

premier
slate

2009 premier slate brochure



Roofing Slate

The lifetime of a building begins with the choice of materials. For hundreds of years architects and designers have been inspired by the natural beauty of slate. Through its aesthetic potential and practical qualities, this material's unique character enhances the architectural vision.

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Who is Premier Slate?

At Premier Slate Products Pty. Ltd. we are committed to improving the supply and competitiveness of high quality roofing slate to the Australian construction industry. We procure only the finest roofing slate from around the world to provide our clients with a range of options to suit all budgets and aesthetic tastes.

Our vision is to become Australia's focal point for technical and product advice for quality natural roofing slate. Premier Slate's Directors have over 50 years combined experience in quality slate roofing and uphold the craftsmanship passed down to them by other fine traditional slate roofers. Project experience includes heritage restorations to new build contemporary designs and from grand manor houses to terraced cottages and minor repairs.

We look forward to assisting you with your project requirements and advising you on how this exceptional material can enable you to achieve your architectural vision.

Natural slate

Natural slate is internationally recognised as one of the finest building materials available, displaying a unique fingerprint that reflects the power and presence of the landscape from which it was hewn. In recent decades new sources of roofing slate have come into production from all over the world. Welsh slate, however, remains the benchmark with a reputation for aesthetic beauty and technical performance which is second to none. Over 500 million years in the making and formed by the natural processes of mother earth, Welsh slate is the roofing material reserved for the most noble and prestigious buildings.

The importance of high quality natural slate

At Premier Slate, we only supply high quality natural slate suitable for the unique Australian environment. When installed in accordance with Australian Standards, we guarantee that our natural slate will not ;

- Oxidise or discolour, resulting in staining on the roof
- Erode and develop holes
- Fade in colour
- Delaminate
- Encourage moss (bryophyte) growth, thus restricting rainwater run-off
- Be damaged by strong winds

Welsh Slate - 'Penrhyn'

●	Quarry of origin:	Penrhyn, Bethesda
●	Place of origin:	Wales, U.K.
●	Produced by:	Welsh Slate Limited
●	Colour / Appearance:	Heather blue with tones of green
●	Durability:	100 years or more
●	Compliance*:	United Kingdom, BS EN 12326

*Please note that Australia has no National Standard for the testing of roofing slate.

The Penrhyn Heather Blue slate, also known as Bangor Blue, is perhaps the best known Welsh slate colour. Welsh Slate Limited is the worlds leading manufacturer of high quality roofing slate and have an unparalleled reputation for durability and quality.

The Penrhyn Quarry has been producing roofing slate since the 13th century. Buildings roofed with Welsh slate supplied over two hundred years ago are common place.



Canadian Slate - 'Glendyne'

●	Quarry of origin:	Glendyne, Saint-Marc-du-lac-Long
●	Place of origin:	Quebec, Canada
●	Produced by:	Glendyne Inc.
●	Colour / Appearance:	Dark grey with tones of blue
●	Durability:	75 years or more
●	Compliance*:	United Kingdom, BS EN 12326 North America, ASTM C406-00 France, NF 228 Belgium, 34.03.6

*Please note that Australia has no National Standard for the testing of roofing slate.

The Glendyne premium roofing slate is hewn from a deposit of exceptional quality, free from pyrites and any other metallic intrusions. First quarried at the beginning of the 20th century the slates dark grey appearance with tones of blue adds elegance and nobility to any building. Today the Glendyne roofing slate adorns buildings throughout Europe, North America and Australasia.



Fibre Cement Slate - 'Montana'

● Quarry of origin:	Not Applicable
● Place of origin:	Sint-Niklaas, Belgium
● Produced by:	SVK
● Colour / Appearance:	Available in either Blue-Black or Welsh Blue
● Durability:	30 year structural manufacturer guarantee 10 year colour manufacture guarantee
● Compliance*:	European Standard EN 492

*Please note that Australia has no National Standard for the testing of roofing slate.

The Montana fibre cement slate is a manmade alternative to natural slate, which is fixed in the traditional method to give a similar appearance at a lower cost. The slates are manufactured from compressed fibre cement with a textured surface and natural looking dressed edges to give the appearance of natural slate. Because of the precision manufacturing process, no preliminary grading according to thickness is required and a double layer of acrylic based coating on the slate's surface ensures that it is highly resistant to moss growth.



Acme Plain Tiles / Heritage Terracotta Shingles

Acme clay plain tiles are manufactured with a single camber to allow the creation of clean, contemporary, crisp lines whilst retaining the warmth and character of clay.

These tiles suit heritage building for restoration or even the most modern home wanting to look a little different from the rest.

