

**Schedule of Works
for
Proposed Re-roofing
at
The Lee, Walmersley Road,
Bury, BL9 5JA**



Prepared by:



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Introduction and General Description of the Works

General Description of the Work

The work involves the re-roofing of slated roof slopes at The Lee, 635 Walmersley Road, Bury, BL9 5JA – to eliminate any further water ingress and to protect the timber roof structure and fabric of the Listed Building for the long term future of the building.

The Scope of the work comprises:

- Removal of existing Welsh slates and replacing, where possible, with existing, including an allowance for makeup.
- Removal of existing timber battens.
- Inspection of all existing roof timbers, including renewal / treatment of any defective timbers
- Installation of breathable sarking felt with new counter battens and tiling battens.
- Renewal of lead flashings and soakers (these will be retained if in sound condition).
- Timber treatment to internal roof structure if any timbers exhibit any fungal or beetle infestation.

Conservation Clauses

The contractor's attention is drawn to the Conservation Clauses within the Appendix and particular attention to drawn to the following:

- Pointing
- Re-Roofing
- Leadwork

Services

Contractor is to be made aware that the existing services to the building will be live including any water supply pipework, gas, water and electricity. It is the contractor's responsibility to ensure that all work carried out is done so in a safe manner and that where necessary disconnected appropriately and ready for reconnection as required.

Asbestos

Given the age of the building it is unlikely that any asbestos containing materials are present. That said the contractor must be vigilant and if asbestos is suspected this must be drawn to attention of the CA.

General

All workmanship and materials are to comply with relevant Building Regulations, British Standards, and Codes of Practice requirements. All materials are to be fixed, applied or mixed in accordance with manufacturer's instructions and specifications. All dimensions are to be checked on site prior to construction.

Prelims

The Contractor is to allow for the completion of the entire works as described, inc disposal of all waste materials. The contractor will be able to use the house for welfare facilities, power and water will be

available. The contractor will be required to leave the house in the condition as found upon occupation i.e. in a neat and tidy condition.

Scaffold

The contractor is to allow for appropriate scaffolding for the duration of the works and is to include for the following:

1. Lower section of scaffold / scaffold supports to provide soft protection where access by public is possible.
2. Scaffold to be alarmed.

Extent of Work / Preliminaries

The Contractor is to allow for the undertaking of all works as described, including provision of labour and materials, safe removal of waste, protection of site and welfare for employees.

1. Programme - The Contractor is to put forward a Programme showing how the required works will be managed over a 4 week period.
2. Commencement Date - TBA
3. Completion Date - TBA
4. Payments – As agreed, including milestone payments.
5. Insurances – Public Liability £5m, to be maintained
6. Insurances – Employers liability £5m, to be maintained

CDM

The Project is not notifiable (due to short duration of the works) however, the CDM Regulations 2015 apply to these works and the Contractor is asked to conform to the normal requirements of CDM ensuring information for compilation in the Health and Safety File.

Site Visit

Can be made by arrangement with Equilibrium Architects on 0161 797 2077.

	SCHEDULE OF WORKS	£
A	WORK TO MAIN ROOF	
	Note: Whilst this specification allows for new leadwork it is the intention to examine the existing leadwork including soakers and cover flashings and the leadwork to the abutment gutter. If the lead is found to be sound it will be retained.	
Item	Carefully remove existing Welsh slates, to the entire roof slopes / areas, and allow for make up where required and include for the following: tanalised timber battens to match existing, fixed on tanalised counter battens, provision of Procter Air, Breathable sarking felt laid over the existing timber boarding and in accordance with manufacturer's recommendations. Slates and battens to be fixed using copper clout nails, with counter battens to be nailed into rafters only and allow tilting fillet at eaves. Allow for all necessary verge pointing, re-bedding of existing coping stone verges, existing hip and ridge tiles, allowing for makeup where required. Allow for replacement of any missing / defective lead soakers and flashings to chimneys and abutments (cover flashings included elsewhere).	
Item	Abutment gutter. The contractor is check the condition of the existing leadwork to the abutment gutter and if required, replace with new in Code 5 lead with all details in strict accordance with the LSA manual.	
Item	Stone Verge Copings. The contractor is to allow for the carefully removal of the existing stone copings and for re-bedding using a lime based mortar, including any required repointing and lead cover flashings. Mortar specification to be cement lime based mortar NHL 5.	
B	WORK TO CHIMNEYS	
Item	Carefully rake out any loose pointing to existing chimney stacks and repoint using a lime based mortar. Contractor to check condition of all existing chimney pots and flaunching to top of stacks and make good / replace as necessary.	
C	RAINWATER GOODS	
Item	Carefully check and overall all existing rainwater goods and repair as appropriate.	
	Provisional Sums	
	Unforeseen structural work	£1,000.00
	Timber Treatment	£1,000.00
	Contingency	£2,000.00
	Carried forward	

