

PACKAGING

Tiles are packed on wooden pallets of base dimensions 1400 x 1100mm with maximum height of 700mm. Maximum quantity and weight per pallet: Superroof 350 tiles, 1160kg. Tuffcoat 500 tiles, 1100kg. If required, built up wooden crates are available. Dimensions 1500 x 1200mm height up to 1000mm containing up to 450 tiles, weight 1500kg.

DOMESTIC: Lesser quantities can be packed on waterproof wrapped and banded pallets by prior arrangement.

STORAGE

If stored outside, a waterproof cover must be placed over the tiles to keep them dry and prevent damage.

HANDLING

Care should be taken when handling the tiles to avoid damage to the surface. Where minor damage does occur, the finishing kit should be used to repair the damage.

UNDERLAYS

Underlays (or sarking) may be installed to provide thermal insulation, control condensation and to comply with local building standards.

If thermal insulation is required, reflective aluminium foil should be installed over the rafters before installing the battens. Bulk insulation (e.g. fibre-glass) can be installed between the battens if required. Breather-type building papers can also be used to control condensation.

All underlays should be self-supporting. Detailed technical information is available from AHI Roofing.

INSTALLATION TEAMS

The most efficient installation team for residential roof installation consists of two persons. For larger commercial projects more personnel may be required.

ROOF TRAFFIC

Avoid buckling the tiles when moving around the roof, by placing weight on the balls of the feet, directly over the batten, in the pans of tiles. Traffic on the roof should be kept to a minimum to avoid possible damage to the tiles.

Panels should be installed by working progressively from the top of the roof to the bottom, so that finished sections are not crossed more than necessary to complete the installation.

CONDITIONS OF STRONG WIND-DRIVEN RAIN OR SNOW

In areas prone to hurricane or strong wind-driven rain or snow, a self supporting underlay may be needed. Under these circumstances it is recommended that initial technical advice be sought from AHI Roofing.

INSTALLATION IN EXTREME COLD CONDITIONS

Many installations have been completed in areas which are subject to lengthy periods of extreme cold. No detrimental effect has been noted on the surface coating of tiles. Special care is needed during installation to prevent chipping of the surface, and punching of the final 5mm of the installation nail is recommended. In addition tiles should be warmed before either cutting or bending.

RESPONSIBILITY

It is the responsibility of architects, builders and roof installers to ensure that local standards, by-laws and requirements are satisfied.

Care should be taken to ensure:

- all live electrical cables are well clear of any nailing positions,
- nailing is done in the positions and manner specified by this manual,
- nails or fasteners are used according to specification.



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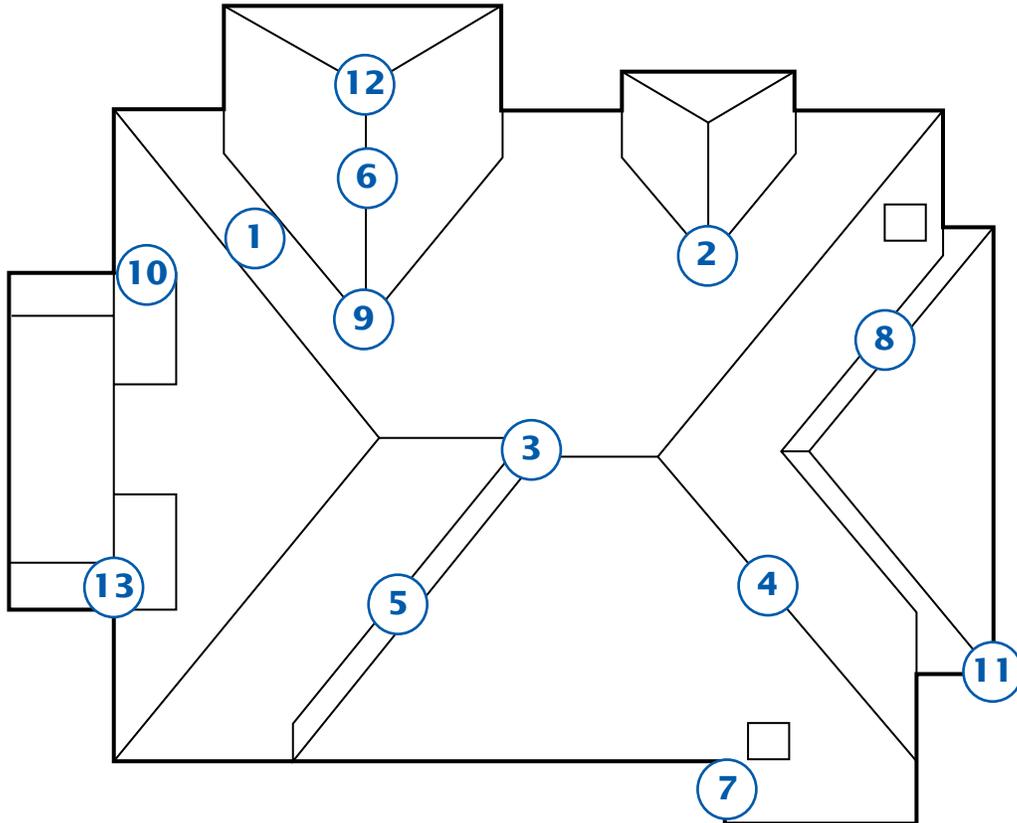


