



Centurion abutment detail on a private extension in Bristol



Gemini featuring Lo-Vent tiles at Crowndale Homes, Buckingham



DRY FIX & VENTILATION SYSTEM

- 1 eaves ventilation
- 2 undercloak dry verge
- 3 undercloak dry verge
- 4 third round dry hip
- 5 bonnet hip tile
- 6 mitred hip
- 7 Hardrow Slates hip
- 8 Hardrow Slates mitred hip
- 9 mono pitch dry ridge
- 10 duo pitch ridgeboard - flat tile
- 11 duo pitch ridgeboard - profiled tile
- 12 duo pitch trussed rafter - flat tile
- 13 duo pitch trussed rafter - profiled tile
- 14 soil vent ridge terminal
- 15 gas vent ridge terminal
- 16 abutment ventilation
- 17 Lo-Vent tiles
- 18 Hardrow Lo-Vent Slates
- 19 ventilation tiles
- 20 dry valley
- 21 Hardrow Slates valley

THE FORTICRETE DRY FIX AND VENTILATION SYSTEM

The tried and tested Forticrete Dry Fix and Ventilation system provides a simple, clean and highly cost-effective method of detailing.

This is achieved while retaining harmonious colour co-ordination across a broad range of products custom-made to suit precisely each slate and tile profile. The system requires a minimum of components, ensuring that costs are kept low, and provides a finished roof that is both aesthetically pleasing and maintenance-free.

The Forticrete system offers a comprehensive range of quality products.

All Forticrete Roofing Products should be fixed in accordance with BS5534. Forticrete recommend that fixers of all slates and tiles regard the products as fragile as stated in BS8000:Pt6. During installation of the products, the correct setting out and working procedures should be employed to avoid walking directly on to products which have been fixed or are on any completed area of a roof.

Should it be necessary to gain access via the roof where battens of adequate strength cannot be used as footholds, this should not be attempted without the use of adequate protection to the tiles or slates, including the required number of crawling boards, ladders and cat ladders.



Undercloak dry verge with Gemini on Miller Homes, Yeadon



Minislate Lo-vent slate on Crowndale Homes, Buckingham

Please note that where there is a change of pitch, packing may be required between crawling boards, cat ladders and the surface of the tiles or slates to avoid damage to the product.

Fixers should note that Forticrete do not recommend the practice of cutting tiles or slates in-situ. Other information can be obtained from the 'Health and Safety in Roof Work' publication HSG33 and in the 'Working on Roofs' publication INDG284. Reference should also be made to the Forticrete Technical Literature and Fixing Instructions.



Certain products in the Forticrete Roofing Products range qualify as ECOSLATE or ECOTILE roofing products under Forticrete's unique eco-marking scheme, signifying that they conform to a specified range of environmental criteria.

Full information can be obtained by visiting www.forticrete.co.uk

EAVES DETAILING

EAVES VENTILATION

WORKING PROCEDURE

1. The fasciaboard should be fixed on the rafter ends, so that the vertical inside height in millimetres above the rafter is as per the table below.

Note: The figures in the table are nominal and are based on a 20mm fasciaboard. Where there is no fasciaboard a support batten must be provided.

2. Position and nail an eaves vent tray centrally over the rafter and allow the sides to overlap where necessary. Make sure the front lip overhangs the fasciaboard and can discharge into the gutter.



3. Roll out the underlay in the normal manner remembering to overlap the underlay by the required lap for the pitch*.

* Refer to the Forticrete Design Guide or current BS5534.

Note: It is not necessary to dress the underlay into the gutter.

Note: On lower pitches it may be necessary to install a continuation piece, as shown in the diagram, that extends up the roof to allow the insulation to be tucked into the eaves without obstructing the airflow from outside.

TILE	HEIGHT OF FASCIA/mm	
	VENTED	NON-VENTED
Centurion/Senator**	20	14*
V2	20	30*
Gemini/Minislate	20	40*
Plain Tile	25	45*
Hardrow	40	60*

* Add 6mm for a ply tilting fillet

** Non-vented requires the use of eave filler strips



4. Nail a universal eave filler strip to the top of the fascia or support batten* using 50 x 3.35mm aluminium nails. A minimum of three nails per strip should be used.

Position and fix the first tiling batten so that the tails of the tiles/slates overhang the fascia by 50mm.



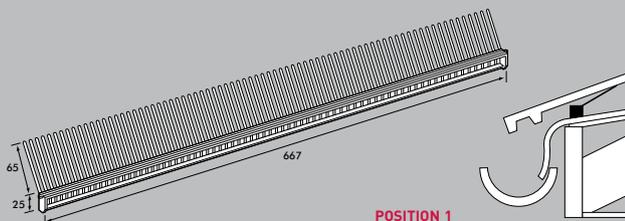
* For Forticrete products Gemini, Minislate, V2, Hardrow and Plain Tiles the comb of the universal eaves filler strip should lean backwards towards the ridge. For Centurion and Senator products the comb should lean away from the roof over the gutter.

5. Generally starting on the right hand side of the roof lay the eaves course of tiles, opening or closing the shunt on the tiles so that the desired measurement is achieved between verges, valleys or hips.

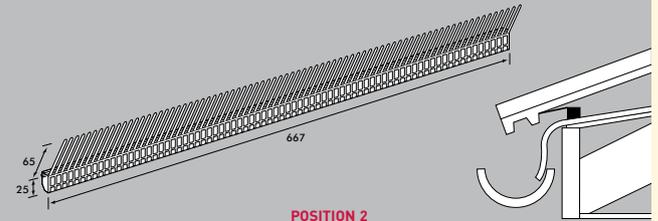
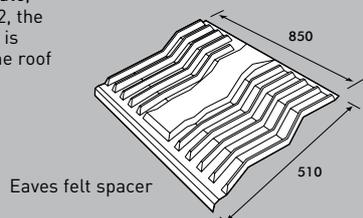


Note: It may be necessary to use tile and a half or slate and a half (or bonded double width tiles if constructing a mitred hip with Minislates) to avoid small unfixed tile/slate pieces.

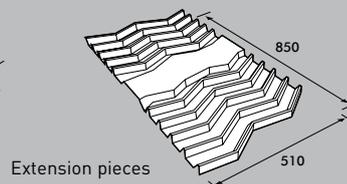
EAVES COMPONENTS PROVIDE UP TO 25,000mm²/m



1. For Gemini, Hardrow Slate, Minislate, Plain Tiles, V2, the 'comb' of the filler strip is positioned leaning up the roof slope.



2. For Centurion and Senator, the 'comb' of the filler strip is positioned leaning away from the roof slope.



Dimensions shown in millimetres

VERGE DETAILING

UNDERCLOAK DRY VERGE (GEMINI & MINISLATE)

WORKING PROCEDURE

1. Felt and batten the roof in the normal manner, ensuring that the underlay and battens are trimmed to be in line with the outside edge of the external wall or bargeboard at the verges.

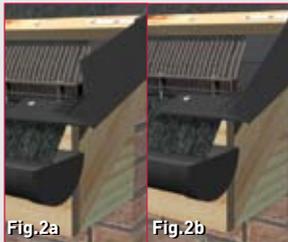
Do not fix batten to gable rafter yet.

Note: if the roof is counter batted the bargeboard/brickwork will need to be at a height that is level with the underside of the tiling batten.

2. Offer the full length of undercloak up to the verge, slide in position under the batten ends, but on top of the underlay with the bottom leg hard against the external wall or bargeboards.



3. Slide the sprocketed connector onto the full length unit ensuring that the centre line of the sprocket connector is in line with the bottom of the eaves batten. Slide into the sprocket connector either a LH or RH short eaves sprocket length, (and seal with mastic), ensuring that the bottom overhangs the fascia by 50mm and nail to fascia.



Note: When the Forticrete eaves vent system is being used, position the vented eave filler strip above the short eaves sprocket length. As shown in Fig 2(a).

Should it be preferred, the short eaves sprocket unit can be trimmed to follow the line of tiles into the gutter, as shown in figure 2(b).

4. Nail batten ends to gable rafters but do not nail into the verge unit as this will restrict thermal movement.

Note: if the distance from the final batten fixing to the end of the batten is greater than 350mm, when using 50 x 25 battens, then it will be necessary to double batten at the verge (min length 1.2m) for added strength.



Fix using 2 x 25mm aluminium nails, an undercloak verge clip to the end of each batten so that the clip locates over the upstand on the verge unit.



5. Offer up subsequent dry verge sections to the verge and join using expansion connectors. Use mastic to fill each joint on the inside of the undercloak channel, to prevent leakage.



Trim each undercloak dry verge at the ridge ensuring there is a least a 5mm gap where the two undercloak dry verge sections meet. This gap is necessary to allow for expansion caused by the heat of the sun.

Note: Where there is a block end ridge at the gable this will cover the join. If no block end ridge is used then the 5mm gap will need to be filled with a mastic sealant.

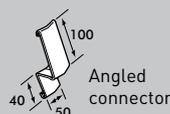
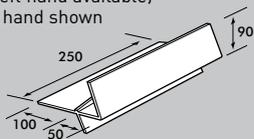


Tile the roof in the normal manner, ensuring that the verge tiles are properly located into the clips.

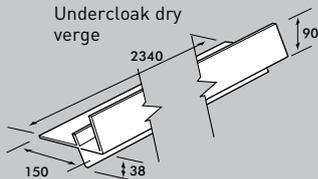
VERGE COMPONENTS COLOUR: GREY AND RUSTIC

Starter pack

Eaves Sprocket unit (right and left hand available) right hand shown

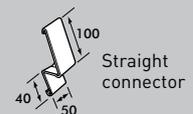
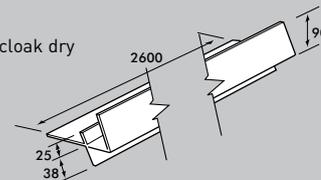


Undercloak dry verge



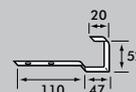
Continuation pack

Undercloak dry verge



Clips

Undercloak dry verge clip



Dimensions shown in millimetres

VERGE DETAILING

UNDERCLOAK DRY VERGE (HARDROW SLATE, CENTURION, SENATOR & V2)

WORKING PROCEDURE

1. Felt and batten the roof in the normal manner, ensuring that the underlay and battens are trimmed to be in line with the outside edge of the external wall or bargeboard at the verges.