COLLECTION PAGE

<i>Preliminaries</i>	<i>£</i>
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<i>Schedule of Works</i>	<i>£</i>
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<i>TOTAL TO FORM OF TENDER:</i>	<i>£</i>
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Appendix

Pointing of Coursed Stone and Rubble Walling

The contractors attention is drawn to the following:

English Heritage (2012). "Practical Building Conservation" "Stone". Attention drawn to pages 174 – 184 – "Pointing".

1. Areas of re-pointing to be agreed with the CA prior to commencement.
2. A sample panel will be required to the satisfaction of the CA.
3. Carefully rake out all joints to a min of 35mm using an appropriate hooked knife or similar.
4. The contractor's attention is drawn to the potential of damage that can easily occur through careless workmanship, inappropriate tools or lack of preparation.
5. Joints are to be thoroughly flushed out using pure water.
6. Mortar specification. The mortar is to be a lime based mortar as per NHL 3.5.
7. The aim is to achieve a consistent finish and a joint which is marginally set back from the face of the stone to ensure individual adjacent stones are free from mortar blemishes.
8. Mortar is to be compressed within the joint with an appropriate pointing bar but the joint to be a brushed finish.
9. Ensure protection of the work.
10. Clean down all areas upon completion (water only).

Roofing

1. Where roofs are being recovered the contractor is to ensure that the property is fully protected to ensure complete protection to the internal fabric.
2. Carefully remove existing Welsh slates and set aside sound slates for re-use.
3. Existing lead flashings are to be inspected prior to removal and will be retained if their condition allows.
4. The contractor is to put forward a detailed programme identifying the sequence of work and this is to be agreed with the CA and owner of the property prior to commencement. The contractor will be fully responsible.
5. Following removal of the roof covering the existing structure is to be inspected by the CA and may well require inspection by the Structural Engineer. This will be carried out as expeditiously as possible and no later than 48 hours from request.
6. All salvaged material for re-use should be cleaned and stored in an appropriate and safe manner.
7. Underlays are to comply with BS5534 and to be of a high quality breathable type (i.e. Protector Roofshield / Air or other similar approved). Roofing felt should be laid in strict accordance with manufacturer's instructions and the contractor is to incorporate a timber / PVC tilting fillet at eaves level where appropriate.
8. Should repairs to the existing roof be required replacement timbers will be required to match the existing sections, all timber will be treated in accordance with the current British Standard.
9. Battens for natural slates are 50 x 35mm treated timber.

10. All battens to be free from knots and decay and set out at 90degrees to direction of water runoff. All counter battens to be fully supported and joints centred over the rafters.
11. Leadwork. All leadwork to be carried out in accordance with the Lead Sheet Association, Unit 10 Archers Park, Branbridges Road, East Peckham, Tonbridge, Kent, TN12 5HP, T: 01622 872432, F: 01622 871649. The contractors attention is to drawn to standard and common details
12. The work should be carried out in accordance with BS5534 Code of Practice for Slating and tiling.
13. All slates to be sorted prior to holing and fixing and ensure a consistent thickness on every course. Verges should be constructed to match the existing and point up in 1:1:6 mortar.
14. Ridge tiles are to be cleaned and where necessary should be replaced with tiles to match. Fill ends of ridges appropriately.
15. Natural slates are to be fixed with nails to comply with BS 1202 Part 2 and 3.