Technical Data

Size of tile	255mm x 165mm
Minimum pitch	35 degrees
Maximum Pitch	90 degrees
Minimum headlap	65mm (roof)
Maximum gauge	100mm (roof) 115mm (vertical)
Cover width	165mm (nominal)
Coverage capacity (net)	60 tiles / m2 at 100mm gauge (roof) 53 tiles / m2 at 115mm gauge (vertical)
Weight of tiling (approx.)	64kg / m2 (0.63kN / m2) at 100mm gauge (roof) 56kg / m2 (0.55 kN/m2) at 115mm gauge (vertical)
Battens required	10.0 lin.m/m2 at 100mm gauge (roof) 8.7 lin.m/m2 at 115mm gauge (vertical)
Batten size recommended (fixed to BS 5534)	38 x 25mm for rafters / supports not exceeding 600mm centres
Tile nails	38mm x 2.65mm



Technical Information

These tables give a brief explanation of the terms that are commonly used throughout the roofing industry. They are by no means comprehensive and the terms may vary in different parts of the world. We suggest that reference is made to BS 6100: subsection 1.3.2: 1989 – Building and Civil Engineering Terms – Roofs and Roofing.

Coverage

Size (Nominal)	Lap (mm)																		
	50	65	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155
600 x 350	10.2	10.5	10.7	10.8	10.9	11.0	11.2	11.3	11.4	11.5	11.6	11.7	11.9	12.0	12.1	12.2	12.4	12.5	12.7
600 x 300	11.9	12.3	12.5	12.6	12.7	12.9	13.0	13.1	13.2	13.4	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7
550 x 300	13.1	13.5	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	15.1	15.2	15.4	15.6	15.8	16.0	16.2	16.4	16.6
500 x 300	14.6	15.1	15.4	15.6	15.8	16.0	16.2	16.4	16.6	16.8	17.0	17.3	17.5	17.7	18.0	18.2	18.5	18.7	19.0
500 x 250	17.4	18.0	18.5	18.7	18.9	19.1	19.4	19.6	19.9	20.1	20.4	20.6	20.9	21.2	21.5	21.8	22.1	22.4	22.7
450 x 300	16.4	17.0	17.5	17.7	18.0	18.2	18.5	18.7	19.0	19.3	19.6	19.9	20.2	20.5	20.8	21.2	21.5	21.9	
400 x 250	22.4	23.4	24.1	24.5	24.9	25.3	25.7	26.1	26.6	27.0	27.5	28.0	28.5	29.0					
400 x 200	27.9	29.1	30.0	30.5	31.0	31.5	32.0	32.5	33.1	33.6	34.2	34.8	35.5	36.1					
350 x 250	26.1	27.5	28.5	29.0	29.6	30.2	30.8	31.4	32.0	32.7	33.4								
350 x 200	32.5	34.2	35.5	36.1	36.8	37.5	38.3	39.0	39.8	40.7	41.5								
300 x 200	39.0	41.5	43.4	44.3	45.4	46.5	47.6	48.8											

Values calculated using nominal sizes and incorporating a 5mm joint gap as per BS 8000: Part 6: 1990. Add at least a 5% wastage allowance.

Battening and Holing Gauges

Slate Length	Batten gauge mm	m. batten per m ²	Holing gauge mm	Batten gauge mm	m. batten per m ²	Holing gauge mm	Batten gauge mm	m. batten per m ²	Holing gauge mm	Batten gauge mm	m. batten per m ²	Holing gauge mm
Headlap		50mm			65mm			75mm			80mm	
600mm	275	3.64	340	268	3.74	348	263	3.81	353	260	3.85	355
550mm	250	4.00	315	243	4.12	323	238	4.21	328	235	4.26	330
500mm	225	4.44	290	218	4.60	298	213	4.71	303	210	4.76	305
450mm	200	5.00	265	193	5.19	273	188	5.33	278	185	5.41	280
400mm	175	5.71	240	168	5.97	248	163	6.15	253	160	6.25	255
350mm	150	6.67	215	143	7.02	223	138	7.27	228	135	7.41	230
300mm	125	8.00	190	118	8.51	198	113	8.89	203	110	9.09	205
Headlap		85mm			90mm			95mm			100mm	
600mm	258	3.88	358	255	3.92	360	253	3.96	363	250	4.00	365
550mm	233	4.30	333	230	4.35	335	228	4.40	338	225	4.44	340
500mm	208	4.82	308	205	4.88	310	203	4.94	313	200	5.00	315
450mm	183	5.48	283	180	5.56	285	178	5.63	288	175	5.71	290
400mm	158	6.35	258	155	6.45	260	153	6.56	263	150	6.67	265
350mm	133	7.55	233	130	7.69	235	128	7.84	238	125	8.00	240
300mm	108	9.30	208	105	9.52	210	103	9.76	213	100	10.00	215
Headlap		105mm			110mm			115mm			120mm	
600mm	248	4.04	368	245	4.08	370	243	4.12	373	240	4.17	375
550mm	223	4.49	343	220	4.55	345	218	4.60	348	215	4.65	350
500mm	198	5.06	318	195	5.13	320	193	5.19	323	190	5.26	325
450mm	173	5.80	293	170	5.88	295	168	5.97	298	165	6.06	300
400mm	148	6.78	268	145	6.90	270	143	7.02	273	140	7.14	275
350mm	123	8.16	243	120	8.33	245	118	8.51	248	-	-	-
Headlap		125mm			130mm			135mm			140mm	
600mm	238	4.21	378	235	4.26	380	233	4.30	383	230	4.35	385
550mm	213	4.71	353	210	4.76	355	208	4.82	358	205	4.88	360
500mm	188	5.33	328	185	5.41	330	183	5.48	333	180	5.56	335
450mm	163	6.15	303	160	6.25	305	158	6.35	308	155	6.45	310
400mm	138	7.27	278	135	7.41	280	-	-	-	-	-	-
Headlap		145mm			150mm			155mm				
600mm	228	4.40	388	225	4.44	390	223	4.49	393			
550mm	203	4.94	363	200	5.00	365	198	5.06	368			
500mm	178	5.63	338	175	5.71	340	173	5.80	343			
450mm	153	6.56	313	150	6.67	315	-	-	-			