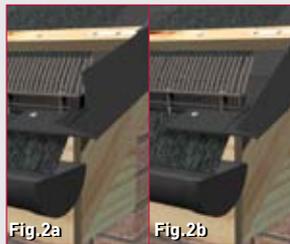
Do not fix batten to gable rafter yet.

Note: if the roof is counter batted the bargeboard/brickwork will need to be at a height that is level with the underside of the tiling batten.

2. Offer the full length of undercloak up to the verge, slide in position under the batten ends, but on top of the underlay with the bottom leg hard against the external wall or bargeboards.



3. Slide the sprocketed connector onto the full length unit ensuring that the centre line of the sprocket connector is in line with the bottom of the eaves batten. Slide into the sprocket connector either a LH or RH short eaves sprocket length, (and seal with mastic), ensuring that the bottom overhangs the fascia by 50mm and nail to fascia.



Note: when using Centurion, Senator and V2, the fascia will need to be notched to allow the short eaves length to discharge into the gutter. As shown in Fig. 2.

Note: when using, Hardrow Slate (and the Forticrete eaves vent system is being used) position the vented eave filler strip above the short eaves sprocket length, as shown in (2a).

Should it be preferred, the short eaves sprocket unit can be trimmed to follow the line of tiles into the gutter, as shown in figure 2(b).

4. Nail batten ends to gable rafters.

Note: If the distance from the final batten fixing to the end of the batten is greater than 350mm, when using 50 x 25 battens, then it will be necessary to double batten at the verge (min length 1.2m) for added strength.

Fix using 2 x 25mm aluminium nails.



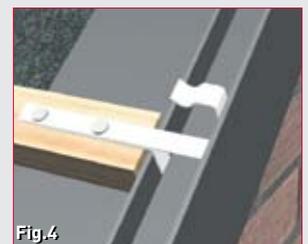
5. Position a hook clip on alternate battens (fig 3) located under a standard verge clip (fig 4) - which is fitted to every batten - and fixed with 2 x 25mm aluminium nails.

Note: Make sure the verge clip touches the inside edge of the verge strip. Do not nail into the verge unit, as this will restrict thermal movement.



Tile the roof in the normal manner, ensuring that the verge tiles are properly located into the clips.

Note: When laying Centurion and Senator tiles ensure cut tiles are used at either verge to enable the verge clip to locate correctly. See Forticrete product literature.



6. Offer up subsequent dry verge sections to the verge and join using expansion connectors. Use mastic to fill each joint on the inside of the undercloak channel, to prevent leakage.

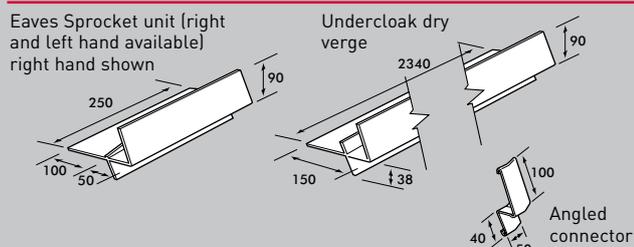
Trim each undercloak dry verge at the ridge ensuring there is a least a 5mm gap where the two undercloak dry verge sections meet. This gap is necessary to allow for expansion caused by the heat of the sun.



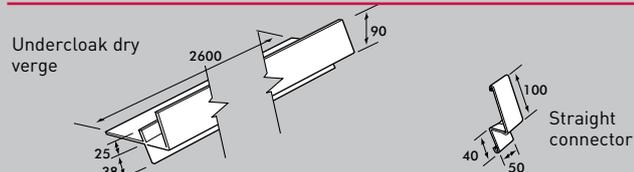
Note: If no block end ridge is used at the gable, fill the 5mm gap with a mastic sealant.

VERGE COMPONENTS COLOUR: GREY AND RUSTIC

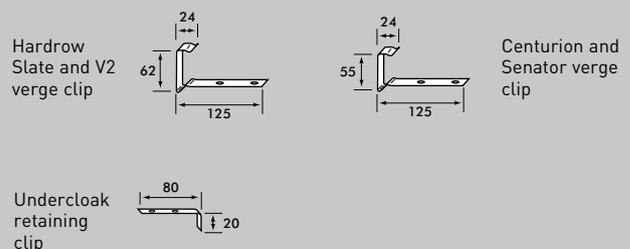
Starter pack



Continuation pack



Clips



Dimensions shown in millimetres

HIP DETAILING

THIRD ROUND DRY HIP

WORKING PROCEDURE

1. Construct the hip rafter to a height of 50mm.

Note: The hip rafter height is nominal and is measured from the underside of the tiling batten to the top of the hip rafter, based on a 25mm batten.

2. Fix lengths of batten to the side of the hip rafter to support the ends of the battens. Felt and batten the roof in the normal manner.

3. Tiles should be cut accurately to the hip rafter using either standard or tile and a half tiles* where cutting would leave an unsupported slip of tile.

The tiles at the bottom of the hip should be cut as shown to allow the blockend tile to sit as close to the fascia as possible.

* Double tiles – made to special order – may also be necessary depending on the roof pitch.

Note: For Gemini 2 x tile and a half side by side may be used in lieu of a double tile.

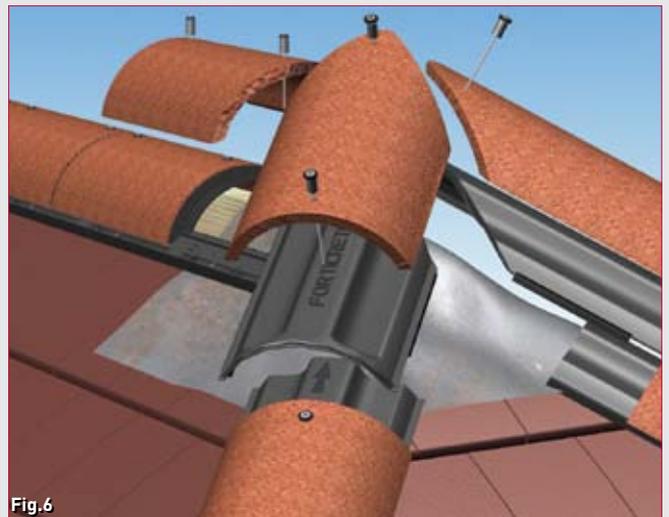
4. At the bottom of the hip lay the first carrier tray.



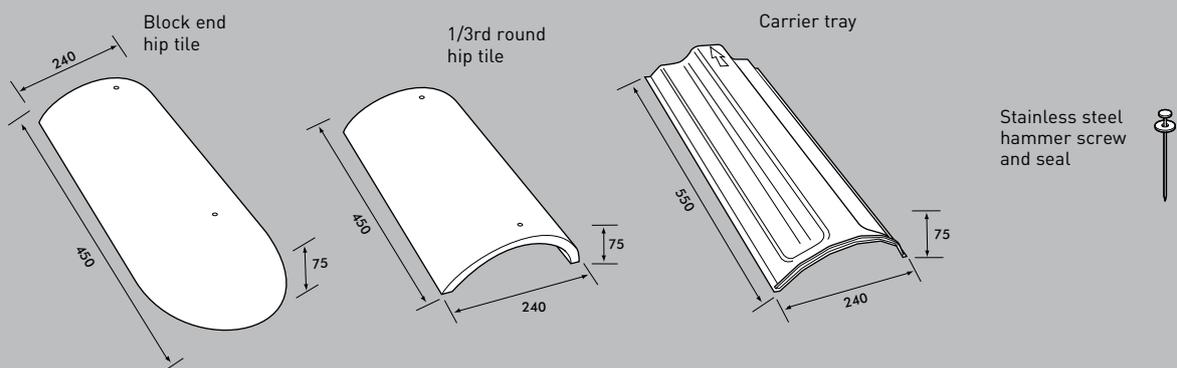
5. Position then nail a third round block-end ridge to the hip timber using 2 x 80mm screw nails and seals. Position and fix further carrier trays and third round hips in the same manner.



6. At the ridge hip junction position a code 4 lead saddle over the last course of tiles to weather proof the ridge hip union. Neatly mitre cut the third round hip and ridge tiles – repositioning any nail holes – to form a neat weathertight junction.



HIP COMPONENTS SUITABLE FOR USE WITH: GEMINI AND MINISLATE



Dimensions shown in millimetres

HIP DETAILING

BONNET HIP TILE

WORKING PROCEDURE

1. Construct the hip rafter to the height for the tile from the table.

Note: The hip rafter heights are nominal and are measured from the underside of the tiling batten to the top of the hip rafter, and are based on a 25mm high batten.

2. Fix lengths of batten to the hip rafter to support the ends of the battens. Felt and batten the roof in the normal manner.



3. Tiles should be cut accurately to the hip rafter using either standard or tile and a half tiles* where cutting would leave an unsupported slip of tile.

* Double tiles – made to special order – may also be necessary depending on the roof pitch.

Note: For Gemini 2 x tile and a half side by side may be used in lieu of a double tile.



Note: Square cut the two end tiles to allow the block end to fit closely to the corner of the fascia.

4. Peel the backing of the adhesive and roll out the tape seal over the cut tiles as work commences up the whole length off the hip. Joints should be overlapped by a minimum of 75mm.



On some pitches a timber packing piece may be required to support and aid the fixing of the blockend ridge.



5. Nail a blockend ridge to the timber-packing piece using a 80mm hammer screw and integral seal. Further secure at the top using an 80mm hammer screw and seal.



6. Lay subsequent bonnet hip tiles by using an 80mm hammer screw and seal. Make sure the bottom edge of the bonnet hip is in line with the bottom edge of the course of tiles it is positioned over.