Leadwork

The advisory service is based at the LSA's Technical Office in Kent, and is there to provide technical guidance and assistance to help others obtain the best performance from BSEN 12588 rolled lead sheet. Technical officers are there to be consulted and offer independent advice and guidance, based on many years of experience, which has been developed through on-site investigations and research, into the performance of an outstanding long enduring roofing and weathering material. The following clauses will be of particular value to Architects and Surveyors.

MA - Materials and Accessories

- **M1 Type and thickness of Lead Sheet**

Lead sheet shall comply with the requirements of BS EN 12588 for lead and lead alloys-Rolled lead sheet for building purposes.

- **MA 1 Clips**

The free edge of the lead flashing must always be 'adequately clipped' to prevent lifting and distortion in high wind conditions, Adequate clipping will depend on the location, orientation and exposure of the building and these, in turn will determine the material used for the clips, their spacing and, most important, the method of fixing. Clips should be spaced at between 300 and 500mm centres depending on exposure. For sheltered exposures clips fixed at the top with a clip at each lap joint and at about 500mm centres will be adequate. However in more exposed situations, this method will not prevent wind lift in storm conditions and additional restraint will be needed. The important principle: 'the lower the fixing the stronger the clips' is. Therefore, although the spacing and the material used are important, the method of fixing is an essential factor to be considered if the clips are to provide effective resistance to wind lift in storm conditions.

Clips should be of copper, tinned copper, stainless steel or lead.

- **MA. 1.1 Copper clips**

Copper or tinned copper clips should be not less than 50mm wide and cut from copper sheet of not less than 0.60mm thickness, conforming to BS EN 1172. Soft temper in welts, seams and rolls and of ¼ H temper elsewhere.

- **MA.1.2 Stainless steel clips**

Stainless steel clips should be cut from 50mm wide fully annealed stainless steel strip of not less than 0.375-mm thickness. The strip should conform to BS EN 10088. It may beterne coated if exposed to view. For high exposure situations a thicker sheet (0.46 stainless steel) should be used.

- **MA. 1.3 Lead clips**
Lead is only suitable for clips in sheltered locations. The thickness of the sheet used should not be less than the thickness of the flashing.
Lead clips should be not less than 50mm wide and not less than the thickness of lead sheet used for roofing and cladding work
- **MA 2 Nails**
 - **MA 2.1 Nails and sizes**
Generally nails should be of copper or stainless steel and should be clout nails conforming to BS 1202-1 and -2. The shanks should be annular ring, helical ring or serrated. Nails should also be not less than 20mm long. For heavy-duty fixings they should be not less than 3.35mm diameter and for light duty they should be not less than 2.65mm diameter, the nail head being approximately three times the shank diameter.
 - **MA 2.2 Stainless steel nails**
Stainless steel nails should be of austenitic stainless steel, excluding free machining grades.
- **MA 3 Screws**
Screws should be brass or stainless steel conforming to BS 1210 and not less than 20mm long.
- **MA 4 Underlays**
The type of underlay selected for use with lead sheet should:
 - Allow for thermal movement by reducing the amount of drag between the substrate and the lead sheet;
 - Help protect the lead sheet by providing a barrier against corrosive attack from stone, concrete or discharge from timber and roof condensation;
 - Provide an even surface and level out any imperfections such as nail heads, board edges and knots which could damage the lead;
 - Fully support the lead sheet so that it cannot sag or be punctured;
 - Provide a sound reducing layer in periods of heavy rain;
 - Reduce the risk of moisture being trapped between the lead and the substrate;
 - Be free of any substances, which could be deleterious to the lead sheet.
 - Typical underlays that could be considered are:
 - Class A building paper conforming to the requirements of BS1521.
 - Non-woven needle punched polyester geotextile that has a weight of not less than 210/mm2 (+ or -5%)
- **MA 5 Solder**
Solder should conform to BS EN 29453.
(Generally solder is only used for soldered dots or where lead welding or bossing is impracticable.)
- **MA 6 Patination of external leadwork.**
In rainy or damp conditions new lead sheet flashings will produce an initial, uneven white carbonate on the surface. This can be aesthetically unacceptable in some situations but, more importantly, the white carbonate can be washed off by rain to cause unsightly staining on materials below flashings. To reduce staining and also provide a pleasing appearance, lead sheet should be treated as soon as practical after fixing and preferably the oil should be applied no later than the end of the day's work. It is important to apply a coating under the lower edge of leadwork and between the laps. Clips along the edges of flashings should be turned over after application of the treatment.
There are two types of treatment, solvent based and water based. Whatever type is used, to obtain the best results it is important to follow the manufacturers' instructions.