Exposure to Wind and Rainfall

Slates fixed in accordance with the details given in the data below will have adequate resistance to wind loads, wind uplift and rain penetration under most conditions. These tables give minimum recommended laps according to exposure, roof pitch and slate size. Detailed guidance on wind load calculations is given in BS 5534: 2003 and BS 6399, Part 2 : 1997 and Part 3: 1988.

Size (Nominal) mm	Minimum Rafter Pitch (Degrees)								
	20	22.5	25	27.5	30	35	40	45 to 75	85
600 x 350	115	105	95	85	80	70	60	55	-
600 x 300	-	-	95	85	80	70	60	55	-
550 x 300	-	105	95	85	80	70	60	55	-
500 x 300	115	105	95	85	80	70	60	55	-
500 x 250	-	-	95	85	80	70	60	55	50
450 x 300	-	-	-	-	80	70	60	55	50
450 x 250	-	-	-	-	80	70	60	55	50
400 x 300	-	-	-	-	80	70	60	55	50
400 x 250	-	-	-	-	80	70	60	55	50
400 x 200	-	-	-	-	80	70	60	55	50
350 x 300	-	-	-	-	80	70	60	55	50
350 x 250	-	-	-	-	80	70	60	55	50
350 x 200	-	-	-	-	80	70	60	55	50
300 x 200	-	-	-	-	80	70	60	55	50
250 x 150	-	-	-	-	80	70	60	55	50

Size (Nominal) mm	Minimum Rafter Pitch (Degrees)								
	20	22.5	25	27.5	30	35	40	45 to 75	85
600 x 350	-	130	120	110	100	90	80	70	-
600 x 300	-	-	-	-	100	90	80	70	-
550 x 300	-	130	120	110	100	90	80	70	-
500 x 300	-	130	120	110	100	90	80	70	-
500 x 250	-	-	-	110	100	90	80	70	65
450 x 300	-	-	-	-	100	90	80	70	65
450 x 250	-	-	-	-	100	90	80	70	65
400 x 300	-	-	-	-	100	90	80	70	65
400 x 250	-	-	-	-	100	90	80	70	65
400 x 200	-	-	-	-	100	90	80	70	65
350 x 300	-	-	-	-	100	90	80	70	65
350 x 250	-	-	-	-	100	90	80	70	65
350 x 200	-	-	-	-	100	90	80	70	65
300 x 200	-	-	-	-	100	90	80	70	65
250 x 150	-	-	-	-	100	90	80	70	65

Hook Fixing Method

The use of hooks to fix slate has been widely used in Europe for the over 50 years, and is becoming increasingly popular in the UK.

Hooks can be used in the most exposed locations and because the slate is supported at four points, the resistance to wind uplift is extremely effective. The top edge of the slate is gripped under the top part of the hook.

The shank of the hook runs down along the side of the slates in the next course, and the return grip at the bottom of the hook holds the tail of the slate on top. This means that each slate is held in place by four hooks, one at the head, one at the tail and one on each side. The one at the tail stops the slate from sliding down, the ones at the side prevent it from turning and the one at the head holds it to the batten.

Hooks are therefore more functional, quicker to work with and perfectly safe. Repair work is also much easier.

When hooks are used the slates are not tightly pressed together. The hooks positioned at the side of the slate form two fine channels, up which there is considerable rising capillarity. Slates still need to be three times the headlap, but width can be less than twice the headlap because there is less creep of water and no nail holes.

The preparation for the roof carpentry is exactly the same as for slates fixed with nails. Only the method of fixing is different. Because of the increased rising capillarity when hooks are used the headlap values will change.