INSTALLATION DETAILS



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1. Roof framing installation
2. Equipment
3. Batten installation
4. Tile installation
5. Accessory installation
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1. ROOF FRAMING INSTALLATION

It is the responsibility of roofers, building contractors and architects to ensure that the local standards, by-laws and regulations are satisfied. It is essential that all installation is carried out in the prescribed manner. Gerard tiles can be installed on any pitch from 12°.

Cost efficiency can be achieved if rafter lengths are designed to accommodate an exact number of tile courses (refer Table 6.1.2). Where this is not possible, cutting of the top panel course will be necessary. Rafters or roof trusses can be set at various centres depending on the type of construction and local regulations. In most situations the following batten sizes are recommended.

Recommended Rafter Batten size or Truss centres

Up to	900mm	50 x 40mm
	1200mm	50 x 50mm
	1500mm	50 x 65mm (on edge)
	1800mm	50 x 75mm (on edge)



2. EQUIPMENT

Guillotine



Long and short bender

You will need

- Guillotine
- Long and short bender
- Bevel
- Measuring rod
- Chainsaw or Bow saw
- Staple gun and staples
- Tin snips
- Round headed claw hammer or nailgun
- Rubber soled shoes
- Chalk
- Stringline
- Stanley knife
- Ruler
- Battens suitable to rafter spacing
- Batten nails
- Gerard tiles
- Tile nails
- Valley trays
- Gerard flashings
- Finishing kit
- Building paper

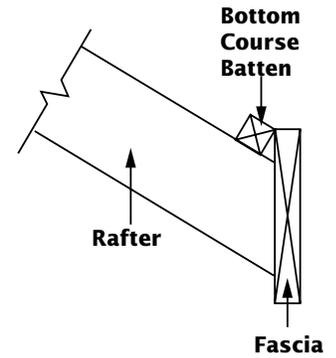


Bevel

3. BATTEN INSTALLATION

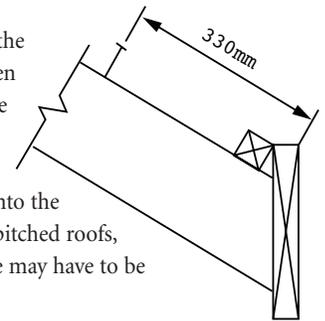
Set bottom course battens.

Lay a batten on the rafters, flush with the fascia and nail to rafters.



Measure for string line.

Measure up 330mm from each end of the fascia and tack a nail into position. Then run your stringline from one nail to the other and tack in a nail at each rafter where the stringline crosses over it. (This allows a 40mm panel overhang into the rainwater collection system. For steep pitched roofs, and some rainwater systems, this figure may have to be modified.)



Note: Battens leaning on roof ready for loading

Using the Measuring Rod.

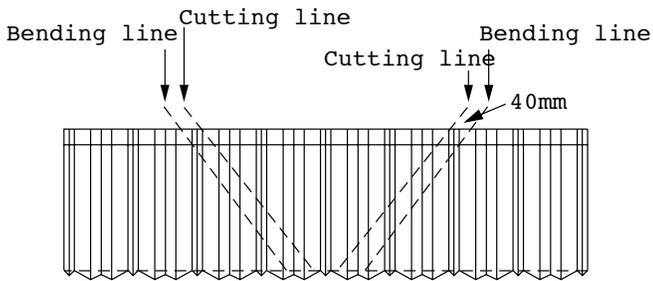
The measuring rod is notched at exactly 370mm spacings. Run the measuring rod up each of the rafter lengths from the nails you tacked in from the stringline. Tack a nail in each notch as marking nails.