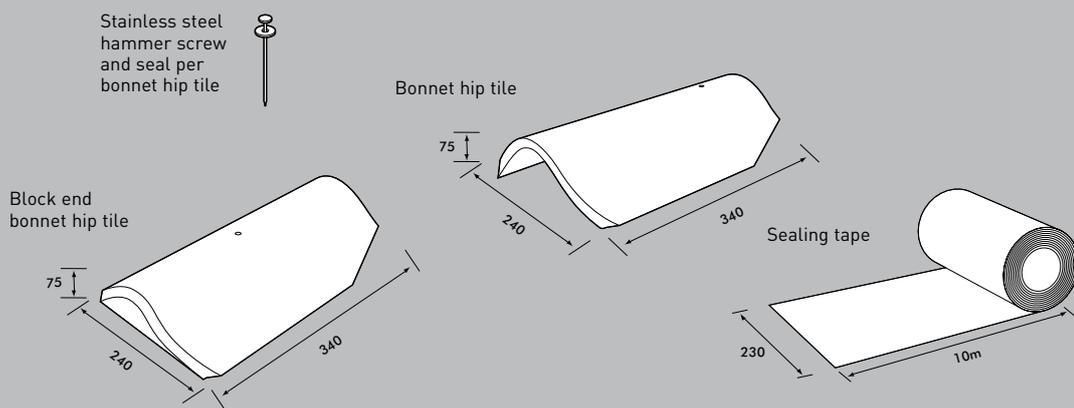
7. When meeting a mortar bedded or dry ventilated ridge, notch the sides of a block end ridge and use a code 4 lead saddle to weatherproof and protect the ridge hip intersection.



Note: It may be necessary to trim the top 2 Bonnet Hips.

TILE	HIP RAFTER HEIGHTS	
	MIN PITCH	HIP RAFTER HEIGHTS
Minislate	22.5°	65mm
Gemini	22.5°	65mm

HIP COMPONENTS SUITABLE FOR ROOF PITCHES 22.5° TO 55°



HIP DETAILING

MITRED HIP

WORKING PROCEDURE

1. Ensure that the hip rafter bisects the angle at the fasciabord equally on plan.

2. Felt and batten the roof in the normal manner with the batten ends mitred on top of the hip rafter. Locate the first hip soaker centrally over the hip rafter and nail to the first tiling batten using two 25mm nails.

3. Where possible set out the eaves course so as to provide an equal cut at each hip. At the hip lay either a standard or tile and a half tile* on each side and mark and cut to give a close fitting mitred joint. Position the mitred cut tiles over the soaker.

Note: Cut tiles off the roof. The cut needs to be raked back at a 45° angle as well as mitred.

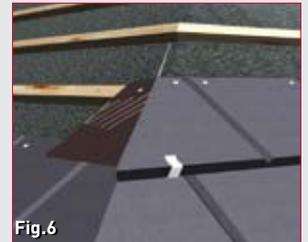
* Double tiles (for Minislate), or 2 No. tile and a half tiles (for Gemini) laid next to each other, may also be necessary depending on the roof pitch, where cutting would leave an unfixed tile slip.



4. Either side of the hip the cut tiles are secured by 40mm nails (not provided). On the left hand side of the hip, the tile clip secures the tail of the tile. On the right hand side of the hip at a hole nearest the hip rafter, a special mitred hip clip is positioned on top of the tile, and is secured by nailing through the tile and into the batten.



5. Locate the second hip soaker centrally over the hip rafter on top of the first course of mitred tiles and nail to the second course of tiling battens using two 25mm nails.

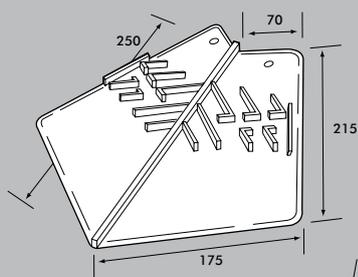


6. Lay the second course of tiles working towards the hip from both directions. At the hip, position a double tile on each side (see Note opposite), then mark and cut to give a close fitting mitred joint. Position the mitred cut tiles over the mitred hip soaker and locate the right hand cut tile into the clip.

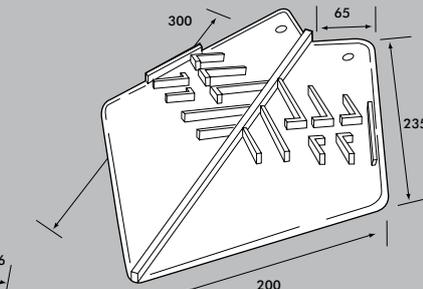
Repeat steps 4, 5 and 6 to complete the mitred hip.

HIP COMPONENTS SUITABLE FOR USE WITH: GEMINI AND MINISLATE MINIMUM PITCH 22.5°

For hips 90° on plan

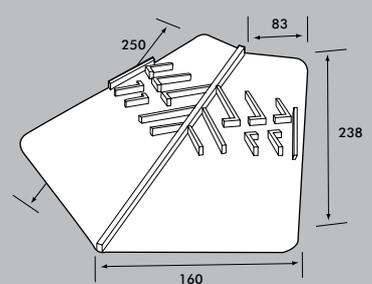


Hip soaker 45°-70°

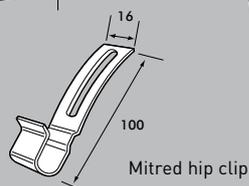


Hip soaker 22.5°-44.5°

For hips 135° on plan



Hip soaker 22.5°-44.5°



Mitred hip clip

Dimensions shown in millimetres

HIP DETAILING

HARDROW SLATES PURPOSE MADE HIPS

WORKING PROCEDURE

Standard detail

Nail Hardrow purpose made hip slates to the hip rafter with an aluminium alloy or copper wire nail at least 100mm in length. The nail must penetrate into the hip rafter for a minimum of 25mm. Commence slating from the hips with a full slate and use a slate and a half cut as required to maintain the correct side lap. In exposed areas, spot bedding with a Forticrete approved mastic under the tail of the hip tile is recommended, with the hip slates fixed with a stainless steel screw and neoprene washer for added security. (Fig.1)



Non-Standard detail

Special hip tiles can be supplied for roofs with unequal pitches to a maximum of 10°, depending on adjacent roof pitches.

1. Set out the roof with the shallowest pitch first, to correct batten gauge.
2. Place a slate on a batten on the shallower pitched roof and present a hip slate to it. (Fig.2). (It will be noted that the shallower pitched side of the special is the same length as the slate).
3. Present a slate to the steeper pitched side of the special (it will be noted that the special has a shorter edge than the slate). Ensure that the tail of the slate coincides exactly with the bottom point of the special, the position of the nail holes on this steeper pitched slate gives the batten line for the steeper pitched roof. (Fig.3)

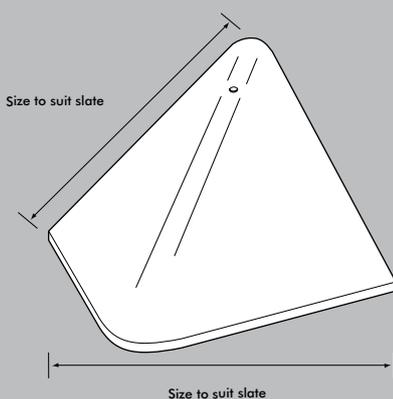
Splay Hip detail (minimum pitch 25°)

Where angles on plan are other than 90°, hips can be manufactured to suit. The splay hips are laid in alternate courses, with other alternate courses mitred, using slate and a half. No soakers are required. Splay hips are fixed in the same manner as standard hips.

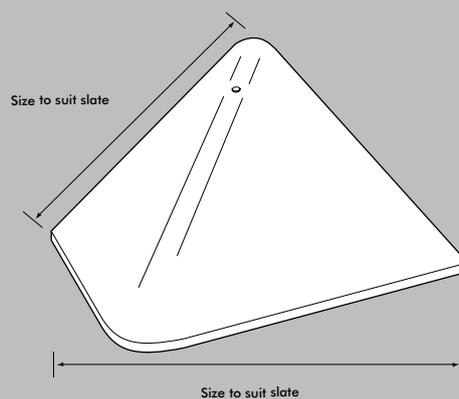
Note: The height of the fascia is critical to the correct fitting of the purpose made hips. Please refer to table on Page 1.

HIP COMPONENTS

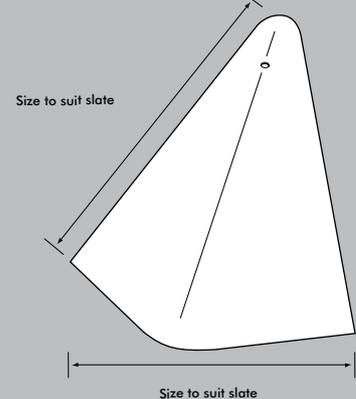
Standard Hip



Non-Standard Hip



Splay Hip (Minimum pitch 25°)



Dimensions shown in millimetres

HIP DETAILING

HARDROW SLATES MITRED HIPS

WORKING PROCEDURE

1. Lay the tiling battens so that they meet level and in line at the hip. (Fig.1)



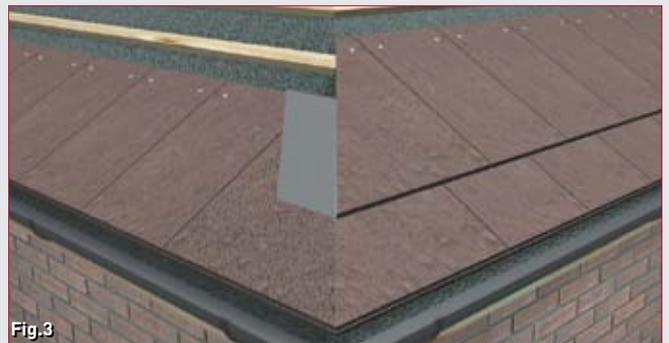
Note: Mitred hips should only be used when the pitch either side of the hip is equal.

2. Hardrow Slates are close cut and mitred down the line of the hip and weathered by a parallel sided lead soaker which lays between the slates on each course. The soaker is secured by turning the top 25mm over the top of the slate. The length of the soaker is determined by the equation - gauge + headlap + 25mm. (Fig.2)



3. Slate and a half should be used for cutting so that enough width is provided to maintain a sufficient side lap. (Fig.3)

4. Hip soakers are suitable for all roof pitches and should extend not less



than 100mm on each side of the mitre for roof pitches 35° and above.

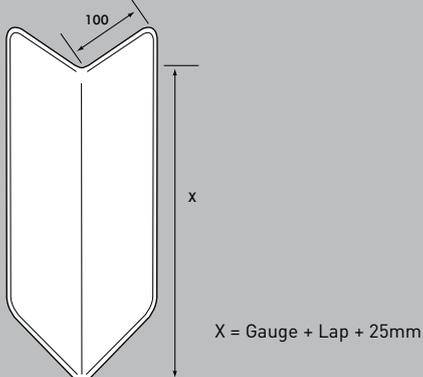
Note: The height of the fascia is critical to the correct fitting of the mitred hips. Please refer to table on Page 1.



