

British Lead

SUPERIOR LEAD PRODUCTS

Everything else is temporary

CONTENTS

- 4 Recycling
- 5 Sustainability
- 6 Patination Oil
- 7 Lead-Cote
- 8 Hall Clips
- 9 Lead Pointing Sealant
- 10 Standard Lead Slate
- 11 Quickslate and Unislate
- 12 Underlays
- 13 Wood Roll
- 14 T-Pren Expansion Joints
- 15 Lead Fixings
- 16 Health & Safety Storage and Handling,
- 18 Sizing Charts
- 19 Weight Chart
- 20 Basic Fitting Details



British Standard Rolled Lead Sheet provides a lasting protection for a wide range of roofing applications.

It is the professional's choice for flashings, valley gutters, porches and dormers on residential property and can be the focal point for both traditional and contemporary buildings.

At BLM we are proud of our reputation for producing quality Lead Sheet - all manufactured to BS EN 12588 which ensures thickness consistency. It is this consistency that gives architects, contractors and homeowner's confidence in the products we produce.

Being part of the world's largest Lead recycling group ensures the raw material used to produce our Lead is just that -100% recycled - making it one of the most sustainable products in the building industry.

Our manufacturing site at Welwyn Garden City, which started production in 1932, is both the home of the oldest working Lead rolling mill in the UK and one of the most advanced. Continued investment in the latest technology means that, like the product itself, tradition sits side by side with the future.

A depot network and in-house transport ensures complete UK coverage.

As well as producing Lead to BS EN 12588, BLM also hold ISO9001 for quality standard and ISO14001 environmental accreditation.



RECYCLING



The ability to recycle Lead makes it one of the most sustainable products in the building industry. Lead has been used extensively as a building material for centuries and in more recent times as a key component in vehicle batteries. It is from these two industries that we source our reclaimed ray material.

Scrap Lead is supplied via reputable scrap merchants to BLM, where it is recycled in a metal refinery to form new products using a technically advanced process, this ensures 100% recycled material is available 100% of the time.

Additionally, BLM's sister company HJ Enthoven, based in Darley Dale on the edge of the Peak District National Park, is involved with the recycling of vehicle batteries to reclaim the Lead and other constituent parts.

Both BLM & HJ Enthoven are members of the Eco Bat Technologies group, the world's largest recyclers of Lead



Operated by HJ Enthoven and Sons, Europe's largest Lead recycling facility in the heart of the Derbyshire Dales is the key to BLM's strategy to producing a fully recycled range of Lead products.

SUSTAINABILITY

The World's Greenest Building Material?

It is one of the oldest and most durable building materials and continues to perform in buildings that are over 500 years old.

All of BLM's Rolled Lead Sheet has had at least one previous life

Green Credentials

Reclamation uses little energy and as a result there is an efficient recovery network in the UK that ensures over 95% of Lead is recycled.

Compared with its short-lived substitutes and their significant effect on global warming both in production and disposal, specifying Rolled Lead Sheet is the environmentally friendly option.



- 1. Over 95% of Lead is reclaimed.
- 2.100% performance of reclaimed product.
- 3. Energy efficient recycling is environmentally friendly.
- 4. Fit and forget its' appearance improves over time.
- 5. Outlasts petro-chemical substitutes many times over.

You won't find Lead in landfill



The Lifetime of Lead.

PATINATION OIL

HINTS

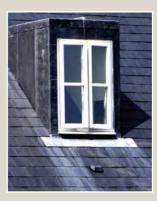
- Apply with a clean soft cloth as soon as possible after fixing and before the Lead gets wet.
- Work horizontally from top to bottom in straight lines not in circles.
- Remember to apply to the underside of leading edges to a depth of 50mm.
- Patination Oil or Lead-Cote should be used to coat Lead Slates and Lead Dots.
- Patination Oil should be applied in a well ventilated area, away from naked flames.
- In damp conditions, dry off the Lead thoroughly before application.





Developed specifically for the Lead Sheet industry. Patination Oil helps prevent white carbonate staining that can occur on newly fitted Lead from running onto adjacent materials and provides a pleasing finish to new Leadwork.

- Available in 2.5 litres, 1.0 litre, and 0.5 litre cans.
- One litre covers approximately 60 square metres.
- Recommended by the Lead Sheet Association.