The following two types of hooks are normally used: -

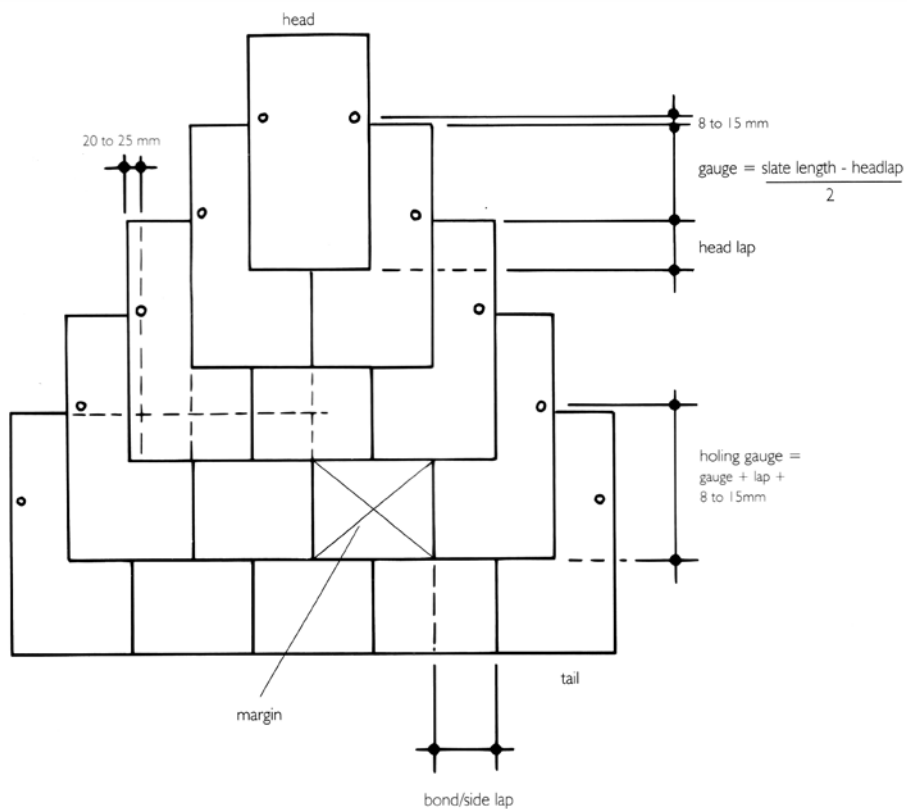
- **Cramp Hooks** – used to clip over the battens. The head of the hook (the clip on part) must be the same thickness as the batten (usually 25mm)
- **Pointed Hooks** – are usually used when sarking forms the support, which are driven directly into the boards. The boards should be 19mm thick, but in very windy areas a thickness of 25mm may be required.

Hooks should be made of stainless steel 18 / 10 grade (18% chromium, 10% nickel) and can be supplied in a matt black finish if required.

When a hook position on a battened roof coincides with a rafter, a pointed hook needs to be used. This means that around 15 – 20% of the hooks used will be pointed hooks, even when cramped hooks are chosen as the main method. It should be remembered that slates on verges and eaves must be nailed down even if the rest of the roof is fixed with hooks.

Terminology

The diagram below gives a brief explanation of the terms that are commonly used throughout the roofing industry. They are by no means comprehensive and the terms may vary in different parts of the country. We suggest that further reference is made to BS 6100: Subsection 1.3.2:1989 - Building and Civil Engineering Terms - Roofs and Roofing



The Slating Process

Setting out the Roof

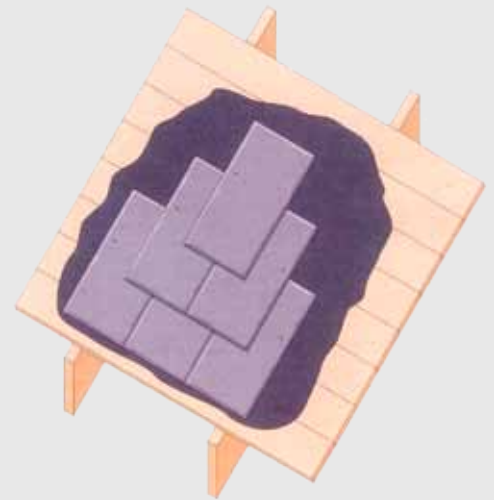
For a detailed description of the process of roof slating, reference should be made to AS 4597: 1999 Code of Practice for Slating and Tiling. However, the basic steps are set out below: -

1.1 Sort and hole slates where required. Slates should be holed from the underside to the correct gauge measured from the tail of the slate using a slate-holing machine. At the same time the slates should be sorted into groups of equal thickness where required, there should be at least 3 and some times as many as 5 differing thickness of slate.