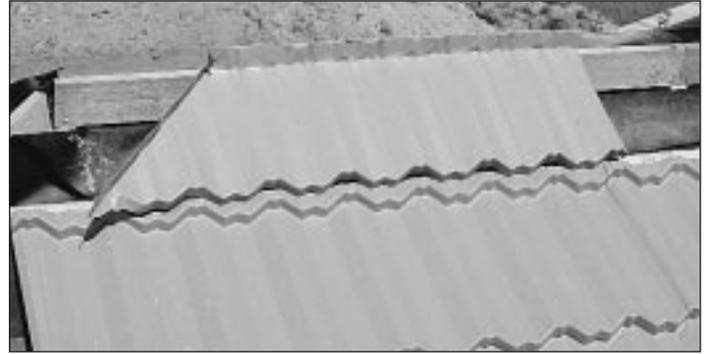


Cutting and bending tiles.

Each tile should supply two cut pieces leaving a minimum of wastage. Take all the lengths up onto the roof and begin laying, working from the bottom up. Only fix the hip/gable edge or the top of the tile so that you can lift the tiles as you complete laying the roof. Lay the laps away from the main wind direction.



Stacking panels on roof.

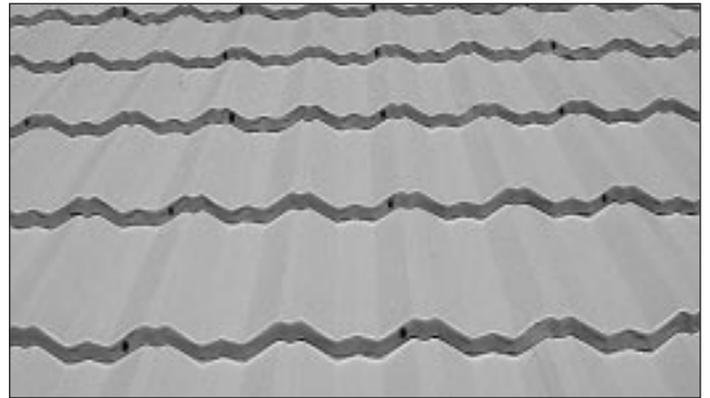


After completing the hip/gable, begin filling in the roof, laying complete tiles from the top down. Normally one down from the top course unless full tile at ridge.

Nailing tiles.

The correct position for fixing tiles is shown in the photo below. Panels are secured by fixing through the front downturned flange into the side of the batten. When fixing bottom course tile, fix down through the tile into the bottom course batten, 4 places per tile. Don't fix through the valleys in the tile as this may let moisture through.

Note: The nails have been highlighted to show position. Only AHI Roofing approved nails should be used.



When laying the tiles, a full tile may bring you too close to the hip to bend easily and cut a tile to fit. In this instance, remove that tile and replace with a half tile.



As each length of underlay is laid, replace the battens on the top of the building paper against the marking nails.
 Hold the batten firmly against the marking nail, and then nail each batten into each rafter.
 Once the batten is nailed, pull out the marking nail and use to install the next batten.
 Staple the building paper on top of the bottom course batten, and ensure that the building paper overhangs into the rainwater collection system.

When papering narrow parts of roof, lay the building paper vertically then cut to fit. The view below is looking down from the ridge.



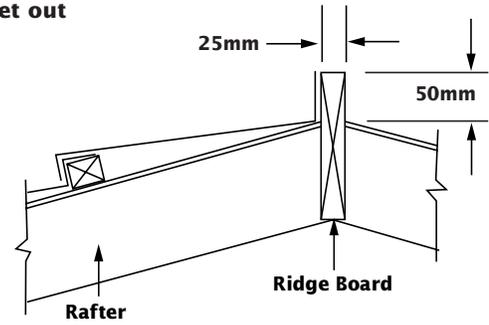
Ridge board.



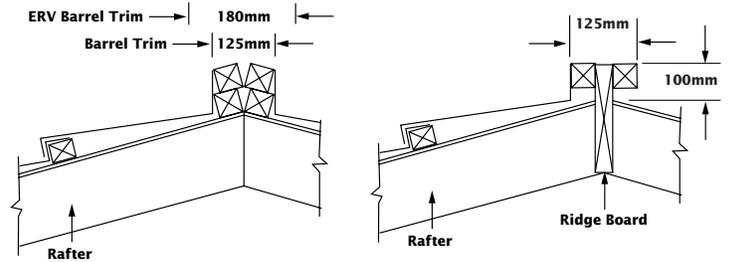
Hip board.