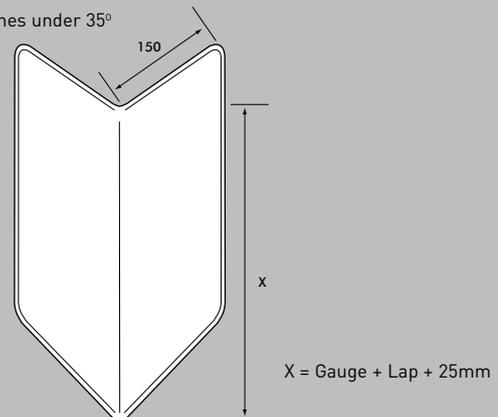
HIP COMPONENTS

Mitred HIP Soaker

For pitches over 35°



For pitches under 35°



Dimensions shown in millimetres

RIDGE DETAILING

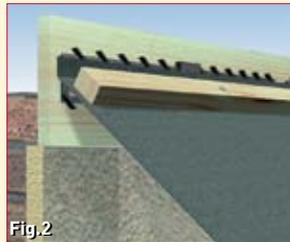
MONO PITCH DRY RIDGE

WORKING PROCEDURE

1. Fix a batten to the outside wall to aid the fixing and alignment of the mono-ridge tiles.



2. If using a non vapour permeable (HR) underlay leave a 5mm gap at the top of the roof for ventilation. If using a vapour permeable (LR) underlay there is no need to leave a 5mm gap.



When using Centurion, Senator or V2 tiles it is recommended that a vapour permeable underlay is used. If a non-permeable underlay is used, a mono-pitch felt spacer will be required, fitted to each rafter (see Fig. 2).



Note: With these products, depending on the roof pitch, it may be necessary to adjust the top tiling batten so that the front leading edge of the mono-ridge tile sits firmly on top of the profiled top filler.

3. Position the top tiling batten in the desired position.



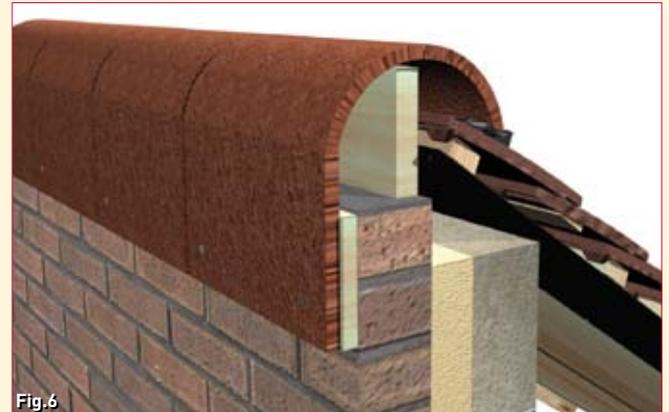
4. Tile the roof in the normal manner.

5. Place a block-end mono ridge at the gable end at the same time interlock two top fillers together locating them under the blockend. Secure the block end with 2 x 45mm 8 gauge s/s screws through the two holes in the vertical leg.

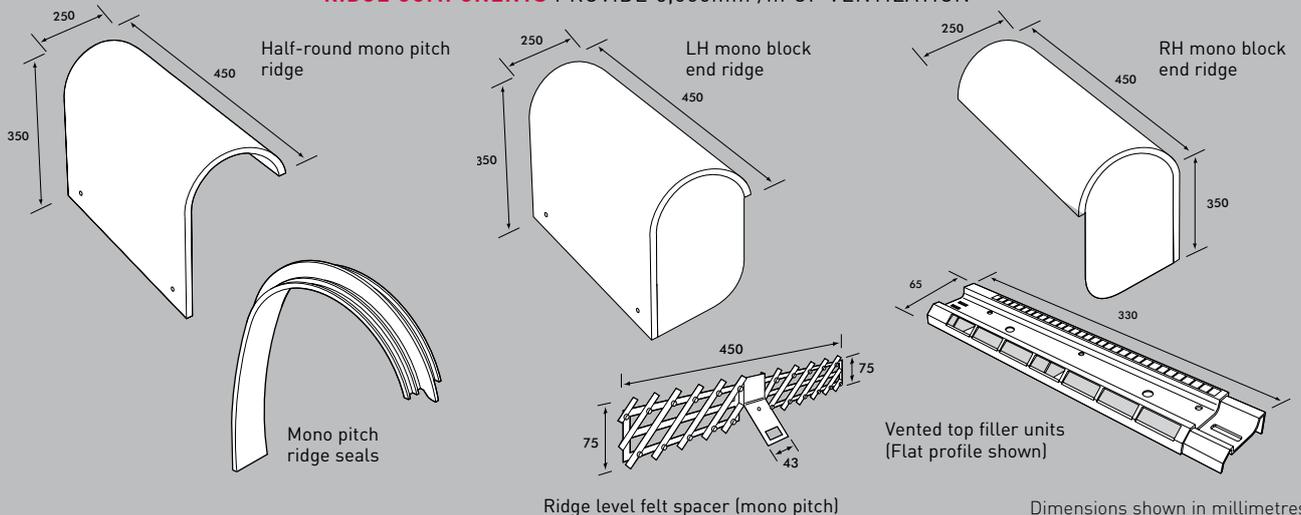


6. Lay subsequent mono-ridge tiles and top fillers positioning a ridge to ridge seal between each mono-ridge as you proceed.

Note: This picture shows a section for illustration purposes. It is recommended a RH/LH blockend mono-ridge is used at gable ends.



RIDGE COMPONENTS PROVIDE 5,000mm²/m OF VENTILATION



RIDGE DETAILING

DUO PITCH RIDGEBOARD (FLAT TILES & SLATES)

WORKING PROCEDURE

1. Ensure that the ridgeboard projects above the rafter intersection by the dimension in millimetres given in the table below.

2. When constructing a ventilated ridge using a vapour permeable (LR) underlay, lap the underlay over the ridge.

If using a non vapour permeable (HR) underlay then leave a 5mm gap at the ridge to allow for air movement from the roof space. For a non ventilated ridge lap the underlay over the ridge.

3. Batten the roof to the required gauge. Position the top tiling batten approx 35mm down (or 10mm if the Hardrow top slate is being nailed into a batten) from the ridgeboard measured on the rafter.

Lay the roof tiles in the normal manner.

4. Working from a gable lay top fillers on the top course of tiles or slates at the same time as positioning a blockend ridge. Secure the blockend with 2 x 80mm hammer screws provided placing a plastic seal under the end of the ridge tile.



Note: The block end ridge must be secured with an 80mm hammer screw and integral washer through at least one of its nail-holes. The unused nail-hole should be sealed with a silicone sealant.

Subsequent top fillers can now be clicked into place along the ridge before the placement and fixing of the next ridge tile and seal.

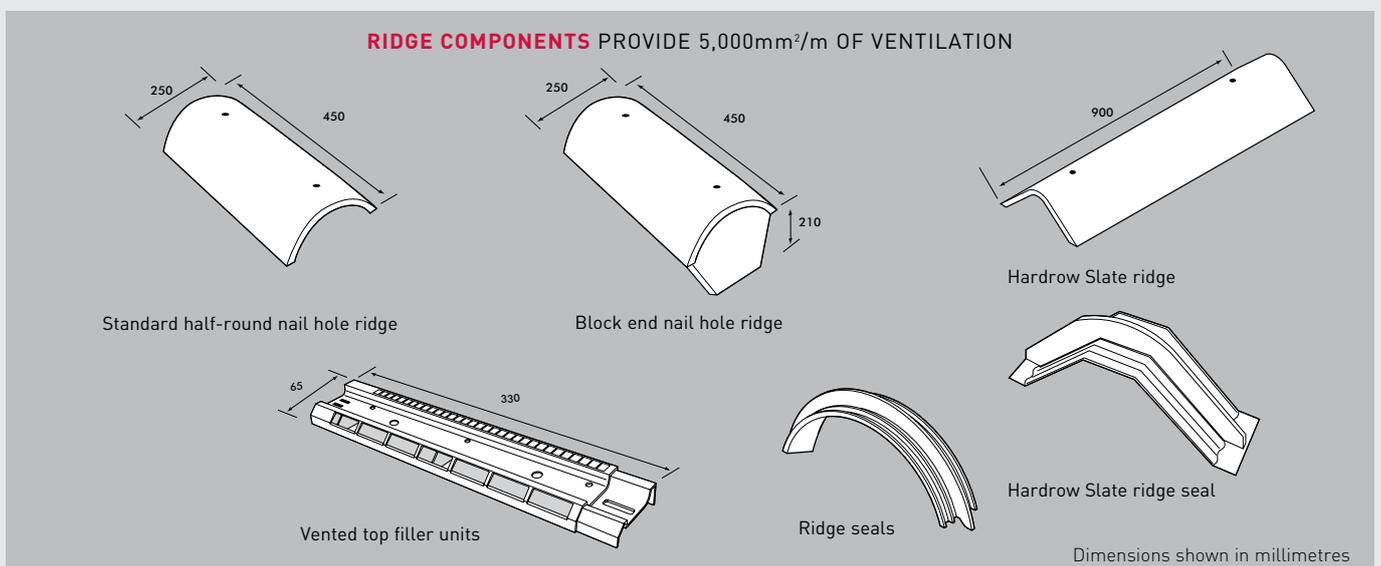
5. Secure each ridge tile using 2 x 80mm hammer screws and integral washer provided making sure that the washer makes a watertight seal over the nail-hole.

It may be necessary to cut a ridge tile to suit the ridge length. Always finish on a full blockend.



PROJECTION OF RIDGE BOARD ABOVE RAFTER									
Rafter Pitch	12.5°	15°	17.5°	22.5°	25°	30°	35°	40°	45°
Gemini	-	-	-	105	105	95	80	80	70
Hardrow Slate	-	-	100	100	100	100	90	90	80
Minislate	-	-	-	105	105	95	80	80	70

Figures given in this table are nominal and based on a 30mm wide ridgeboard.