Carbonate staining when Patination Oil is not used.

LEAD-COTE

The solvent free alternative to prevent carbonate staining on adjacent materials and new Lead work.

- Lead-Cote should be used in exactly the same way as Patination Oil and it performs to the same standards.
- There is no fire or fume risk and Lead-Cote will not harm adjacent bitumen based materials.





Spray on to a cloth.



Wipe on to Lead.

MANDY HINTS

- Lead-Cote can be applied in damp conditions or even well after the Lead is fitted.
- Lead-Cote doesn't need to be shaken before use and will remain useable for months after opening.
- For best results apply two coats.
- Spray gun eliminates spillage.
- Ideal for use around Quickslates and conservatories.



HALL CLIPS

HINTS

- When you use Hall Clips to fix flashings you can dress them before pointing them in.
- Insert Hall Clips with 'H' uppermost.
- Fixes up to 20 linear metres of flashing.
- When fitting step flashing ensure that at least one clip is fitted per step.
- Hall Clips combined with BLM Lead Pointing Sealant makes fitting Lead Flashing quicker.

Designed to make fixing Lead into masonry joints quicker and easier. Hall Clips are high tensile 'v' shaped stainless steel clips.

Hall Clips are up to 20 times faster than making and inserting Lead wedges in step flashing joints of 6-18mm.

The Hall Clip grips Lead firmly in place in seconds, so it can be dressed more easily before finally being pointed in.

Hall Clips are available in packs of 50, easily carried in a tool box or pocket making them the convenient, fast and effective solution to installing step flashings.





Hall Clips give a professional finish to step flashing in a fraction of the time.



Insert clip with 'H' uppermost for best results.



Easily secured with screwdriver or similar tool.



Point with BLM Lead Pointing Sealant for a clean finish.



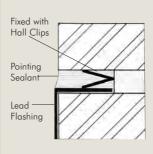
LEAD POINTING SEALANT



- Gives a permanent, flexible, waterproof joint that can withstand the different rates of thermal movement of Lead and masonry during temperature changes.
- Coloured grey to blend in with the Lead work, no mixing required.
- Faster and easier to use than mortar, with a high adhesion to Lead and masonry. For use in joints with or without damp-proof courses.
- The average tack free time is approximately 30 minutes dependant on ambient temperature.



Easy to apply.



HINTS

- Ensure the joint is dry and free from debris and dust before applying sealant.
- Lead Flashings being pointed into joints over 18mm wide should be fixed using a stainless steel screw and washer at 450mm centres where the Lead is turned up the back of the chase.
- The nozzle on the sealant tube can be cut to suit the width of the joint to be filled. Be careful not to cut it too wide at first!
- Acid cure sealants can damage and stain Lead work.

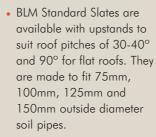


STANDARD LEAD SLATE

HINTS

- Always apply a coat of Patination Oil or Lead-Cote to all surfaces including the underside of leading edges (see page 6).
- Plastic pipes should have a solvent-welded collar to provide a weathering over the pipe.
 Cast iron pipes should have the top of the slate dressed into the top of the upstand.
- A welt should be formed on the upper edge of the base before the tiles are fitted.

BLM Standard Lead Slates are used wherever a pipe penetrates a roof covering to provide a weathertight joint. They can be used tiled, asphalt, felt and slate roofs.



 Craftsman made from welded BS EN 12588 Code 4 Rolled Lead Sheet.

- Base size: 450mm x 450mm and minimum upstand height 150mm.
- Non-standard sizes can be supplied to Special Order to suit different diameters and pitches.
- Conforms to Lead Sheet Association guidelines.



Saves you welding.



Craftsman made



Lasts a lifetime



QUICKSLATE AND UNISLATE



Quickslate

The BLM Quickslate is manufactured from British Standard Code 4 Lead Sheet, but has a neoprene upstand that can be cut to suit most pipe diameters up to 125mm.

- Two roof pitches are available, 0-20° and 20-40°
- Withstands temperatures of 100° c and up to 120° c intermittently ensuring suitability for gas flues.



Cut to suit pipe.



Easy to fit.