Ridge set out



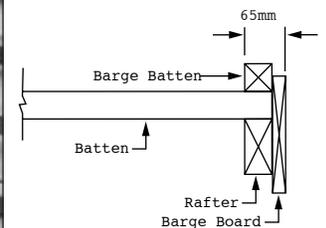
For standard ridge hip accessories the hip board may have been installed by the builder so that battening may not be necessary.



For Barrel Trim and EVR Barrel Trim, nail a packer on either side of the ridge, then nail a batten at the top of each packer running along the ridge. Spacing of packer and top battens will be dependant upon type of trim used.

Barge boards.

Run a batten along the barge on top of the roof battens and inside the barge board.



4. TILE INSTALLATION

Setting bevels.

Set bevel on one side of roof, checking in a few spots down the side to ensure angle is constant. If the angle is not constant set the bevel to the average angle of the side.



Obstacles.

When you encounter an obstacle on the roof, run another stringline over it and work down with the measuring rod on the other side.

1



Valleys.

Valleys must be installed before battens. Valley supports are usually the builder's responsibility. This is normally completed before the installer arrives on site. Do not nail through the valley.



Where two valleys meet.

Cut and overlap the valleys so that the overlap is maximised; minimum cover should be 100mm.

2



Where a valley meets a ridge.



Bend up valley tray at top of ridge as shown,

3

so that when the ridge trim goes over it conceals the bend.



Loading battens.

Load all the battens on to the roof and lay them in rows across the rafters, against the marking nails working up the roof so you can stand on the battens. Ensure all joints are staggered. Cut the battens to length so that they butt together on top of a rafter and are mitre cut into the valley trays or hips.

Hips.

Mitre cut battens into hip.

4



Papering.

When laying building paper, move the centre two battens, leaving the top and bottom battens to run the building paper along, pushing the nails through the building paper as you go over them.

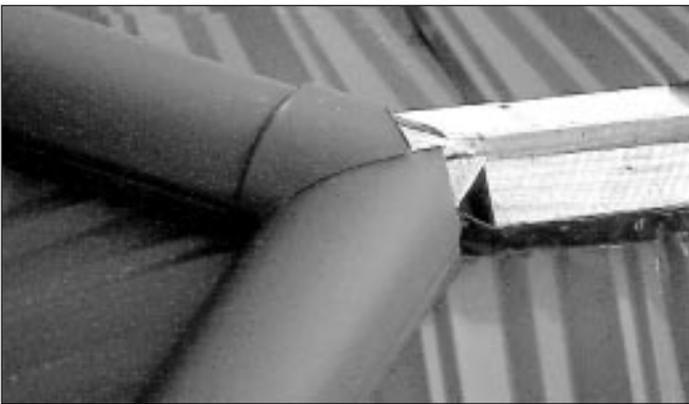
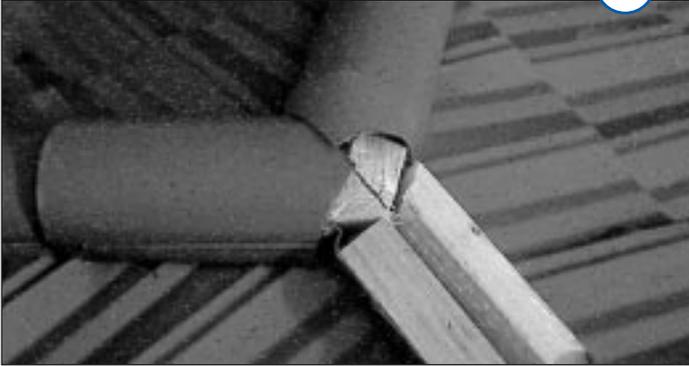


When a ridge meets two hips.

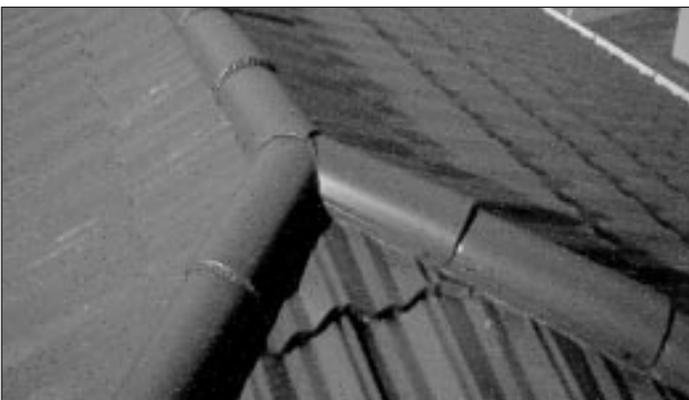
Lay trim up one hip until you reach the top and cut trim as shown. If top trim is too small to be easily worked slide the top two trims down by about 25mm until top trim is workable.