1.2 Fix the underlay as specified

1.3 Mark out the roof to the correct battening gauge. The gauge may be adjusted to divide the slope length into equal margins provided the specified lap is not reduced.

1.4 Batten the roof (see Battening Gauge table).



Slating to timber boarding
(Cold Roof)

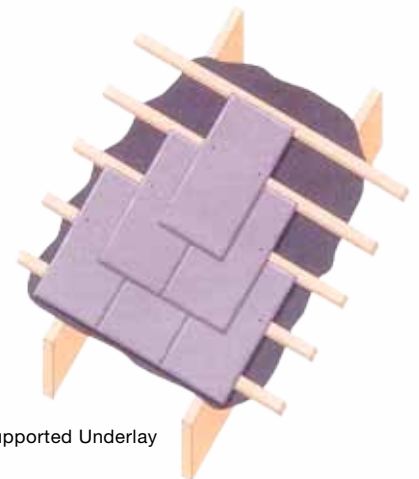
1.5 Check the actual width of slates and mark out perpend on battens at correct centres allowing 5mm joint gaps.

Slating

1.6 Where required load out the slates on the roof so that the thickest slates are in the lowest courses and the thinnest near the ridge.

1.7 Fix under eaves course bed up.

1.8 Fix the slates to perpend lines, cutting individual slates as necessary to fit hips and valleys. Each slate must be fixed with two nails.



Unsupported Underlay

Slate Nails

1.9 Slate or clout nails should be copper to AS 2334

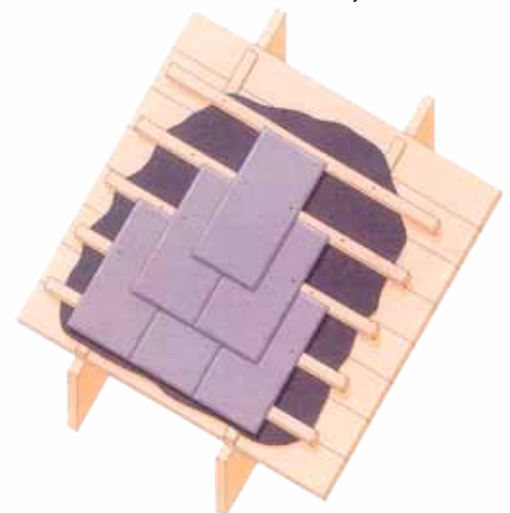
Vapour permeable
underlay to BS 5534

Cutting Slates

1.10 In order to maintain adequate laps and allow proper fixing, slates must not be cut too narrow. In general no slates should be less than 150mm wide.

1.11 At all verges and abutments, alternate courses must be started either with half-width slates or with slate-and-a-half widths to maintain bond. If the half-slate would be less than 150mm, slate-and-a-half widths must be used.

At valleys, hips and other places where slates must be cut on the rake, it is essential that slates be of an adequate width to accommodate secure fixings.



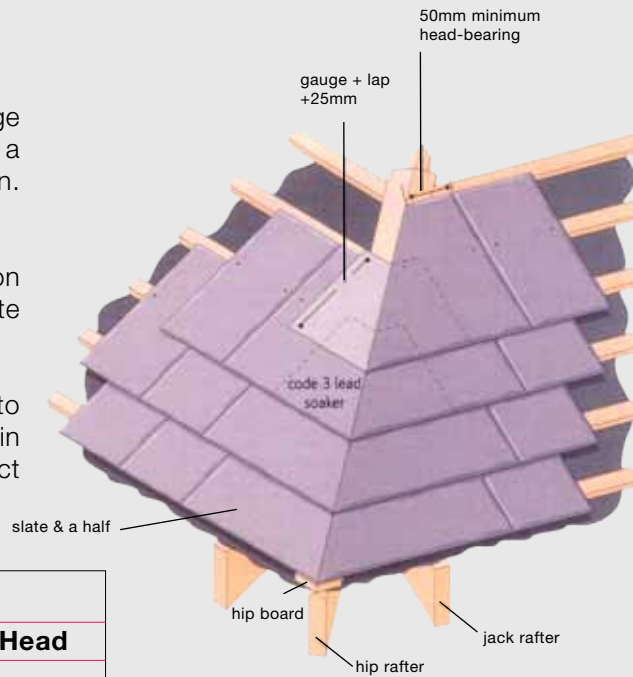
Hips

Mitred Hips

Cut slates neatly and accurately, bevelled edge down. Interleave with lead soakers to form a straight, weather tight, close-mitred junction. Fix soakers by nailing to battens at top edge.