RIDGE DETAILING

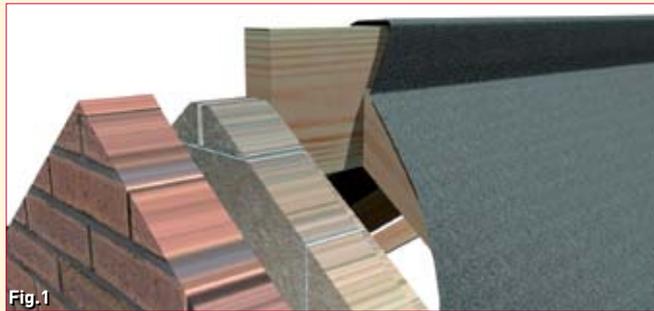
DUO PITCH RIDGEBOARD (PROFILED TILES)

WORKING PROCEDURE

Note: This system can be vented or non-vented using the appropriate top fillers

1. Ensure that the ridge board projects above the rafter intersection by the dimension in millimetres given in the table.

Note: The figures in the table are nominal and are based on a 30mm wide ridge board.



2. When constructing a vented ridge using a non vapour permeable (HR) underlay, fix a mono pitch felt spacer to one side of the ridge board using a 25mm nail provided.

Secure the felt on the non-vented side to the ridge board.

Note: If the ridge is to be non-vented or when using a (LR) underlay then omit the mono pitch felt spacers and lap underlay over the ridge board. (Fig.1)

3. Lay the roofing felt to finish 15mm from the top of the felt spacers. (Fig.2)

Position the top tiling batten in the desired position, for the slate or tile.



4. Tile the roof in the normal manner and lay either vented or non-vented top fillers on the top course of tiles or slates. Place a block end ridge at the gable end, positioning a ridge seal and subsequent top fillers before the placement and fixing of the next ridge tile and seal.

Note: The block end ridge must be secured with an 80mm hammer screw and integral washer through at least one of its nail-holes. The unused nail-hole should be sealed with a silicone sealant.



5. Secure each ridge tile using 2 x 80mm hammer screws and integral washer provided making sure that the washer makes a watertight seal over the nail-hole.)

PROJECTION OF RIDGE BOARD ABOVE RAFTER									
Rafter Pitch	12.5°	15°	17.5°	22.5°	25°	30°	35°	40°	45°
Centurion	120	120	105	105	105	95	95	95	83
Senator	-	-	105	105	105	95	95	95	83
V2	-	-	105	105	105	95	-	-	-

Figures given in this table are nominal and based on a 30mm wide ridgeboard.

RIDGE COMPONENTS PROVIDE 5,000mm²/m OF VENTILATION

Standard half-round nail hole ridge

Block end nail hole ridge

Ridge level felt spacer (mono pitch)

Ridge seals

Centurion/Senator top fillers

V2 top fillers

Dimensions shown in millimetres

RIDGE DETAILING

DUO PITCH TRUSSED RAFTER (FLAT TILES AND SLATES)

WORKING PROCEDURE

1. When constructing a ventilated ridge using a vapour permeable (LR) underlay, lap the underlay over the ridge. Nail to each truss a ridge batten bracket using two 25mm nails provided.



Fig.1

If using a non vapour permeable (HR) underlay then leave a 5mm gap at the ridge to allow for air movement from the roof space. For a non ventilated ridge lap the underlay over the ridge.



Fig.2

2. Batten the roof to the required gauge. Position the top tiling batten approx 35mm down (or 10mm if the Hardrow top slate is being nailed into a batten) from the apex of the truss measured on the rafter.



Fig.3

3. At the top fix a ridge batten across the top of the ridge batten brackets to the appropriate size taken from the table*.

Make sure the ridge batten bracket projects approx 38-50mm or is inline with the verge undercloak, so as to accept the 1st nail fixing of the blockend ridge. The batten must be secured at each ridge batten bracket by nailing once each side with a 25mm nail provided.

Where the ridge batten is to be joined it must be spliced at a ridge batten bracket and nailed using the holes and 25mm nails provided.

4. Lay the roof tiles in the normal manner.



5. Working from a gable lay top fillers on the top course of tiles or slates at the same time as positioning a blockend ridge. Secure the blockend with 2 x 80mm hammer screws provided placing a plastic seal under the end of the ridge tile. Subsequent top fillers can now be clicked into place along the ridge before the placement and fixing of the next ridge tile and seal.



Fig.4

Note: The block end ridge must be secured with an 80mm hammer screw and integral washer through at least one of its nail-holes. The unused nail-hole should be sealed with a silicone sealant.



Fig.5

6. Secure each ridge tile using 2 x 80mm hammer screws and integral washer provided making sure that the washer makes a watertight seal over the nail-hole.

It may be necessary to cut a ridge tile to suit the ridge length. Always finish on a full block end.

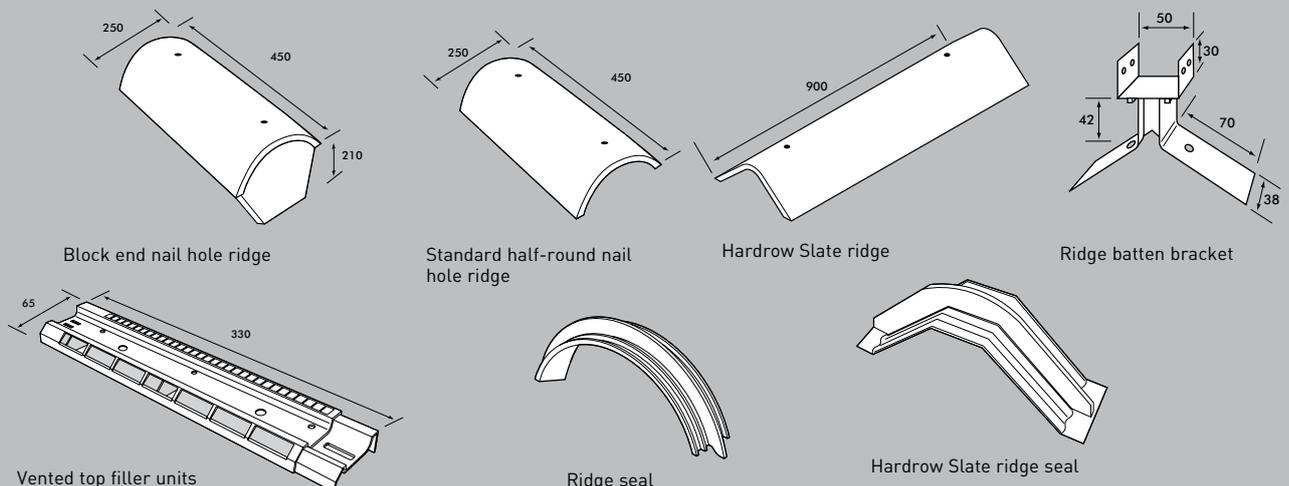
RIDGE BATTEN SPECIFICATIONS

Rafter Pitch	12.5°	15°	17.5°	22.5°	25°	30°	35°	40°	45°
Gemini	-	-	-	60	60	50	38	25	25
Hardrow Slate	-	50	50	50	50	50	38	25	25
Minislate	-	-	-	60	60	50	38	25	25

Dimensions given are for batten heights. In all cases batten width shall be 50mm.

Note: Figures given in this table are nominal

RIDGE COMPONENTS PROVIDE 5,000mm²/m OF VENTILATION



Dimensions shown in millimetres

RIDGE DETAILING

DUO PITCH TRUSSED RAFTER (PROFILED TILES)

WORKING PROCEDURE

Note: This system can be vented or non-vented using the appropriate top fillers

1. When constructing a ventilated ridge using a non vapour permeable (HR) underlay, attach a duo pitch felt spacer to each ridge batten bracket and fix on both sides of each truss, using 25mm nails. (Fig.1)



2. Fix a ridge batten, to the appropriate size taken from the table, across the top of the ridge batten brackets.

The batten must be secured at each ridge batten bracket by nailing once each side with a 25mm nail.



3. Where the ridge batten is to be joined, it must be spliced at a ridge batten bracket and nailed using the holes provided.

4. Lay the roofing felt to finish 15mm from the top of the felt spacers. (Fig.2)

Note: For a non-ventilated ridge, or when using an LR underlay, omit the duo pitch felt spacer and lap the underlay over the ridge.

Position the top tiling batten in the desired position, for the tile.

RIDGE BATTEN SPECIFICATIONS

Rafter Pitch	12.5°	15°	17.5°	22.5°	25°	30°	35°	40°	45°
Centurion	75	75	60	60	60	50	50	25	25
Senator	-	-	-	60	60	50	50	25	25
V2	-	-	60	60	60	50	-	-	-

Dimensions given are for batten heights. In all cases batten width shall be 50mm.

Note: Figures given in this table are nominal



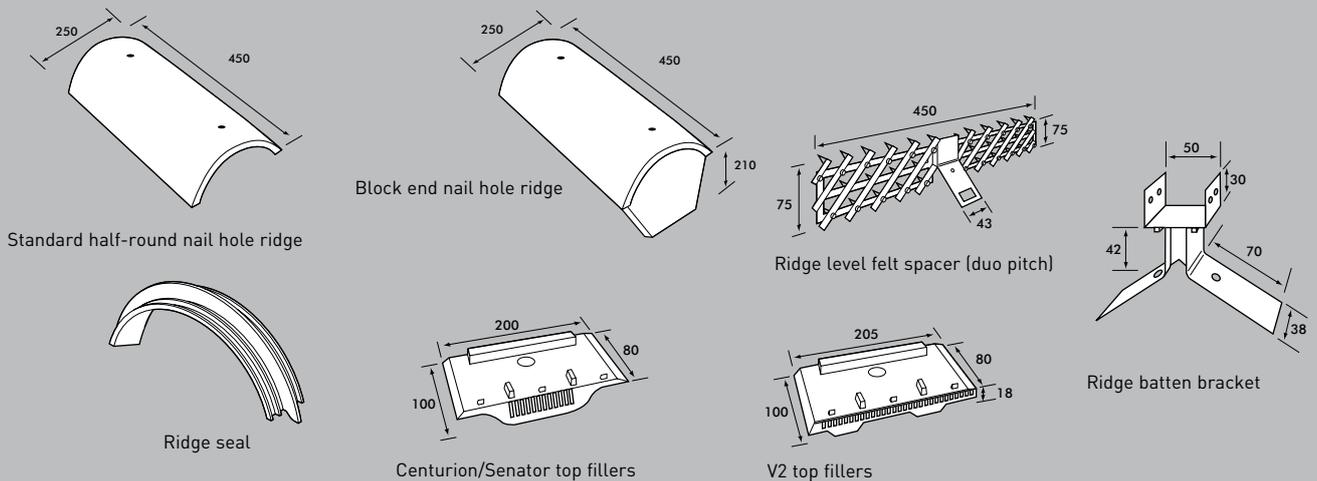
5. Tile the roof in the normal manner and lay either vented or non-vented top fillers on the top course of tiles. Place a block end ridge at the gable end, positioning a ridge seal and subsequent top fillers before the placement and fixing of the next ridge tile and seal.