Unislate

A conical slate that suits roof pitches between 20-40° and between 100mm and 125mm outside diameter soil pipe.

- Base size is 550mm x 480mm and minimum upstand of 150mm.
- May be fitted in place with roof tiles before a pipe is installed.



Easy to dress.

MANDY HINTS

- Always cut the aperture in the neoprene slightly smaller than the required diameter to ensure a weathertight fit.
- It is best not to use Patination Oil on Quickslates The neoprene could be damaged if it comes into contact with Patination Oil
- Use a water based lubricant or silicone grease to lubricate the neck of the rubber sleeve of the Quickslate prior to fitting.
- Unislate's larger base is particularly effective in providing a weathering for profiled tiles.



HINTS

- When fixing Underlay avoid using nails. Use staples on a timber substrate.
- Underlays should be laid across the fall of a roof.
- Avoid forming joints above Underlay.
 Close proximity of a flame may cause damage.
- When joining adjacent sheets, overlap the material. Use a sharp knife or shears to cut the Underlay.
- Wood Rolls should be fitted over the Underlay.

Technical Data Sheets Available BLM Standard Underlay and grade A1F Building Paper conform to Lead Sheet Association recommendations and if laid correctly will protect the Lead from imperfections in the roof decking and allows the underside of the lead some breathing space.

Standard Underlay

- Sold in rolls of 25m x 1.0m.
- Manufactured from non-woven polyester, to 220g/m²
- All Lead Sheet over 600mm wide should have underlay fitted.
- BLM Standard underlay will not rot or become adhesive in hot weather.



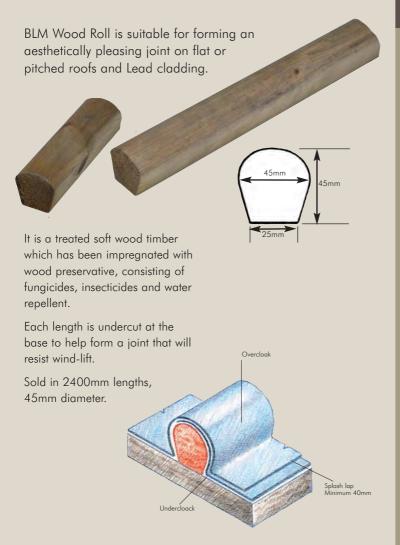


Building Paper

A traditional, reinforced bitumen-bonded building paper laminate manufactured with wet strength Kraft paper conforming to BS1521 Class A.

- Sold in rolls of 25m x 1.0m.
- Must be fitted over the whole substrate area.
- Ideal for use on plywood substrates.
- Protects Lead against alkalis from concrete, stone and screed surfaces.

WOOD ROLL



HINTS

- Wood Roll should be fixed to the substrate using 3" stainless steel screws at 450mm centres.
- Fixing a Lead joint using Wood Roll requires a 40mm splash lap. This serves to stiffen the free edge and keep it in position.
- The alternative is to use a copper clip fixed behind the undercloak at 450mm centres.
- When disposing of Wood Roll off-cuts a suitable incinerator with adequate smoke dispersal should be used.

Technical Data Sheet Available

T-PREN EXPANSION JOINTS

HINTS

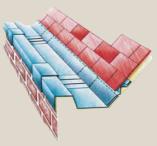
- Ensure that Lead T-Pren joints are fitted no further than one metre from either side of an apex.
- A double weld should be sufficient when lap welding
 Code 5 Rolled
 Lead Sheet.
- Lead T-Pren joints should be fixed at intervals conforming to Lead Sheet Association Guidelines.
- Always use a recommended underlay (see page 12 for details).

proved l without

Technical Data Sheets Available BLM Lead T-Pren Expansion Joints are specifically designed to overcome the problem of laying Leadlined gutters where the building construction prevents the recommended drip detail being used.

Recommended by the Lead Sheet Association where it is not possible to incorporate the recommended drip and fall joint details when refurbishing Lead-lined parapet or eave gutters.

Lead T-Pren Expansion Joints are manufactured from Code 5 BS EN 12588 Rolled Lead Sheet and have a double bonded neoprene strip to allow for thermal expansion. T-Pren's reliability has been proved by 30 years of use without recorded failure.