- FR1. Wood cored rolls are suitable for flat roofing, pitched roofing and vertical cladding and are positioned in the direction of the fall except at ridges, hip intersections and high points in gutter linings. Wood rolls are acceptable for use where there is likely to be foot traffic. Typical specification clauses may be written as follows:
 - FR1.1. Joints running with the fall to be wood cored rolls and the overcloak detailed with a 40mm splash lap. Rolls to be positioned inline and spaced at 675mm.centres for code 6.
OR
 - FR 1.2. Joints running with the fall to be wood cored rolls and the overcloak detailed with a 40mm splash lap. Rolls to be staggered and spaced at 675mm.centres for code 6.

OR
 - FR 1.3. Joints running with the fall to be wood cored rolls and the overcloak detailed with a 25mm return welt and clipped within the welted edge with 50mm wide copper clips at 450mm centres. Rolls to be staggered and spaced at 675mm. centres for code 6.

OR
 - FR 1.4. Joints running with the fall to be wood cored rolls and the overcloak detailed without a splash lap. With the free edge terminated between 3-5mm above the roofline
Rolls to be staggered and spaced at 675mm centres for code 7 / 8 (Codes 7 & 8 only)
- FR 2. Drips are used across the fall for roofs at minimal fall of 1 in 80 and up to 10 degrees. They are also used in lead lined box, parapet and centre valley gutters. The minimum height for drips is 50mm, 55mm for drips in conjunction with rolls using codes 4, 5 and 6; and 60mm for codes 7 and 8.
A typical clause would be:
 - FR 2.1. Joints across the fall to be drips 60mm in height with the underlap dressed into a 25mm minimum wide rebate and secured with a single row of nails at 50mm centres.
Form overlap to provide a 40mm splash lap.
 - FR 2.2. Flat Roofs with a gradient of between 30 and 100 will require extra fixings on the flat area immediately in front of the drip. A typical clause would be:
 - Joints across the fall to be drips 60mm in height with the underlap dressed to the full height of the drip upstand. The head of the bay abutting the drip to be secured with two rows of nails. The rows to be 25mm and 50mm from the face of the upstand with the nails spaced at 75mm centres in a staggered pattern. The heads of the nails to be sealed by soldering or lead welding to ensure the fixings will be watertight. The overlap from the upper bay to be formed with a 75 mm splash lap, and secured with lead clips lead welded to the under lying sheet, in accordance with LSA details.

G1. Gutters linings.

Lead-lined gutters are used where a lead-covered flat roof, or a tiled or slated roof, is designed with a parapet wall. They are also used where a flat or pitched roof abuts a vertical wall, where two pitched roofs are joined by a horizontal valley gutter, and between adjacent areas of lead roofing. To allow for thermal movement, lead gutter linings must always be divided into separate pieces (bays).

The size of a piece of gutter lining will depend on the thickness of lead sheet used. Table 7 shows the maximum length and girth for the five codes of lead sheet normally used for lining both box and tapered gutters.

Although Code 4 is the minimum thickness for gutter linings, its use is recommended only for very short gutters, because the maximum drip spacing of 1.5m is usually uneconomical when compared to using Code 5 with drips at 2m centres.

To accommodate thermal movement, drips are used across the fall for both box and tapered gutter linings

Gutter linings:

- G1.1. Lead lined parapet gutters.
- G1.2. The width of the box gutter shall be not less than 225mm. The gutter lining shall be formed in Code 6 lead sheet divided into bays in lengths not exceeding 2mm with drips not less than 50mm deep. (Refer to the chart in section 2/6 for codes, thicknesses and maximum sizes.) Where the girth of the gutter exceeds the maximum recommended, one or more wood cored rolls will be required to divide the gutter.