Note: The block end ridge must be secured with an 80mm hammer screw and integral washer through at least one of its nail-holes. The unused nail-hole should be sealed with a silicone sealant.

6. Secure each ridge tile using 2 x 80mm hammer screws and integral washer provided making sure that the washer makes a watertight seal over the nail-hole.

It may be necessary to cut a ridge tile to suit the ridge length. Always finish on a full block end.

RIDGE COMPONENTS PROVIDE 5,000mm²/m OF VENTILATION



Dimensions shown in millimetres

RIDGE DETAILING

AIR/SOIL VENT RIDGE TERMINAL

WORKING PROCEDURE

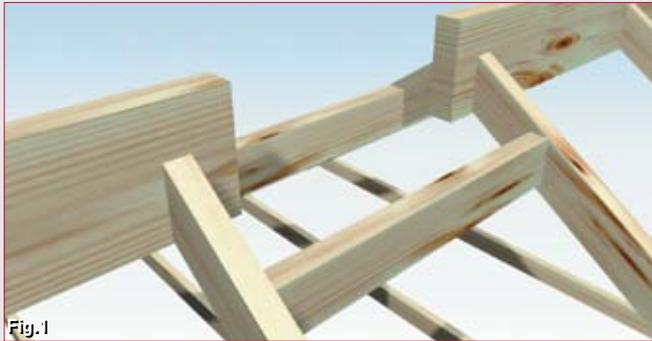


Fig.1

1. When using to vent soiled air, remove a section of ridge batten or ridge board between the two rafters or trusses where the ridge terminal is to be located. Timber noggins must be fitted between the rafters to strengthen the roof prior to cutting through the ridge board. (Fig.1)

Note: This is not necessary when used as an air vent terminal

2. When used for soiled air extraction, fix the extension box to the underside of the ridge terminal using the bolts and gasket provided.

Note: The extension box should be fitted prior to the Soil Vent Ridge terminal being placed on the roof.

A 110mm R-type adaptor is available to enable a soil pipe or extractor fan to be connected to the Ridge terminal.



Fig.2

3. Felt, batten and tile or slate the roof in the normal manner.

4. Lay non-vented top fillers on the top course of slates or tiles, these must be fitted under and for 600mm either side of the Soil Vent ridge terminal.

Note: If used in a mortar bedded situation, the two ridge tiles adjacent to the Lo-Vent ridge terminal must be fixed mechanically.



5. For Hardrow Slates position ridge seals on both ends of the ridge terminal and place in the appropriate position. Lay subsequent ridge tiles, working away from the Ridge terminal, so that they interlock by positioning a ridge seal onto the end of each ridge.



Fig.3

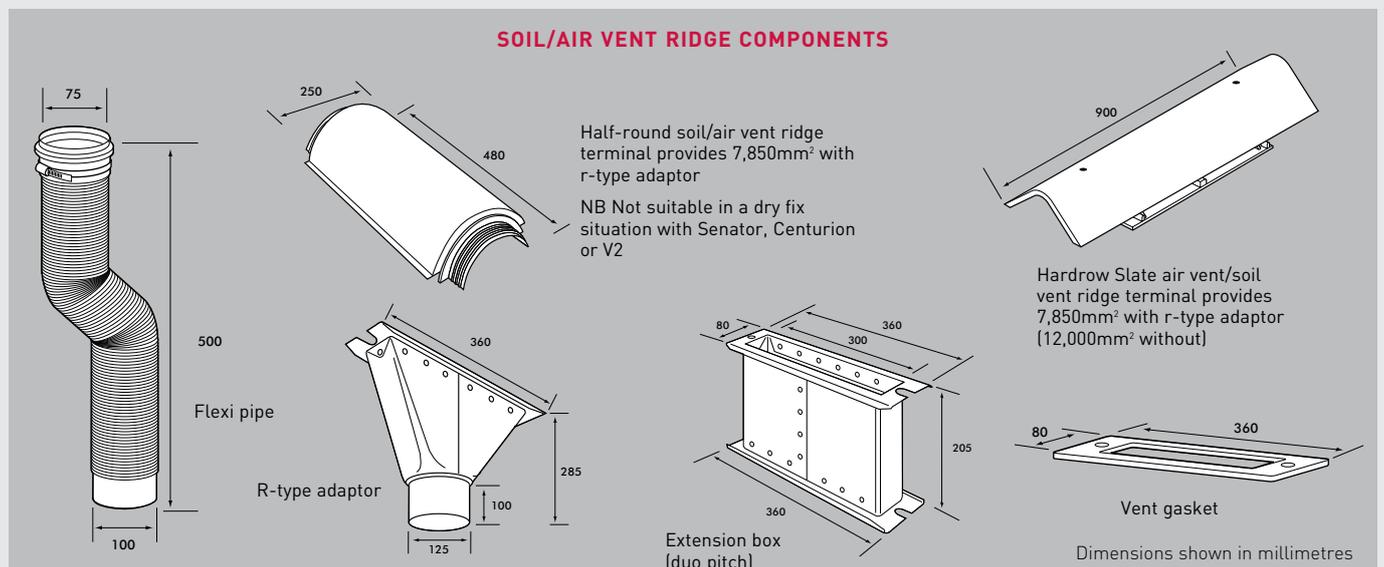
6. Secure each ridge tile using an 80mm stainless steel ringed shank nail and integral washer provided. Use block end ridges at gable ends. If bedding in mortar, solid bed the terminal at both ends only.



Fig.4

Note: If the ridge length does not work out to full ridge tile lengths, then it will be necessary to cut the ridges to suit. Do not cut the block end ridge.

SOIL/AIR VENT RIDGE COMPONENTS



RIDGE DETAILING

GAS VENT RIDGE TERMINAL

WORKING PROCEDURE

1. Remove a section of ridge batten or ridge board between the two rafters or trusses where the gas vent ridge terminal is to be located. Timber noggins must be fitted between the rafters to strengthen the roof prior to cutting through the ridge board. (Fig.1)



Fig.1

2. Fix the extension box to the underside of the gas vent ridge terminal using the bolts and gasket provided. (Fig.2)



Fig.2

Note: The extension box should be fitted prior to the gas vent ridge terminal being placed on the roof.

A 125mm R-type adaptor is available to enable a gas duct to be fitted to the gas vent ridge terminal.

3. Felt and batten the roof in the normal manner. Lay top fillers on the top course of slates or tiles. (Fig.3)

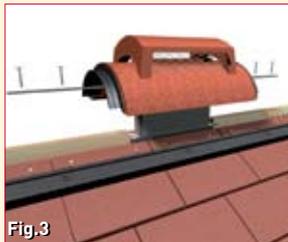


Fig.3

Note: Non-vented top fillers must be fitted under and for 600mm either side of a gas vent ridge terminal.



4. Position ridge seals on both ends of the gas vent ridge terminal and place in the appropriate position. Lay subsequent ridge tiles, working away from the gas vent ridge terminal, that interlock by slotting a ridge seal onto the end of each ridge unit at the opposite end to the nail hole. (Fig.4) Use block end ridges at gable ends.



Fig.4

Note: If the ridge length does not work out to full ridge tile lengths, then it will be necessary to cut the ridges to suit. Do not cut the block end ridge.

5. Secure each ridge tile using an 80mm stainless steel ringed shank nail and integral washer provided.

Note: For Hardrow Slates the gas vent ridge terminal is mortar bedded.

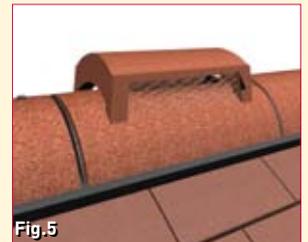
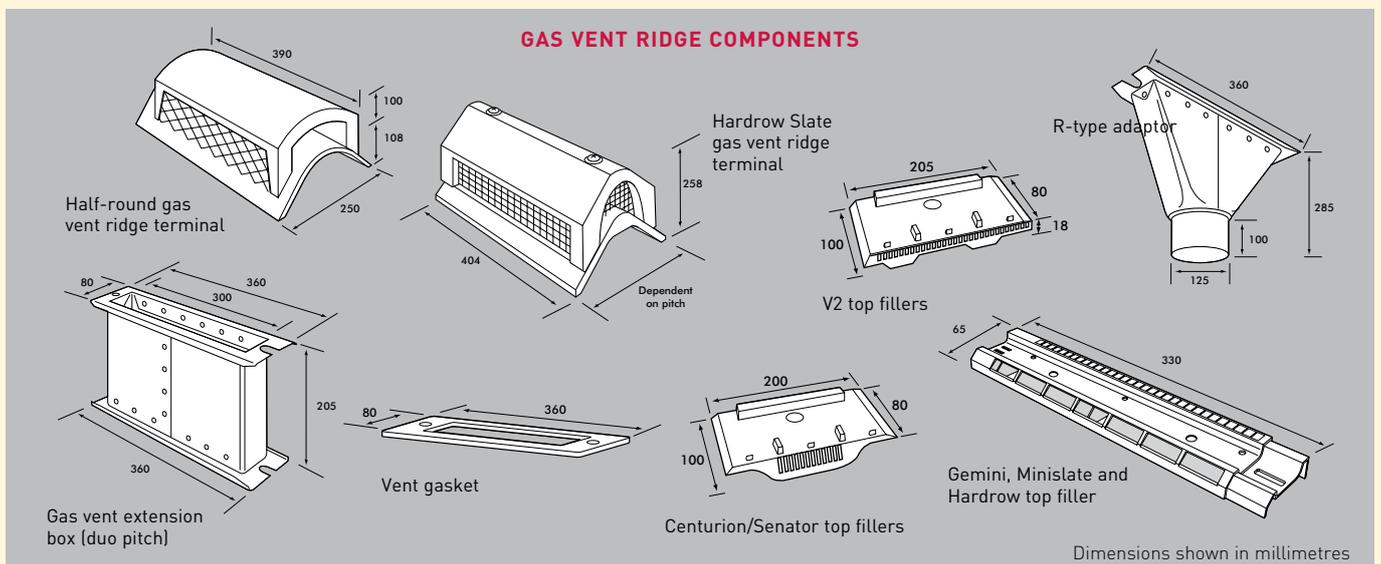


Fig.5



ABUTMENT DETAILING

ABUTMENT VENTILATION

WORKING PROCEDURE

1. Fix a mono pitch felt spacer to each rafter so that the felt spacers abut the wall or wallplate.



Fig.1

2. Lay the underlay to finish 15mm from the top of the felt spacers.

Note: If using a non-vapour permeable underlay, omit the felt spacers and turn the underlay up the wall or wall plate approximately 50mm.