Standard Lead T-Pren

Available in rolls 3m long x 385mm wide.



Standard Lead T-Pren

Lead T-Pren Plus

Incorporates a protective Lead cover strip over the neoprene section

Lead T-Pren Plus is available in rolls 1.5m long x 385mm wide.

- Maintains a consistent Lead appearance.
- Protects against UV rays.
- Prevents foot traffic damage.
- Extends life.



Lead T-Pren Plus

LEAD FIXINGS



Permastrip

- To prevent wind uplift in exposed areas.
- Available in 20m x 50mm.
- Manufactured from 0.5mm stainless steel.

Copperstrip

- To prevent wind uplift in exposed areas.
- Available in 20 metre x 50mm wide coils.

Copper Nails

- 25mm annular ring shank copper clout nails (available in 1kg boxes).
- Recommended by LSA for fixing Lead Sheet to a substrate.

 Follow LSA guidelines when fixing Lead Sheet as over fixing can cause premature failure.

Lead Dot Sets

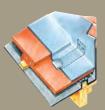
- A decorative intermediate fixing for Lead cladding applications.
- Available in sets of twenty comprising: Lead Dome -Stainless Steel Screw - Brass Cup Washer - Nylon Washer.

Motifs

Motifs are an increasingly popular finish. Available in various sizes they make an attractive feature of Lead hopper heads and angular downpipes.

HINTS

- The spacing of clips is important, but the main consideration is the position of the fixing points. The lower the fixing the stronger the clip.
- Clips should be used for both horizontal and vertical cladding.
- Allow for 6mm of expansion on laps when fixing clips.
- Copper nails should be used to fix the clips.



Permastrip fixing



HEALTH & SAFETY STORAGE AND HANDLING



There is very little risk to health when handling Lead provided a common sense approach is taken and these simple guidelines are followed.

Health & Safety

Lead in its metallic state does not present a health risk provided that a few simple precautions are followed:

Always wear work-gloves when handling Lead.

Wash your hands and forearms as soon as you finish and before you eat, drink or smoke. This applies even if gloves have been worn and be careful of cross contamination if you have been wearing glasses.

When sweeping a Lead storage area, damp down any dust and wear a protective mask.

When welding Lead follow HSE guidelines and wear eye protection.

Storage

All rolls of Lead should be stored in a clean dry area and ideally off the floor on a wooden base.

Unsealed concrete or rough floors can leach moisture and alkalis into the Lead rolls causing red oxide staining.

Any contact with moisture will ingress into the layers of a Lead roll by capillary action and create red oxide staining (similar to rust) in a matter of hours. This can sometimes be removed by using a nylon scourer and 5% nitric acid solution

Where possible, Flashing rolls of 450mm width or less should be stood on end to minimise the risk of damage. Wider rolls should be laid on pallets.

Always remember that the surface of Lead can be scored or damaged if it comes into contact with rough surfaces or sharp objects.

HEALTH & SAFETY STORAGE AND HANDLING

Handling

However obvious it may sound, people forget that a piece of Lead is always heavier than it looks

Always follow the correct HSE lifting guidelines.

Never attempt to lift a roll of Lead on your own unless you are confident of your ability to handle it without undue effort.

If in doubt, either insert a strong steel bar through the roll and lift with the help of another person or employ approved mechanical handling equipment.

Always wear a pair of gloves to protect from both Lead dust particles (see Health & Safety notes) and sharp edges.

Working with Lead Sheet:

- Apply a hand barrier cream where possible.
- Wear the appropriate protective clothing.
- Lift with care seek assistance where necessary.
- Wash hands thoroughly afterwards.
- Do not eat, drink or smoke until after you have washed your hands and forearms.

For more detailed information a booklet entitled "Working With Lead in Construction - A Guide to Health, Safety and Environmental Care" is also available from the Lead Sheet Association.

A copy of The leadworkers Safety Guide can be downloaded at www.britishlead.co.uk.



SIZING CHARTS

HINTS

- If the width you require is not in stock it is worth ordering a wider piece to avoid delay.
- Large orders of Lead can be delivered direct to site at no extra cost. Refer to your stockist for details.
- Failure of fitted Lead Sheet is usually due to oversizing. See sizing guide.
- Over fixing can also cause premature failure
- Lead Sheet should be fitted in accordance with BS 6915 as detailed in Rolled Lead Sheet – The Complete Manual – from the LSA.

