

# Corona<sup>®</sup> Shake

## Installation Guide



ROOF FRAMING INFORMATION  
BATTEN INSTALLATION  
CORONA SHAKE INSTALLATION  
ACCESSORY INSTALLATION  
ESTIMATING DATA  
GENERAL INFORMATION



A FLETCHER BUILDING COMPANY

# ROOF FRAMING INFORMATION

It is the responsibility of roofers, building contractors and architects to ensure that local standards, by-laws and regulations are satisfied. It is essential that all installation is carried out in the manner prescribed in this Installation Guide.

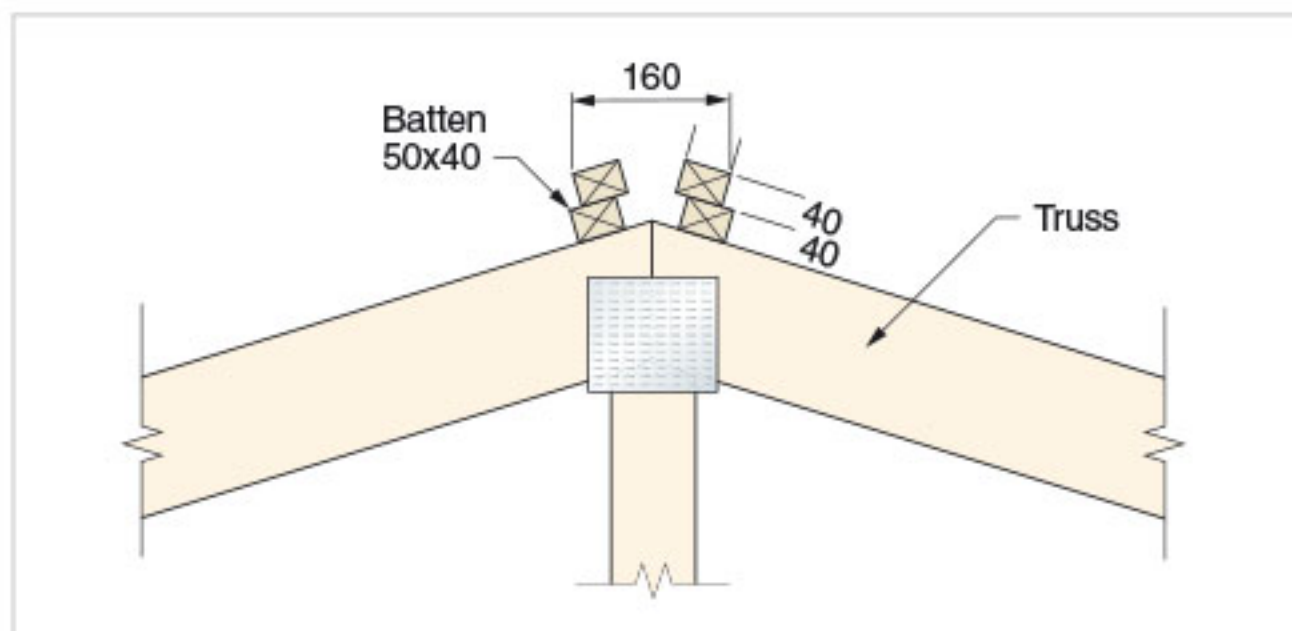
Corona Shake Roofing can be installed on any pitch from 15° to vertical mansards. Cost savings may be obtained if rafter lengths are designed to accommodate an exact number of Corona Shake courses. Where this is not possible, cutting of the top Corona Shake course will be necessary. Rafters or roof trusses 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 or Truss Centres	Batten Size
up to 900mm	50 x 40mm
1200mm	50 x 50mm
1500mm	50 x 65mm on edge
1800mm	50 x 75mm on edge

## 1.1 RIDGE

Rafters or trusses should be lined up before the roofer starts work (this is the builder's responsibility). Fig 1.1.1 shows a truss with battens installed for trim. If a ridge board is present battens may be installed alongside the ridge board ensuring that the batten edges are no more than 160 mm apart.