When using Barrel Trims.

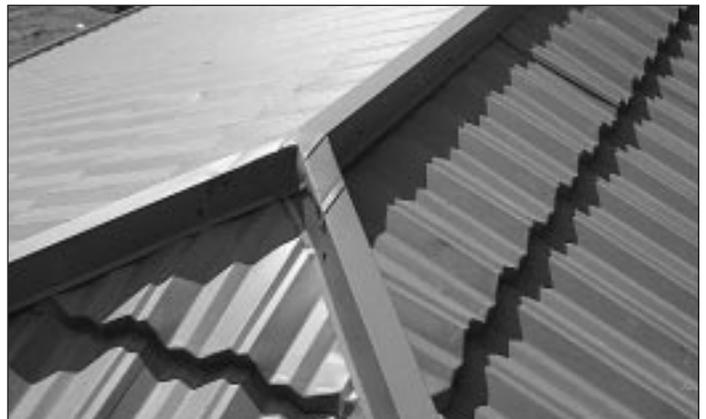
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Then lay trims up the other hip and cut top trim as shown, then fix down.



When using ridge - hip caps ...



Then cut ridge cap to fit over hip trims. Install then lay the rest of the ridge caps.

Where a ridge meets the pitch of a roof and two valleys.

Lay ridge caps until you get to the valley and cut the cap so that it fits flush with the pitch of the roof. Then cut a small piece of flashing to fit under the edge of the cap down to the valley tray.

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5. ACCESSORY INSTALLATION

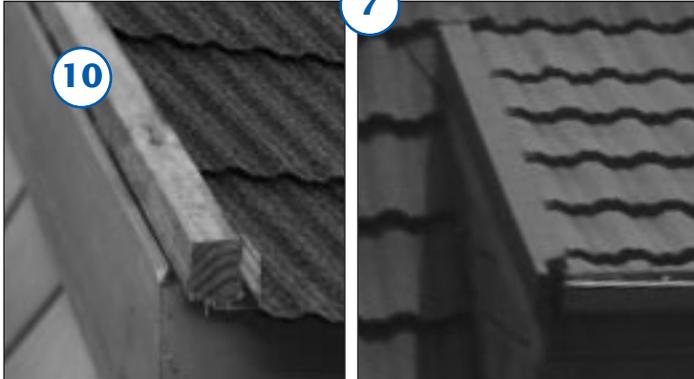
Side and apron flashings.

It is preferable to lay flashings after laying the tiles but usually a carpenter needs the flashings on so he can complete the claddings.



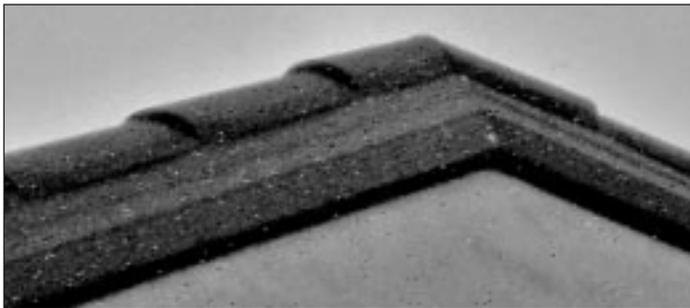
Barge cover.

Bend barge cover to fit over the batten and barge board. Then cut and fold to finish neatly.



When Barrel Trims Meets barge.

Cut and lay caps the same as for a ridge meeting two hips.



Hip finishing caps.

Using pre-formed ridge/hip caps. Cut and bend end as shown then install on roof.



Then continue up the roof, bending and tacking trims as you go. On completion, check for straightness, and nail fast.

Barrel Trims.

To complete hip with Barrel Trims, use Barrel Trim end disc.