Sizing Guidelines for good practice

The most common cause of failure to Lead Sheet is due to the Lead being laid in too large a piece. This is due to the thermal movement of Lead causing fatigue, which will eventually cause cracks. The sizing chart below gives a guide to the maximum recommended sizes for different applications.

BS EN 12588:2006	CODE 3	CODE 4	CODE 5	CODE 6	CODE 7	CODE 8
Nominal Thickness	1.32mm	1.80mm	2.24mm	2.65mm	3.15mm	3.55mm
Weight per m ²	15.0kg	20.41kg	25.40kg	30.10kg	35.72kg	40.26kg
Uses	Α	ABCEF	BCDEFG	BCDEG	CDEG	CDEG
Flashings						
All flashings and pitched valley gutters (except for verges of asphalt & felt roofs)	-	1500mm	1500mm	-	-	
Flashings to verges of asphalt & felt roofs		1000mm	1000mm		-	
Ridge roll cappings	-	1500mm	2000mm	2000mm	-	-
Hip roll cappings		1500mm	1500mm	1500mm	-	-
Gutters – Boxed or Tapered						
Maximum spacing of drips	-	1500mm	2000mm	2250mm	2500mm	3000mm
Maximum overall girth		750mm	800mm	850mm	900mm	1000mm
Flat Roofs 10° or less (Dormer Tops)						
Maximum spacing of drips	-	1500mm	2000mm	2250mm	2500mm	3000mm
Maximum spacing of joints with the fall	-	500mm	600mm	675mm	675mm	750mm
Vertical Cladding Dormer Cheeks						
Maximum spacing between laps	-	1500mm	2000mm	-	-	
Maximum spacing of vertical joints	-	500mm	600mm	-	-	-

Key to uses:

- **A** Soakers
- **B** Flashings
- C Pitched Valley Gutters
- Parapet, Box and Tapered Valley Gutters
- **E** Dormers
- F Vertical Cladding
- **G** Flat Roofing

Note: No flashing piece should exceed 1.5 metres

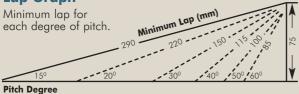
WEIGHT CHART

Guide to Standard Lead Flashing Roll Weights

BLM Rolled Lead Sheet can be supplied in any width from 150mm up to 2440mm in Codes 3,4,5,6,7 & 8 in standard lengths of 3 & 6 metres. Extra charges may be applied for non-standard lengths and thicknesses.

		COL	DE 3	COL	DE 4	COI	DE 5	COL	DE 6	COI	DE 7	COI	DE 8
Nomin Thickne		1.32	2mm	1.80)mm	2.24	1mm	2.65	mm	3.15	ōmm	3.55	ōmm
Standard W	idths												
mm Near		3m	6m	3m	6m	3m	6m	3m	6m	3m	6m	3m	6m
Imper	rial	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg
150	6"	7	13	9	18	11	23	14	27	16	32	18	36
180	7″	8	16	11	22	14	27	16	32	19	39	22	43
210	8"	9	19	13	26	16	32	19	38	23	45	25	51
240	9″	11	22	15	29	18	37	22	43	26	51	29	58
300 1	2"	13	27	18	37	23	46	27	54	32	64	36	72
390 1	5"	18	35	24	48	30	59	35	70	42	84	47	94
450 1	8″	20	40	28	55	34	69	41	81	48	96	54	109
510 2	0"	23	46	31	62	39	78	46	92	55	109	62	123
600 2	4"	27	54	37	73	46	91	54	108	64	129	72	145
760 3	0"	34	68	47	93	58	116	69	137	81	163	92	184
800 3	2"	36	72	49	98	61	122	72	144	86	171	97	193
900 3	6"	40	81	55	110	69	137	81	162	96	193	109	217
	0"	45	90	61	122	76	152	90	180	107	214	121	242
	8"	55	110	75	149	93	186	110	220	131	261	147	295
	0"	67	135	92	184	114	229	135	270	161	321	181	362
	6"	-	- 100	149	299	186	372	220	440	261	523	295	589
Weight per		15.	0ka	20.4			40kg	30.1			72ka		26kg

Lap Graph



HINTS

- To calculate the approximate weight of Rolled Lead Sheet, multiply the length in metres x width in metres x by the Code weight in kg/m².
- Save on cutting charges by ordering a standard length and cutting it yourself. It often works out cheaper.
- Code 3 only available in widths up to 1.5m.