Fig.2



Fig.3



3. Position the top tiling batten approx 35mm measured on the rafter from the wall or wallplate, 10mm if a Hardrow top slate is to be nailed into the batten.

4. Tile in the normal manner. Locate an abutment spring clip per tile under the top tiling batten and over a vented top filler.

Dress code 4* lead to locate in the slots on the top fillers.

* Lead not supplied.



Fig.4

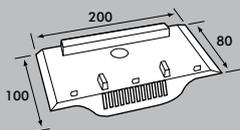


Fig.5

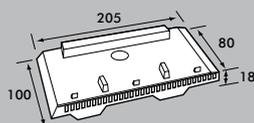
5. A tilting fillet should be used to prevent sagging behind the top course of slates or tiles.

Note: A 75mm upstand of the lead flashing is required up the wall.

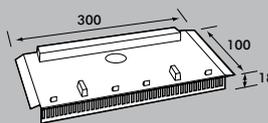
ABUTMENT COMPONENTS PROVIDE 5,000mm²/m OF VENTILATION



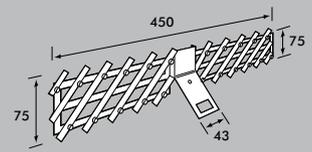
Centurion/Senator top fillers



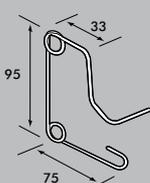
V2 top fillers



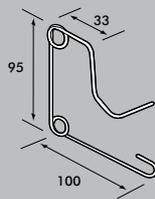
Gemini, Hardrow Slate & Minislate top fillers



Ridge level felt spacer (Mono pitch)



Short leg top filler abutment clip Centurion, Senator & V2



Long leg top filler abutment clip, Gemini, Hardrow Slate, Minislate

Dimensions shown in millimetres

TILE DETAILING

LO-VENT SOIL/AIR TERMINALS

WORKING PROCEDURE

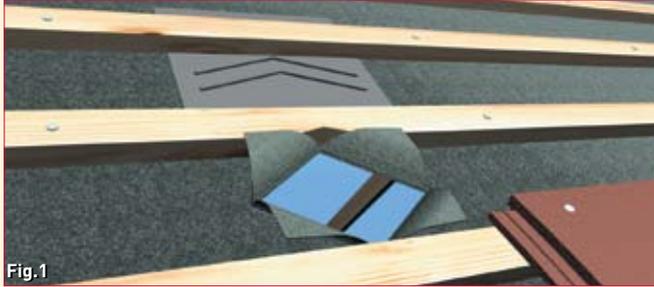


Fig.1

1. Complete roofing to one course below the required position for the ventilation tile.

Decide the position of the Soil/Air Vent tile. Cut an X in the underlay as illustrated and peel the flaps back.

Position a felt weir above the hole. Cut a slot in the underlay the width of the felt weir and push the leading edge through. Slide the felt weir down until the upstand on the felt weir touches the top of the batten below.

Note: The slot needs to be in a position that leaves at least 25mm of the leading edge of the felt weir through the slot when it is pulled back to the lower batten.

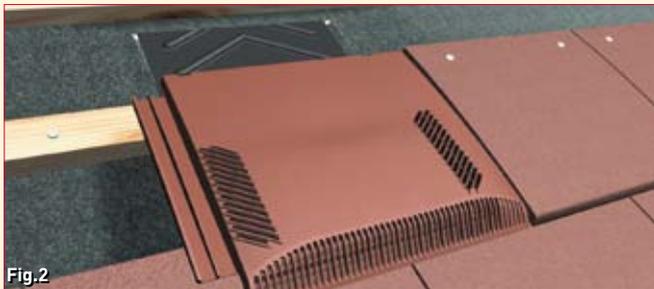


Fig.2



2. Position the Lo-Vent Soil/Air Vent tile over the hole making sure the flaps of the underlay are turned upwards.

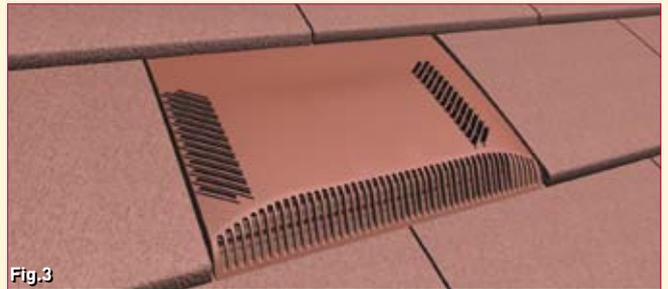


Fig.3

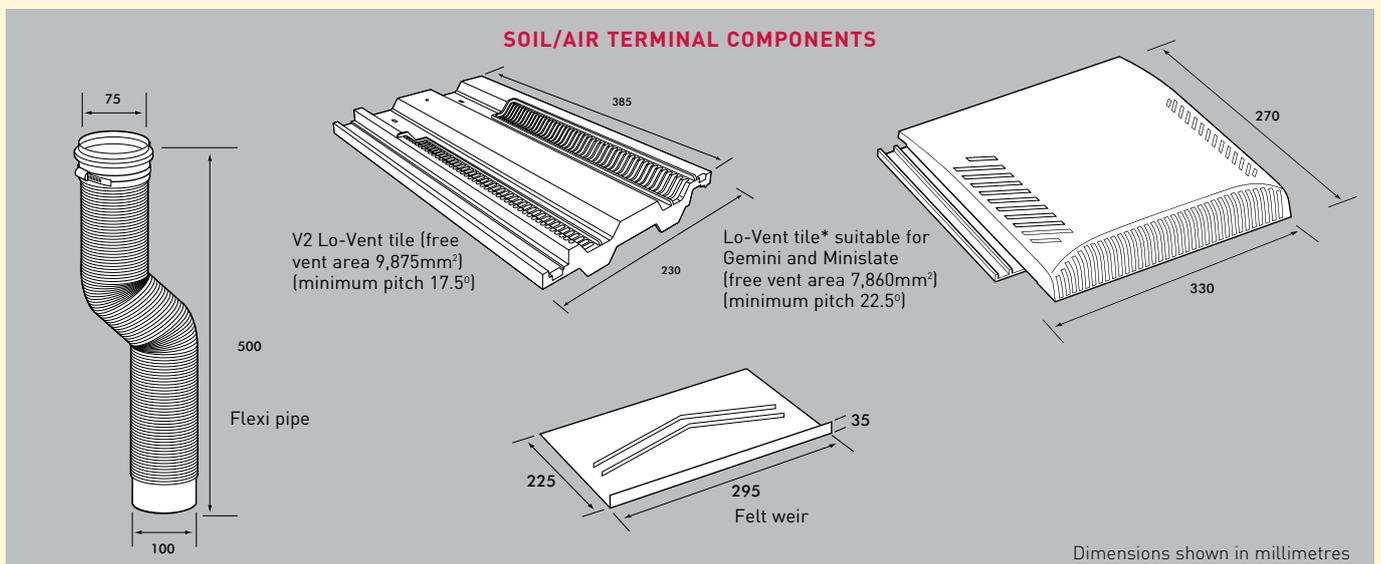
3. Tile the remainder of the roof in the normal manner.

Note: Soil Vent Terminals should be positioned 1 metre vertically above the highest opening in the building.

Soil /Air terminals should be positioned no closer than 600mm, in any direction, from each other.

4. The free vent area of the Lo-Vent Soil/Air Vent tile is 7860mm² – and can be used for mechanical extraction. It may not be used for hot flue gases.

If the terminal is to be used for either Soil/Mechanical extraction, a 500mm long 110mm diameter flexipipe is provided to connect to either a soil stack or extract duct.



* Registered Design No: 2096657

TILE DETAILING

HARDROW LO-VENT SOIL/AIR VENTILATION TERMINAL

WORKING PROCEDURE

1. Complete roofing to one course below the required position for the ventilation tile. Which should be as central between the rafters as practical. Position the cut slates and mark the position of the vent. Cut the underlay with an X to enable the spigot to protrude into the roofspace.



Fig.1

2. A felt weir is provided to give additional protection to the cut in the underlay. To fit, carefully cut a slot in the underlay above the upper batten, then slide the felt weir under the batten until its upstand meets the bottom of the batten and the front edge projects approximately 25mm into the slot cut in the underlay. Fold the top cut of the underlay over the batten and secure with a clout nail, fold remaining cuts outward to form upstand.



Fig.2



Fig.3



3. Fit Lo-Vent over the cut slates and the hole in the underlay.

4. Complete the roof in the normal manner.

Note: Soil Vent terminals should be positioned 1 metre vertically above the highest opening in the building. Soil/Air terminals should be positioned no closer than 600mm, in any direction, from each other.