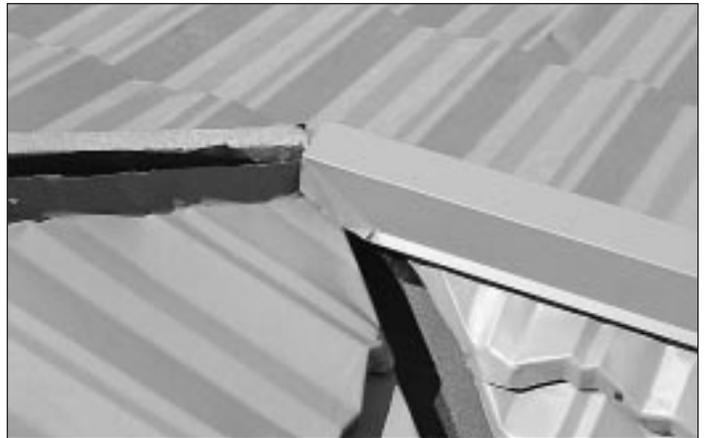


Ridge - hip caps.

Look for where the main sight line is and lay ridge/hip caps away from it. Lay trims as per hip caps.

When a ridge meets a valley.

Lay caps up one hip until you reach the valley and cut caps as shown. If top cap is too small to be easily worked slide the top cap down by about 25mm until top cap is workable.



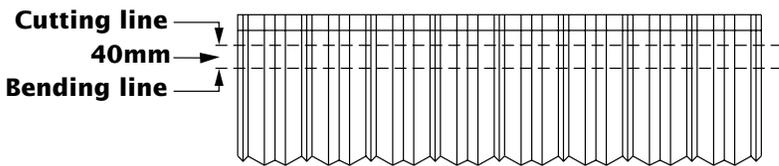
Then cut next cap as shown and continue laying caps up the other hip, then fix down.



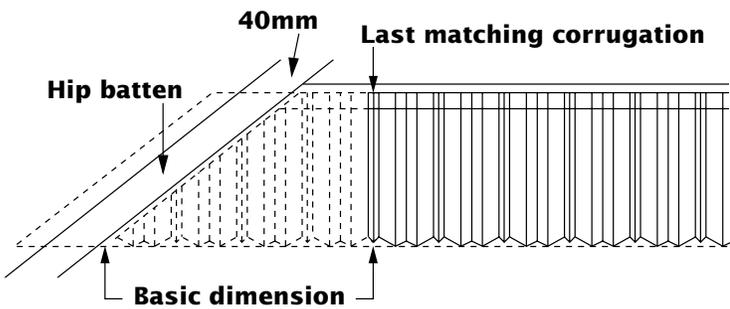
Cutting short tile for ridge and fascia.

Measure and bend tile before cutting.

Cutting and Bending for ridges.



To organise tiles for filling in other hips, use your bevel again and measure spaces for tiles. Measure the sequence you will be laying them, so that when you bend and cut them, and go back up to the roof, they will be in the right order.



Valleys.

Laying tiles into valleys, use your bevel again to get the angle parallel to the centre of the valley, then cut and bend tiles.

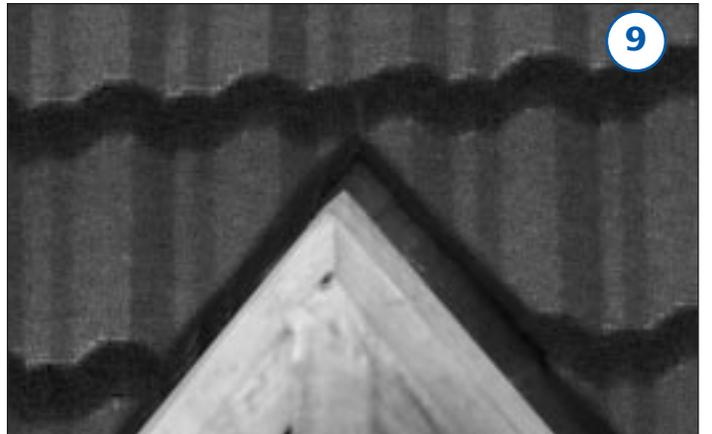


After laying valley tiles gently tap a piece of wood onto the edge to ensure a perfectly even downturn.

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How to cut tiles over the meeting of two valleys.



When laying tiles on steep roofs it is advisable to leave spaces on the roof to give you easy access to other areas of the roof to be finished.



Where laying tiles around skylights, or anywhere where a trim won't be put over it, use a thin strip of flashing to cover up the cut and bent edge of tiles.

Laying panels up to a wall.

Lay up the roof to the last tile before the wall.

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Cut and bend last tile to fit flush with the wall. A support batten is recommended at the foot of the wall.



Then add flashing, or if flashing is already there, slide tile up under flashing and secure.