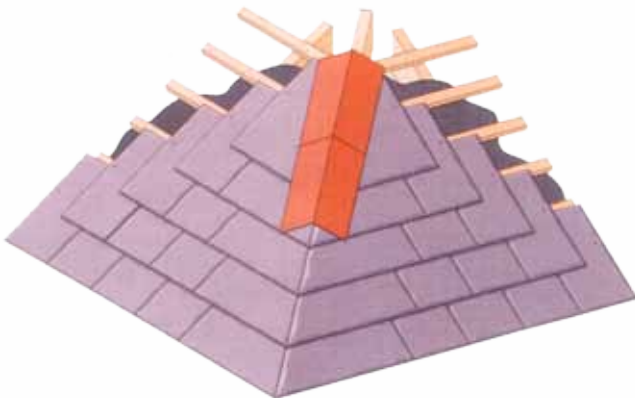
Slate & A Half: The use of slate & a half on mitred hips will avoid small pieces of slate being face fixed & sealed with silicon sealant

N.B. Careful consideration must be given to mitred hip details at low roof pitches and in areas of severe exposure. For advice contact Premier Slate.



Mitred Hip Soaker Widths	
Pitch	Minimum Width at Head
30 – 35 deg.	150mm
35 deg. +	100mm

Hip tiles bedded and jointed in mortar



Terracotta Tiled Hip

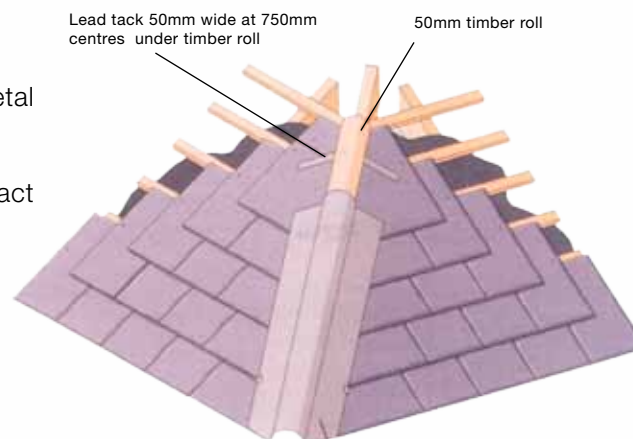
First hip should be mechanically fixed to the hip tree with copper strap, ridge may need to be drilled to accommodate this. Cut slates to fit closely at junction. Make weather tight with ridge tiles laid to a true line with edges and joints solidly bedded in mortar, neatly struck off flush as the work proceeds.

Shape first tile to align with corner of eaves and fill end with mortar and slips of slate finished flush. Mortar for bedding hip tiles 1:3 cement to sand pigmented to approved colour.

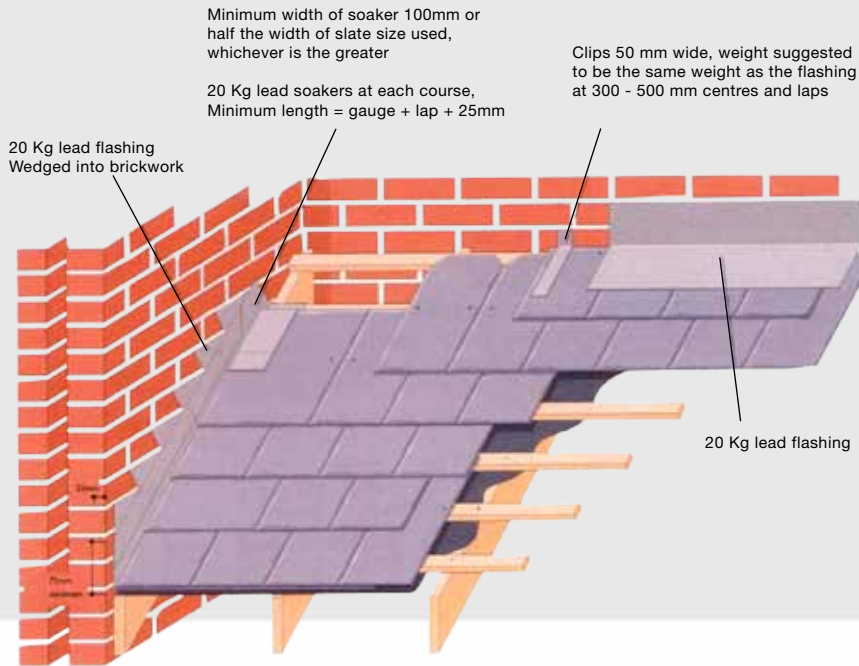
Metal Roll Hips

Metal roll hips should conform to sheet metal technical recommendations.

For advice on pitches less than 30 deg. contact the Premier Slate.