F1 Abutment Flashings

Clauses for flashings:

- F 1. Apron flashings at lean-to abutments in code 5 in lengths not exceeding 1500mm with end to end lap joints of not less than 100mm. Upstand to the abutment not less than 75mm and with a lap of 150mm over the pitched roof covering. The 25mm turn in to the masonry joint to be lead wedged at laps and at 450mm centres, prior to pointing. The free edge of the flashing to be clipped with stainless clips spaced in accordance with LSA details.
- F 2. Step flashings in code 5 in lengths not exceeding 1500mm with end-to-end lap joints of not less than 100mm. The 25mm turn in to each step to be lead wedged prior to pointing.
- F3. Soakers. Soakers shall be formed from code 3 lead sheet with a minimum upstand at the abutment of 75mm and a lap of not less than 100mm over the tiles or slates. The length of the soaker to be equal to the gauge plus lap plus 25mm.
- F4. Single step flashings. Individual step flashings to be cut from code 5 with a minimum-passing lap of 50mm between each single step, covering over the upstand of soakers or cover flashing by not less than 65mm. Each step to be turned into the brick joints by 25mm and secured with lead wedges on every course. The width and length of the steps to be calculated on site to suit the pitch of the roof and type of brick or stonework encountered.
- F5. Step and cover flashings in code 5 in lengths not exceeding 1500mm with a passing lap of not less than 150mm between each section. Each step to be turned into the brick joints by 25mm and secured with lead wedges on every course. The free edge of the flashing to be clipped with stainless steel clips spaced at centres in accordance with LSA requirements.
- F6. Secret gutters in code 6 in lengths not exceeding 1500mm with a passing lap of not less than 150mm between each section. The top end of each piece should be secured with two rows of clout nails.
- F7. Cover flashing to upstands on flat and pitched roofing membranes in code 5 in lengths not exceeding 1500 mm with end-to-end lap joints of not less than 100mm. With a cover over the upstand of the roofing material of not less than 75mm. The 25mm turn in to the masonry joint to be lead wedged at laps and at 450mm centres, prior to pointing. The free edge of the flashing to be clipped in accordance with LSA requirements.
- F8. Pitched valley gutters shall be in code 5 installed in lengths not exceeding 1500mm with the head of each piece secured with two rows of stainless steel clout nails. (Insert thickness of lead and whether copper or stainless steel is to be used See spec on clips) The overlap between each

lining piece shall be in accordance with LSA requirements. (See lap diagram to determine lap length to suit the pitch of the valley)

NBS

02 ROOFING

- Underlay: Building paper.
- Lead:
 - Thickness: Code 6.
- Joints in direction of fall: 1.5m.

10 GUTTER LININGS

- Underlay: Waterproof building paper to BS 1521, class A.
- Lead:
 - Thickness: Code 6.

15 VALLEY LININGS

- Underlay: Waterproof building paper to BS 1521, class A.
- Lead:
 - Thickness: 1.75–2.00 mm (Code 4).
- Laying: Over and beyond tilting fillets. In lengths not more than 1500 mm.
- Cross joints: Lapped not less than 150mm.
- Fixing: Welt edges. Nail top edge of each sheet. Dress bottom edge neatly into gutter.

25 RIDGE/ HIP ROLLS TO LEAD ROOFS

- Core: Rounded timber.
- Size: 70 x 45 mm tapering to a flat base 30 mm wide.
- Fixing: To ridge/ hip board with brass or stainless steel screws at 600 mm centres.
- Roof covering: Dress roofing sheets up roll.
- Capping: Lead of the same thickness as the roof, in lengths not more than roof sheet lengths. Wings to 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 copper or stainless steel clips at roofing bay centres and laps.

30 APRON FLASHINGS

- Lead:
 - Thickness: 1.75–2.00 mm (Code 4).
- Dimensions:
 - Lengths: Not more than 1500 mm.
 - End to end joints: Laps not less than 100 mm.
 - Upstand not less than 75 mm.
 - Cover to abutment: Not less than 150mm
- Fixing:
 - Top edge: Lead wedges into bed joint.

35 COVER FLASHINGS

- Lead:
 - Thickness: 1.75–2.00 mm (Code 4).
- Dimensions:
 - Lengths: Not more than 1500 mm.

- End to end joints: Laps of not less than 100 mm.
- Cover: Overlap to upstand not less than 75 mm.
- Fixing:
 - Top edge: Lead wedges into bed joint.
 - Bottom edge: Clips.