6. ESTIMATING DATA

6.1 STRAIGHT GABLE ROOF

- (i) Determine the rafter length (Fig 6.1.1.) and calculate the number of courses of tiles from Table 6.1.2. Always ensure that fractional tiles are counted as whole tiles as these will have to be cut at the ridge board.
- (ii) Determine the overall length of the roof and refer to Table 6.1.2 for the number of tiles required. Ensure that fractional tiles are counted as whole tiles.
- (iii) Multiply tiles (i) x tiles (ii)
- (iv) Multiply result (iii) x 2 when estimating both sides of the roof.

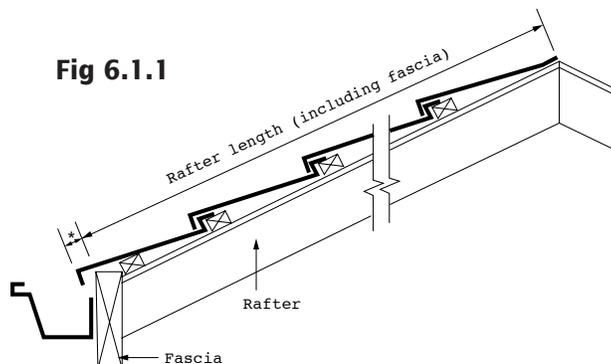


Fig 6.1.1

* 40mm overhang into gutter included in Table 6.1.2

Table 6.1.2

RAFTER LENGTH*	NO OF FULL TILES	ROOF LENGTH
m		m
0.33	1	1.320
0.70	2	2.590
1.07	3	3.860
1.44	4	5.130
1.81	5	6.400
2.18	6	7.670
2.55	7	8.940
2.92	8	10.210
3.29	9	11.480
3.66	10	12.750
4.03	11	14.020
4.40	12	15.290
4.77	13	16.560
5.14	14	17.830
5.51	15	19.100
5.88	16	20.370
6.25	17	21.640
6.62	18	22.910
6.99	19	24.180
7.36	20	25.450

* Variable according to guttering system.

*To be used for estimating purposes only. Panel course quantities for rafter lengths allow for 40mm tile overhang into eaves gutter. For steep pitch roofs and some gutter systems this figure may have to be altered.

6.2 ESTIMATING ACCESSORIES

When calculating accessory requirements a small allowance should be included to compensate for wastage.

- (i) RIDGE - HIP CAPS & BARGE CAPS: Determine the length of ridges, hips and barges. Divide by the lineal coverage per trim (i.e. 1.9m) to calculate the number of units required.
- (ii) SIDE FLASHINGS/FLAT SHEETS: Determine the overall length of flashing required. Divide by the lineal coverage per flashing unit (i.e. 1.9m) to calculate the number of flashing units required.
- (iii) BARREL TRIMS: Determine the length of the ridge, hip and barges. Divide the lineal coverage by 0.370 to calculate the number of Barrel Trims required.
- (iv) ERV BARREL TRIMS: Determine the length of the ridge, hip and barges. Divide the lineal coverage by 0.410 to calculate the number of large Barrel Trims required.

6.3 ESTIMATING BATTENS FOR NEW ROOFING

Provide 3 lineal metres of battens per square metre of roof.

6.4 ESTIMATING BATTENS FOR OVERLAY RE-ROOFING

Provide 5 lineal metres of battens per square metre of roof area.

6.5 ESTIMATING PANEL NAIL QUANTITIES

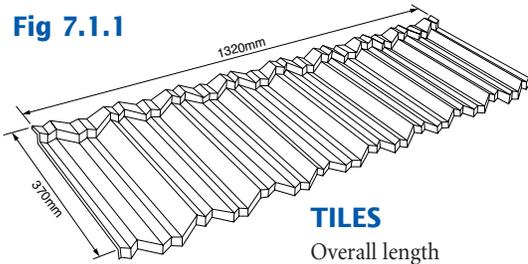
Provide 1 kilogram of nails per 24 square metres of roof. In cyclone prone areas, provide 1 kilogram of nails per 16 square metres of roof.

7. GENERAL INFORMATION

7.1 LIST OF COMPONENTS

All dimensions and weights given are nominal.