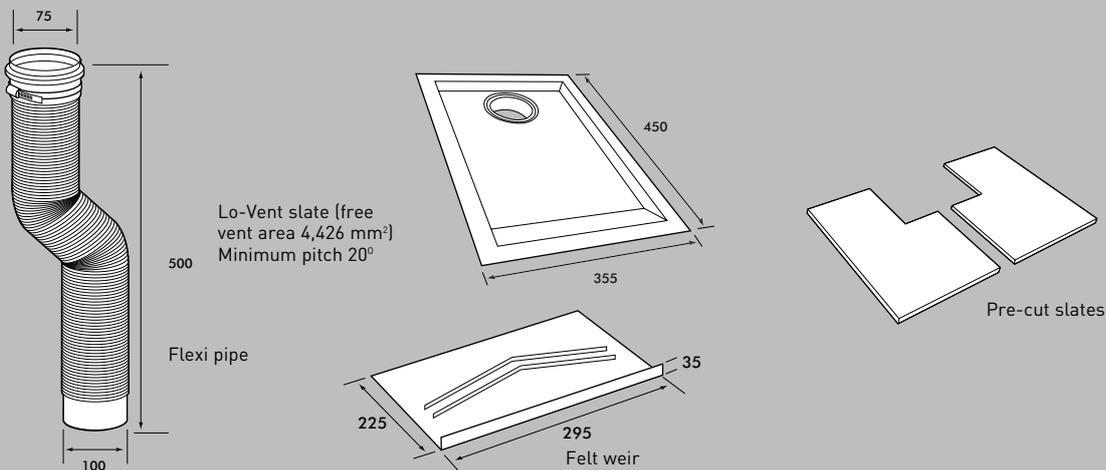
Fig.4



Fig.5

5. A flexi pipe is provided to connect to either a soil pipe or duct for mechanical extraction.

SOIL/AIR TERMINAL COMPONENTS



Dimensions shown in millimetres

TILE DETAILING

VENTILATION TILES/SLATES

WORKING PROCEDURE

Fixing of Air Vent Tile/slate

1. Lay underlay and batten in the normal way, until a lap in the underlay is reached where the position of the Air Vent Terminal is required.
 2. Place spacer on top of the underlay between rafters. (Fig.1)
 3. Push felt spacer up between the lap of the underlay until the locating nibs are in position. (Fig.2)
 4. For Hardrow Slates, place the purpose-cut slates, which are provided with the terminal, on the course below the intended position for the terminal. (Fig.3)
 5. Position terminal over spacer. (Fig.4)
- Note:** For air vent terminals the felt is not punctured.
6. Tile or slate the roof in the normal manner.

Note: depending on the headlap, it may be necessary to trim the slates around the hood.

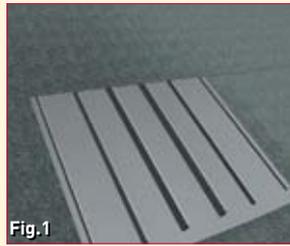


Fig.1



Fig.2



Fig.3



Fig.4



Fixing of Soil Vent Tile/Slate

1. Lay underlay. Batten and tile in the normal way.
2. A felt weir is provided to give additional protection to the cut in the underlay. To fit, carefully cut a slot in the underlay above the upper batten, then slide the felt weir under the batten until its upstand meets the bottom of the batten and the front edge projects approximately 25mm into the slot cut in the underlay. Fold the top cut of the underlay over the batten and secure with a clout nail, fold remaining cuts outward to form upstand.
3. Position and fix one cut slate and push the spigot of the terminal through the cross cut in the underlay.

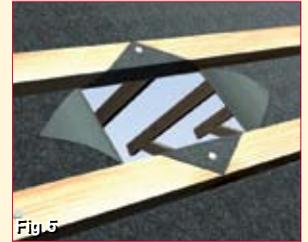


Fig.5

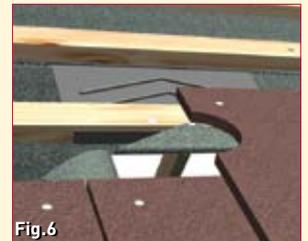


Fig.6

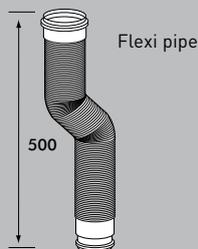


Fig.7

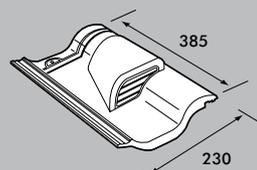
MINIMUM PITCH

Centurion	20.0°
Hardrow Slate	17.5°
Senator	22.5°

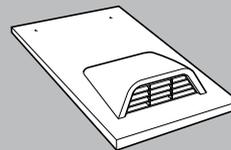
VENTILATION TILE COMPONENTS



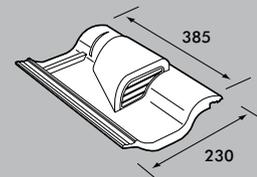
Flexi pipe



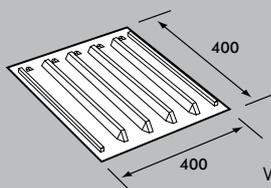
Senator vent tile
(2,400mm²)



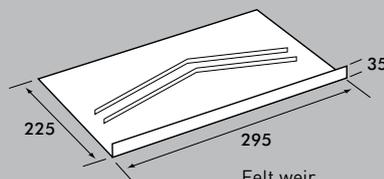
Hardrow Slates vent slate
(4,426mm²) Dimensions to match slate



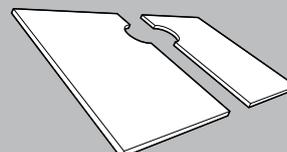
Centurion vent tile
(2,400mm²)



Vent tile felt spacer



Felt weir



Pre-cut Hardrow Slates

Dimensions shown in millimetres

VALLEY DETAILING

DRY VALLEY

WORKING PROCEDURE

1. Dry valley troughs are designed to fit directly onto either 6mm continuous ply boards laid continuously over the rafters or 12mm ply or 19mm softwood set between the rafters and supported on timber noggings. Minimum total width of the boards is 360mm.

2. The valley boards should be lined with a 1m wide strip of underlay lapped into the gutter.

3. Starting from the foot of the valley, notch the fascia and shape the bottom of the valley to allow the valley to discharge into the gutter. Lay a length of valley trough on the valley boards and both firmly press down to support its base and press together to minimise the gap in the central upstand section. Nail the sides to the valley boards at a maximum 500mm centres.

Lay subsequent valley trough lengths up the roof allowing a minimum overlap of 150mm when measured vertically. Where valleys intersect, a code 4 lead saddle should be used.



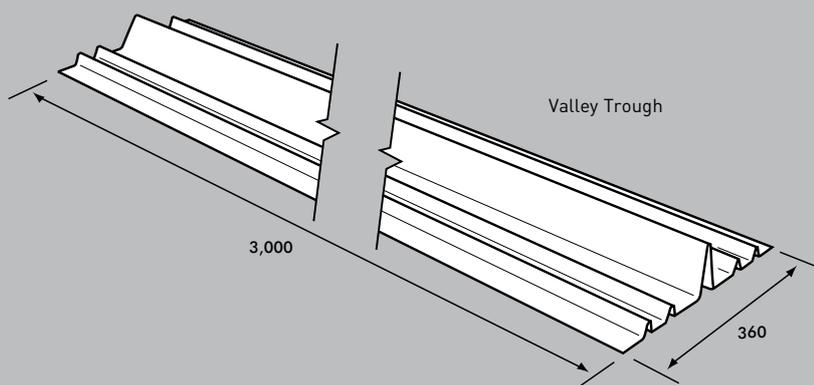
4. Lay the underlay and battens in the normal manner, ensuring that the underlay is lapped over the outer water bar of the valley trough. The battens are cut so that they locate onto the flat fixing edges of the valley trough and are nailed through into the supporting valley boards.



5. Install the slates/tiles in the appropriate manner cutting as normal into the valley abutting the raised central upstand. Where appropriate, use bonded double tiles or tile and a half to avoid small unsupported tile cuts.



VALLEY COMPONENTS



Dimensions shown in millimetres

VALLEY DETAILING

HARDROW SLATES PURPOSE MADE VALLEYS

WORKING PROCEDURE

Standard detail (Fig.1)

Purpose made valley slates do not require nailing. Slate and slate and a half are required for cutting to obtain the correct side lap. Valley boards are not required.



Non-Standard detail

Special valley tiles can be supplied for roofs with unequal pitches.

Note: The maximum pitch differential is 10° dependent on adjacent roof pitches.

1. Set out the roof on the shallowest pitch first, to correct batten gauge.
2. Place a slate on a batten on the shallower pitched roof and present a valley slate to it. It will be noted that the shallower pitched side of the special is the same length as the slate. (Fig.2)
3. Present a slate to the steeper pitched side of the special (it will be noted that the special has a shorter edge than the slate). Ensure that the tail of the slate coincides exactly with the bottom point of the special, the position of the nail holes on this steeper pitched slate gives the batten line for the steeper pitched roof. (Fig.3)



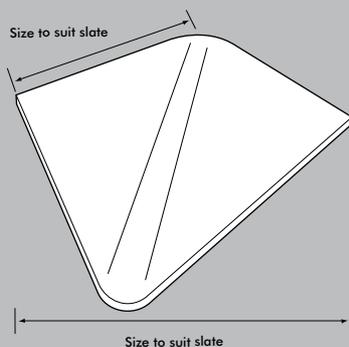
Splay Valley detail (minimum pitch 25°)

Where angles on plan are other than 90°, valleys can be manufactured to suit. The splay valleys should be laid in alternate courses, with other alternate courses mitred, using slate and a half. No soakers are required. Splay valleys are fixed in the same manner as standard valleys.

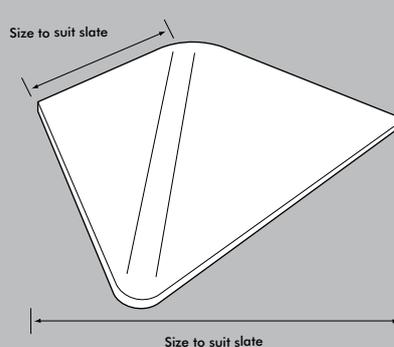
Note: The height of the fascia is critical to the correct fitting of the purpose made valleys. Please refer to table on Page 1.



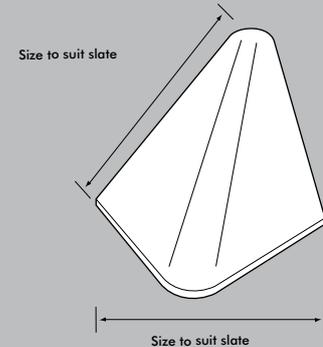
VALLEY COMPONENTS



Standard valley



Non-standard valley



Splay valley (minimum pitch 25°)

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