Fixing free edges of flashings

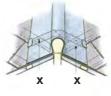
A. Clips for flashings over interlocking tiles



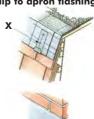
All flashings should be secured against the risk of wind lift. Position fixing clips at between 300-500mm centres depending upon the degree of exposure to wind.

B. Clip to ridge or hip roll

Clips should be made from quarter hard copper, at least 0.6mm thick or stainless steel at least 0.38mm thick. Turn the clips over by at least 25mm.



C. Clip to apron flashings

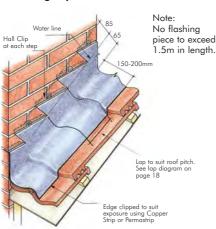


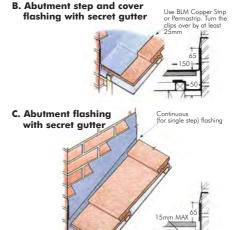


X = For moderate to severe exposures additional fixings should be positioned at not more than 75mm from the free edge. Secure clips with copper nails.

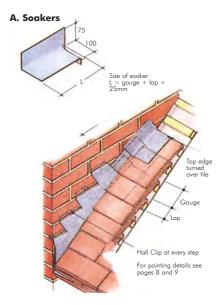
Step and cover flashings and secret gutters

A. Step and cover flashing to profiled tiles

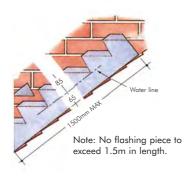




Soakers and step flashings

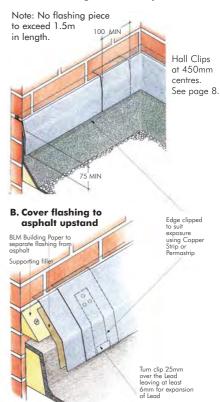


B. Marking-out step flashing

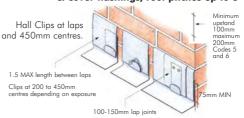


Cover flashings

A. Cover flashing to felt roof upstand

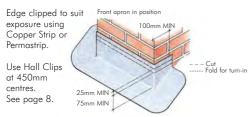


C. Cover flashings, roof pitches up to 3°

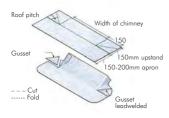


Chimney flashings

A. Bossed apron



B. Welded apron



Apron flashings

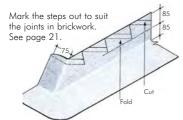
A. Apron flashing over slates or tiles

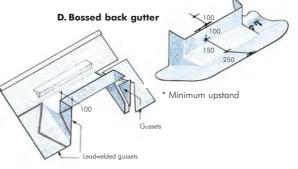


Note: No flashing piece to exceed 1.5m in length.

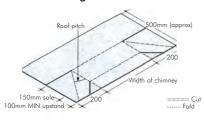
C. Side flashing







E. Welded back gutter



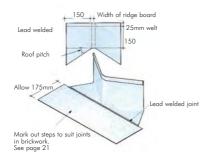
F. Back gutter fixed

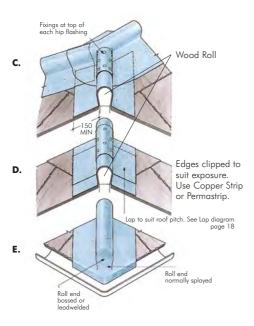


Use Hall Clips at 450mm centres. Minimum 3 Hall Clips.