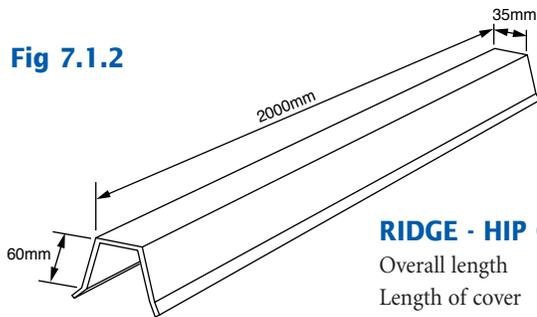
Fig 7.1.1



TILES

Overall length	1320mm
Length of cover	1270mm
Width of cover	370mm
Upstand	25mm
Roof cover/tile	0.47m ²
Tiles per m ²	2.15
Weight/tile	3.2kg
Weight/m ²	7.0kg

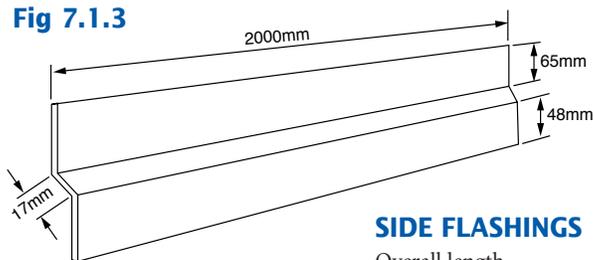
Fig 7.1.2



RIDGE - HIP CAP

Overall length	2000mm
Length of cover	1900mm
Weight/Unit	2.0kg

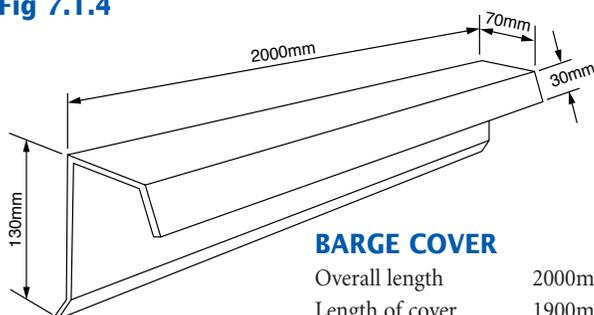
Fig 7.1.3



SIDE FLASHINGS

Overall length	2000mm
Length of cover	1900mm
Weight/Unit	1.4kg

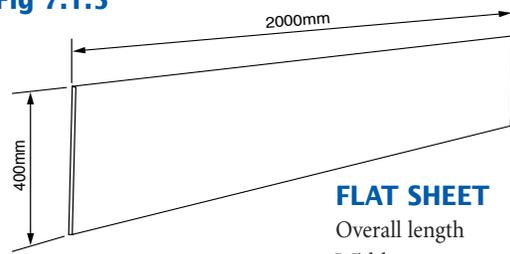
Fig 7.1.4



BARGE COVER

Overall length	2000mm
Length of cover	1900mm
Downturn	130mm
Width	70mm
Weight/Unit	2.5kg

Fig 7.1.5



FLAT SHEET

Overall length	2000mm
Width	400mm
Weight/Unit	4.2kg

Fig 7.1.6

BARREL TRIM

Overall length	400mm
Length of cover	370mm
Weight/Unit	0.6kg

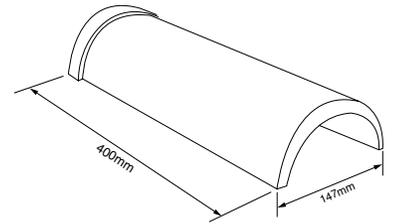
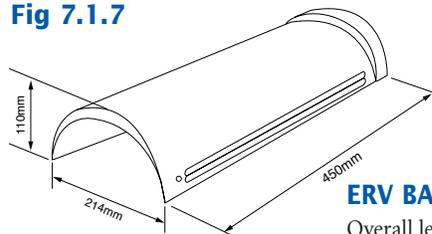


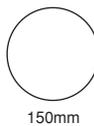
Fig 7.1.7



ERV BARREL TRIM

Overall length	450mm
Length of cover	410mm
Weight/Unit	0.7kg

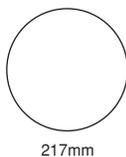
Fig 7.1.8



BARREL END DISC

Diameter	150mm
Weight/Unit	0.1kg

Fig 7.1.9



ERV BARREL END DISC

Diameter	217mm
Weight/Unit	0.1kg

SPECIAL FLASHINGS

Quotations on request for special flashings, accessories and flat sheet coated products.

FINISHING KITS

Finishing kits are available to repair surface damage if incurred during installation.

7.2 STORAGE AND HANDLING

If stored outside, a waterproof cover must be placed over the tiles to keep them dry and prevent damage.

Care should be taken when handling the tiles to avoid damage to the surface. Where minor damage does occur, the finishing kit should be used to repair the damage.