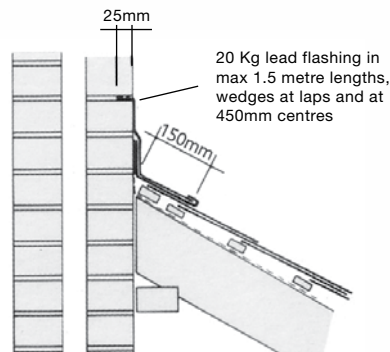


Abutments and Ridges



Sloping Edge

Cut slates as necessary and interleave with lead soakers to form a close, weather tight abutment. Fix soakers by turning down over the head of each slate. Ensure that lead flashings are neatly dressed down over soakers immediately after slating is complete.



Top Course

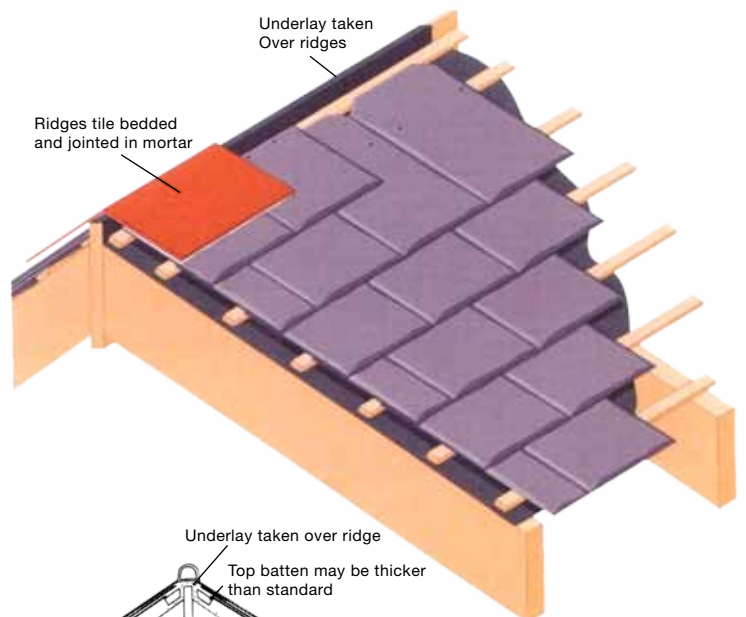
Turn underlay 100mm up abutment. Finish slating with a head-nail short course to maintain gauge. Ensure that flashings are fixed immediately after slating is complete.

Tiled Ridge

Finish slating with a head-nailed short course to maintain gauge.

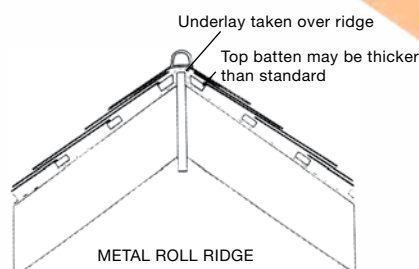
Make weather tight with ridge tiles laid to a true line with edges and joints solidly bedded in mortar, neatly struck off flush as the work proceeds.

Fill ends of ridges at gables with mortar and slips of slate finished flush. Mortar for bedding ridge tiles, 1:3 cement to sand pigmented to approved colour.

