</tbody>
</table>
Cladding/Covering
H71
Lead sheet coverings/ flashings
H71 Lead sheet coverings/ flashings

TYPES OF LEADWORK

110 ROOFING To Main Crown
- Substrate: Plywood on rafters.
- Preparation: Not required.
- Underlay: Building paper to BS 1521, Class A.
- Type of lead: Rolled to BS EN 12588.
- Thickness: As recommended BS6915 and the Rolled Lead Sheet The Complete Manual by the LSA.
- Pretreatment: Apply thin coating of patination oil to underside of lead and allow to dry before laying.
- Joints in direction of fall: Wood cored rolls with splashlap.
- Spacing: Determined by Contractor in accordance with BS6915.
- Eaves detail: Leadwelded cap, with lapped apron.
- Cross joints: 150 mm laps with copper clips at centre of each bay.
- Spacing: Determined by Contractor in accordance with BS6915.
- Alignment: Half staggered and in line on alternate bays.
- Intermediate fixings: Brass cup and screw with die-cast lead dome.
- Ridge/ Hip detail: Ventilated capped roll.
- Accessories: Ventilators - one per bay just below roof ridge.

200 GUTTER LINING
- Substrate: Existing timber boarding with new marine plywood boarding and softwood where necessary to form ventilated gutter and box gutter.
- Preparation: Not required.
- Underlay: Building paper to BS 1521, Class A.
- Type of lead: Rolled to BS EN 12588.
- Thickness: As recommended BS6915 and the Rolled Lead Sheet The Complete Manual by the LSA.
- Pretreatment: Apply thin coating of patination oil to underside of lead and allow to dry before laying.
- Joints in direction of fall: Wood cored roll.
- Spacing: On centre line of gutter.
- Cross joints: Wood cored roll at gutter watershed.
- Spacing: As recommended BS6915 and the Rolled Lead Sheet The Complete Manual by the LSA.
- Outlets: Turn down 75 mm into fascia gutter.
235 VALLEY GUTTER LINING TO LEAD ROOFS
   • Underlay: Building paper to BS 1521, Class A.
   • Type of lead: As recommended BS6915 and the Rolled Lead Sheet The Complete Manual by the LSA.
     - Thickness: As recommended BS6915 and the Rolled Lead Sheet The Complete Manual by the LSA.
     - Pretreatment: Apply thin coating of patination oil to underside of lead and allow to dry before laying.
     - Laying: Dress lead sheet into shallow valley box gutter.
     - Gutter width: 150 mm.
     - Lengths: Not more than As recommended BS6915 and the Rolled Lead Sheet The Complete Manual by the LSA.
     - Cross joints: Lapped not less than As recommended BS6915 and the Rolled Lead Sheet The Complete Manual by the LSA.
     - Fixing: Nail top edge only of each sheet. Dress bottom end neatly into eaves gutter.
     • Roofing sheets: Dress over each side of gutter lining, forming laps of not less than 300 mm.

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 50 mm upstand.
     - Fixing: Nail each sheet at underlapping end.
   • Lead capping:
     - Thickness: As roof covering.
     - Lengths: Not more than 1500 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.

420 COVER FLASHINGSTo Abutments
   • Lead:
     - Thickness: As recommended BS6915 and the Rolled Lead Sheet The Complete Manual by the LSA.
     - 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.

454 SINGLE STEP FLASHINGSat side abutment
   • Lead:
     - Thickness: 2.00 or 2.24 mm (Code 5).
     - Dimensions:
       - Lengths: Not more than 1500 mm.
- End to end joints: Laps of not less than 50 mm.
- Cover: Overlap to lead roof upstand of not less than 65 mm.
  - Fixing: Lead wedges at every step.
VERTICAL TILING/ SLATING SIDE ABUTMENT STEP FLASHINGS

- Lead:
  - Thickness: 2.00 or 2.24 mm (Code 5).
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 100 mm.
  - Width: Adequate for not less than 75 mm underlap with welted edge to tiles/ slates and not less than 50 mm cover to abutment.

GENERAL REQUIREMENTS/ PREPARATORY WORK

WORKMANSHIP GENERALLY

- 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.

LEADWELDING

- In situ leadwelding: Not permitted.

LEAD SHEET

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

SUITABILITY OF SUBSTRATES

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

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%.
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.

NEEDLE PUNCHED NONWOVEN POLYESTER GEOTEXTILE
- Manufacturer: Contractor's choice.
- Product reference: N/A.
- Weight: 200 g/m².
- Recycled content: None permitted.

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

FIXING LEAD
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.

FIXINGS
- Nails to timber substrates: Copper clout nails to BS 1202-2, or stainless steel (austenitic) clout nails to BS 1202-1.
  - Shank type: Annular ringed, helical threaded or serrated.
  - Shank diameter: Not less than 2.65 mm for light duty or 3.35 mm for heavy duty.
  - Length: Not less than 20 mm or equal to substrate thickness.
- Screws to concrete or masonry substrates: Brass or stainless steel to BS 1210, tables 3 or 4.
  - Diameter: Not less than 3.35 mm.
  - Length: Not less than 19 mm.
  - Washers and plastic plugs: Compatible with screws and lead.
- Screws to composite metal decks: Self tapping as recommended by the deck and lead manufacturer/ supplier for clips.
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: 0.71 mm.
    Grade: BS EN 10088, 1.4301(304) terne coated if exposed to view.
- Dimensions:
  - Width: 50 mm where not continuous.
  - Length: To suit detail.
- Fixing clips: Secure each to substrate with either two screw or three nail fixings not more than 50 mm from edge of lead sheet. Use additional fixings where lead downstands exceed 75 mm.
  - Fixing lead sheet: Welt clips around edges and turn over 25 mm.

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

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.

WOOD CORED ROLL JOINTS WITHOUT 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 half way around core.
- Copper or stainless steel clips: Fix to core at not more than 450 mm centres. Do not restrict thermal movement of the undercloak.
- Overcloak: Dress around core with edge welted around ends of clips, finishing 5 mm clear of main surface.
847 HOLLOW ROLL JOINTS

- Joint allowance: 125 mm overcloak and 100 mm undercloak.
- Copper or stainless steel clips: Fix to substrate at not more than 450 mm centres.
- Overcloak: Welt with clips around undercloak to form a roll of consistent cross section.
860 DRIPS WITH SPLASH LAPS
- Underlap: Dress into rebate along top edge of drip.
  - Fixing: One row of nails at 50 mm centres on centre line of rebate.
- Overlap: Dress over drip and form a 40 mm splash lap.

862 DRIPS WITH SPLASH LAPS
- Underlap: Dress up full height of drip upstand.
  - Fixing: Two rows of nails to lower level substrate, 25 mm and 50 mm from face of drip. At 75 mm centres in each row, evenly spaced and staggered. Seal over nails with a soldered or leadwelded dot.
  - Overlap: Dress over drip and form a 75 mm splash lap.
    - Fixing: Lead clips, leadwelded to underlap, with not less than one per bay.

865 DRIPS WITHOUT SPLASH LAPS
- Underlap: Dress into rebate along top edge of drip.
  - Fixing: One row of nails at 50 mm centres on centre line of rebate.
- Overlap: Dress over drip to just short of lower level.

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

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