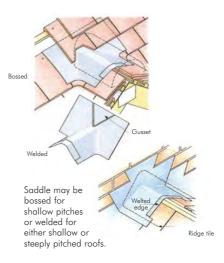
Ridge and hip flashings

A. Ridge saddle at abutment





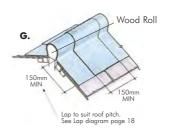
B. Ridge saddle at the top of a valley



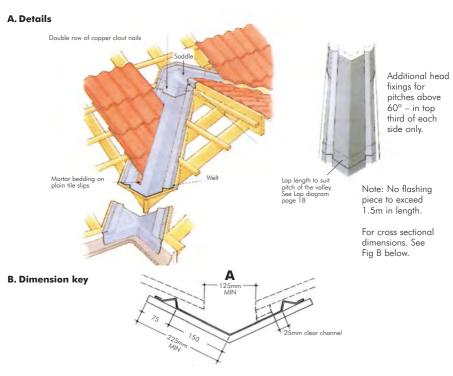
F. Cross section

No ridge flashing to exceed 1.5m in length Code 4 and 2m length for Codes 5,6,7,and 8.





Pitched valleys

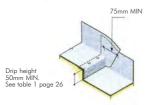


A (mm)	With bedded tiles Width of Lead to line valley (mm approx) (mm)	With unbedded tiles or slates Width of Lead to line valley (mm approx) (mm)
100	500	400
125	525	425
150	550	450
200	600	500
250	650	550

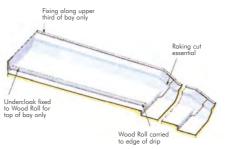
For information on the sizes of pitched valleys in relation to catchment area, it is essential to refer to Rolled Lead Sheet The Complete Manual published by the LSA.

Drips and rolls

A. Box gutter drip



D. Tapered gutter details

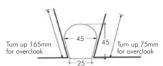


B. Tapered gutter drip



E. Standard wood cored roll with splash lap

Cross section of wood cored roll



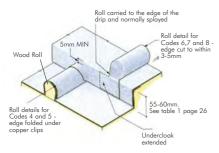
Standard wood cored roll with splash lap



Wood cored rolls are suitable for all roofing and cladding applications Nail the roll undercloak at the top third of the length only using Copper Nails at 50mm centres

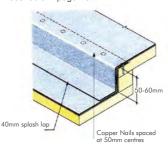
C. Roll drip intersections for wide gutters

Normal roll detail with splash lap may be used. See Figs E and F.



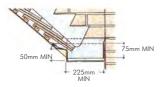
F. Drip (up to 3°)

See table 1 page 26.



Parapet and tapered gutters

A. Cross section of parapet gutter

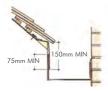


For details of maximum sizes. See table 2.

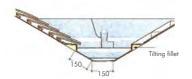
B. Measurement of girth



C. Cross section of box gutter



D. Cross section of tapered gutter



Minimum width at lowest point

Table 1

Gutter dr	rip heights
BS EN 12588 Code No	Minimum drip height (mm)
4,5 and 6	50 Where there is
ana o	intersection
4	55
5	55
6	55
7	60
8	60

Table 2

Gutter dimensions						
BS EN 12588 Code No	Maximum length between drips (mm)	Maximum overall girth (see section above) (mm)				
4	1500	750				
5	2000	800				
6	2250	850				
7	2500	900				
8	3000	1000				

LSA TECHNICAL AND TRAINING CENTRE

The Lead Sheet Association (LSA) is the foremost independent technical authority on the design, specification and application of Rolled Lead Sheet to BS EN 12588 in the construction industry.

Purchase your copy of Rolled Lead Sheet The Complete Manual at

www.leadsheet.co.uk.

Rolled Lead Sheet

For further information please contact the LSA's Technical Office 01622 872432

The LSA's brand new Training Centre offers a full range of training opportunities in fully equipped workshops, with hands on training by a team of qualified and industry experienced staff.



Courses to Suit You

The LSA will asses your skill level and provide a training programme that makes sure you get the qualification you need in the shortest possible time.

Grants Available

CITB Construction Skills grant aid approved.

If you want to know more about the courses that are available why not visit their web site: **www.leadtraining.org.uk**.

Training Courses

- Basic working techniques bossing and welding
- · City and Guilds Leadworkers Certificate
- On Site Assessment And Training (OSAT special apprentice programme)
- Awareness courses for Architects and Surveyors

Visit www.leadtraining.org.uk







Today's technology -BLM invest in the future



Lead has the highest level of recycling of any roofing material



Rolled Lead Sheet to BS EN 12588