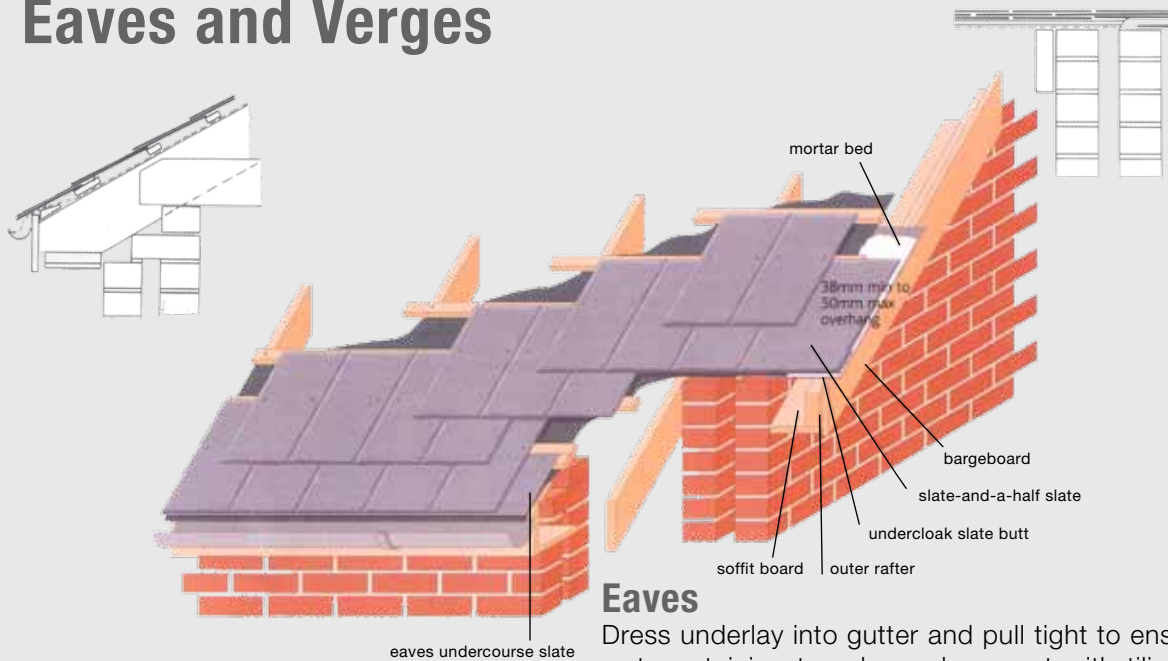


Metal Roll Ridge

25 Kg or 30 Kg lead ridge, 460 to 500mm wide, max 1.5 metre lengths. Lead tack 50mm wide at 150mm centres, under timber roll. Horizontal laps at 150mm.

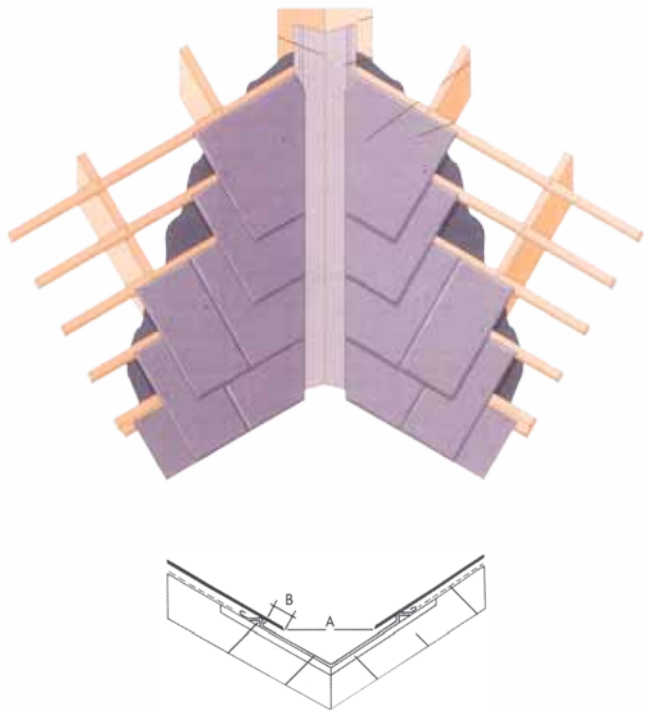


Eaves and Verges



Eaves

Dress underlay into gutter and pull tight to ensure no water retaining troughs and support with tiling fillet. Fix under eaves and eaves course of slates with tails aligned and projecting 45mm (min.) to 55mm (max.) beyond the fascia tilting fillet or wall face. Longer slate nails may be required at eaves courses.



Verge on Bargeboard

Wet verge - Ensure that undercloak and underlay are well lapped. Nail undercloak fair face down to a true line and projecting 25mm (min.) to 50mm (max.) from face of bargeboard. Fill the gap between undercloak and slates with mortar and strike off to give a neat flush joint. Mortar for bedding and pointing to be 1:3 cement to sand pigmented, to match colour of slates.

Dry verge

Keep the bargeboard up to a level with the top edge of the batten, the slates will then over sail the barge.

Verge on Brickwork

Ensure that undercloak and underlay are well lapped. Bed undercloak in mortar fair face down, to a true line, projecting 25mm (min.) to 50mm (max.) beyond face of wall, and point neatly to match in with joints in walling. Cut verge slates as necessary and fix flush with undercloak. Fill the gap between undercloak and slates with mortar and strike off to give a neat flush joint. Mortar for bedding and pointing to be 1:3 cement to sand pigmented, to match colour of slates. Note: Where possible use slate-and-a-half slates to alternate courses to form verges.

Mitred Valley

Cut slates neatly and accurately and interleave with lead soakers to form a straight, close, weathertight mitred junction. Fix soakers by nailing to battens at the top edge. Minimum recommended pitch is 50 deg. For pitches below this please contact Premier slate.

Roof pitch	Area m2 (on plan)	Rainfall rate mm/hour		
		75	150	225
20 - 22	<25	100	125	125
	25 - 100	125	150	200
22.5 - 29	<25	100	100	100
	25 - 100	100	125	150
30 - 34	<25	100	100	100
	25 - 100	100	100	125
35 +	<25	100	100	100
	25 - 100	100	100	100

Rafter length maximum = 5m for areas of up to 25 m2
Rafter length > 5m and < 10 m for areas of up to 25 - 100 sq m
No vertical projections drain on roof
For further information please contact Premier Slate

Welsh - Penrhyn

Canadian - Glendyne

Acme - Plain Tiles/ Terracotta Heritage Shingles

SVK - Fiber Cement



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