41 SOAKERS AND STEP FLASHINGS

- Lead soakers:
 - Lead:
Thickness: 1.25–1.50 mm (Code 3).
 - Dimensions:
Length: Slate/ tile gauge + lap + 25 mm.
Upstand: Not less than 75 mm.
Underlap: Not less than 100 mm.
- Lead step flashings:
 - Lead:
Thickness: 1.75–2.00 mm (Code 4).
 - Dimensions:
Lengths: Not more than 1200mm.
End to end joints: Laps not less than 100 mm.
Cover: Overlap to soaker upstands of not less than 65 mm.
- Fixing: Lead wedges at every course.

45 STEP AND COVER FLASHINGS

- Lead: Thickness: 1.75–2.00 mm (Code 4).
- Dimensions:
 - Lengths: Not more than 1500 mm.
 - End to end joints: Laps not less than 100 mm.
 - Upstand: Not less than 85 mm.
 - Cover to roof: Not less than 150 mm.
- Fixing:
 - Top edge: Lead wedges at every course.
 - Bottom edge: Clips.

52 CHIMNEY FLASHINGS

- Lead: Thickness: 1.75–2.00 mm (Code 4).
- Front apron:
 - Dimensions:
Length: Width of chimney plus not less than 150 mm underlap to each side flashing.
Upstand: Not less than 75 mm.
- Fixing: Lead wedges into bed joint.
- Back gutter:
 - Dimensions:
Length: Width of chimney plus not less than 100 mm overlap to each side flashing.
Upstand: Not less than 100 mm.
Gutter Sole: Not less than 150 mm.
Cover up roof: Not less than 225 mm.
- Back gutter cover flashing:
 - Dimensions:
Length: Width of chimney plus not less than 100 mm overlap to each side flashing.
Cover: Overlap to back gutter upstand not less than 75 mm.

- Fixing: Lead wedges into bed joint.

60 MATERIALS AND WORKMANSHIP GENERALLY

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

62 LEADWELDING

- In situ leadwelding: Not permitted.

75 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 covering. Give notice if greater than 16%.
- Preservative treatment: Organic solvent as section Z12 and BWPDA Commodity Specification C8.

76 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.
- Turn up at abutments.
- Wood core rolls: Fixed over underlay.
- Protection: Keep dry and cover with lead at the earliest opportunity.

78 FIXING LEAD SHEET

- Top edge: Secured with two rows of fixings, 25 and 50 mm from edge.
- 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.
Length: Not less than 20 mm or equal to substrate thickness.
 - Screws to concrete or masonry substrates: Brass or stainless steel to BS 1210.
Diameter: Not less than 3.35 mm.
Length: Not less than 19 mm.
Washers and plastics plugs: Compatible with screws.

80 CLIPS

- Material:
 - Lead clips: Cut from sheets of the same thickness/ code as sheet being secured.
 - Copper clips: Cut from 0.70 mm thick sheet to BS EN 1172, temper R220 (soft) or R240 (half hard) depending on position, dipped in solder if exposed to view.
 - Stainless steel: Cut from 0.38 mm sheet to BS EN 10088, grade 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.

83 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.

85 WEDGE FIXING INTO DAMP PROOF COURSE JOINTS

- Joint: Rake/ cut out under damp proof course to a depth of not less than 25 mm.
- Lead: Dress into joint.
 - 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.

92 WOOD CORED ROLL JOINTS WITH SPLASH LAP

- Core: Timber.
 - Size: 45 x 45 mm round tapering to a flat base 25 mm wide.
 - Fixing to substrate: Brass or stainless steel screws at 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.

94 DRIPS WITH SPLASH LAPS

- Underlap: Dress into rebate along top edge of drip.
- Fixing: One row of nails on centre line of rebate.
- Overlap: Dress over drip and form a 40 mm splash lap.

96 DRIPS WITH SPLASH LAPS

- Underlap: Dress up full height of drip upstand.
 - Fixing: Two rows of nails to lower level substrate. 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 at bay centres.

98 WELTED JOINTS

- Joint allowance: 50 mm overlap, 25 mm underlap.

- Copper or stainless steel clips: Fix to substrate at 450 mm centres.
- Overlap: Welt around underlap and clips and lightly dress down.