FIG 1.1.1

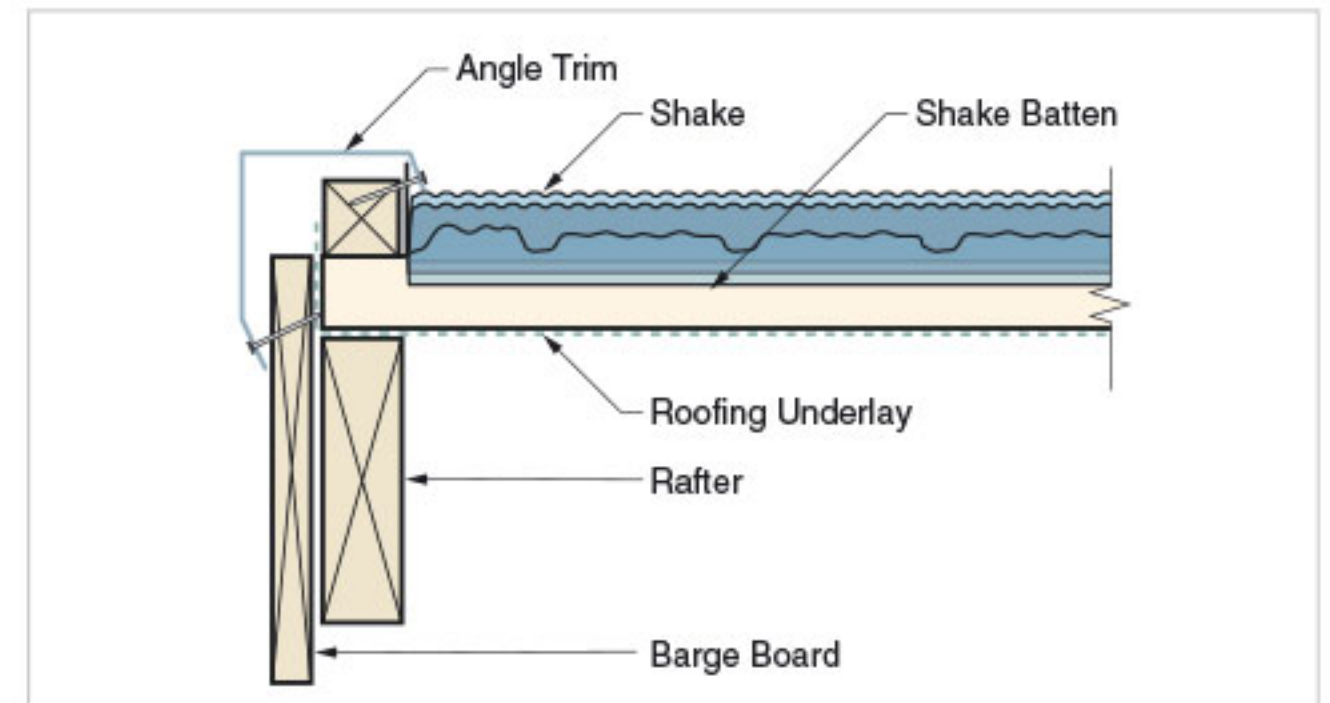


## 1.2 BARGE

Install the barge board typically 40 mm (minimum 25mm, maximum 60mm) above the rafter where the trim is used. Fig 1.2.1.

Note that the edge of the Corona Shake is bent up under the trim to ensure complete weather security.

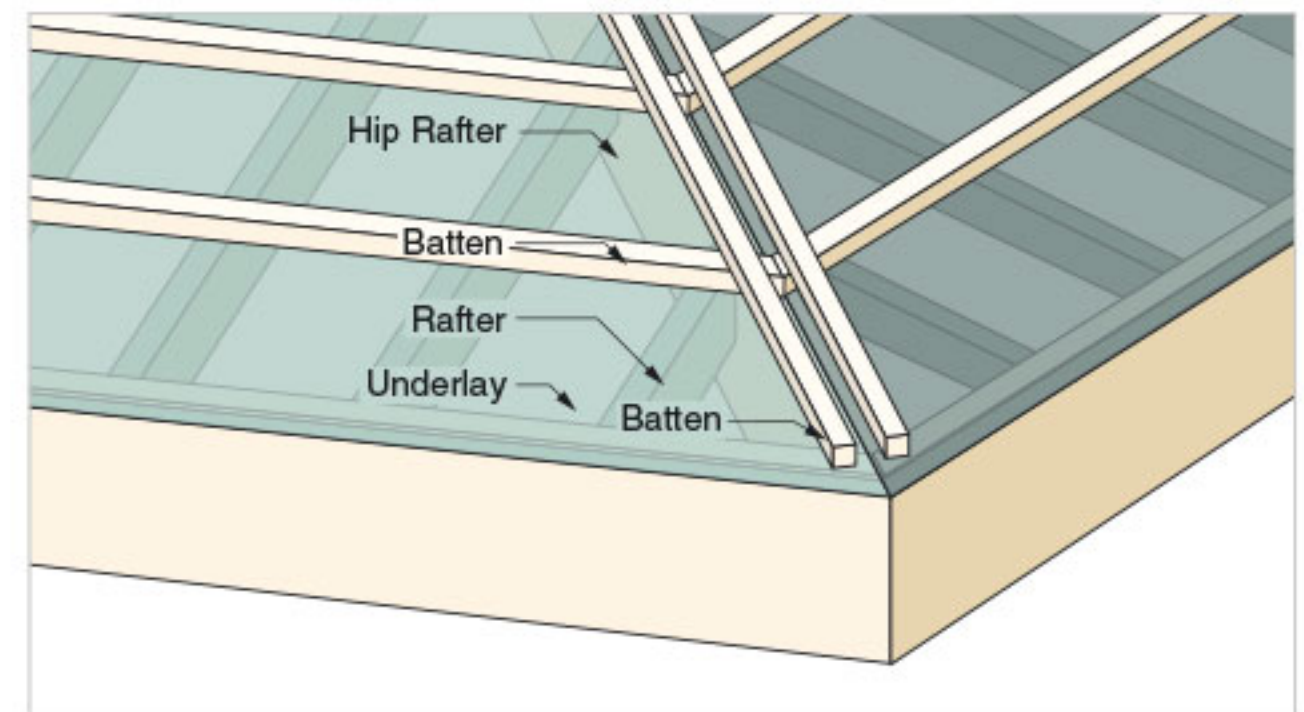
FIG 1.2.1



## 1.3 HIP

Rafters or trusses should be lined up before the roofer starts work (this is the builder's responsibility). Fig 1.3.1 shows a hip with battens installed for Angle Trims. If a hip board is present battens may be installed alongside the hip board ensuring that the batten edges are no more than 160 mm apart.

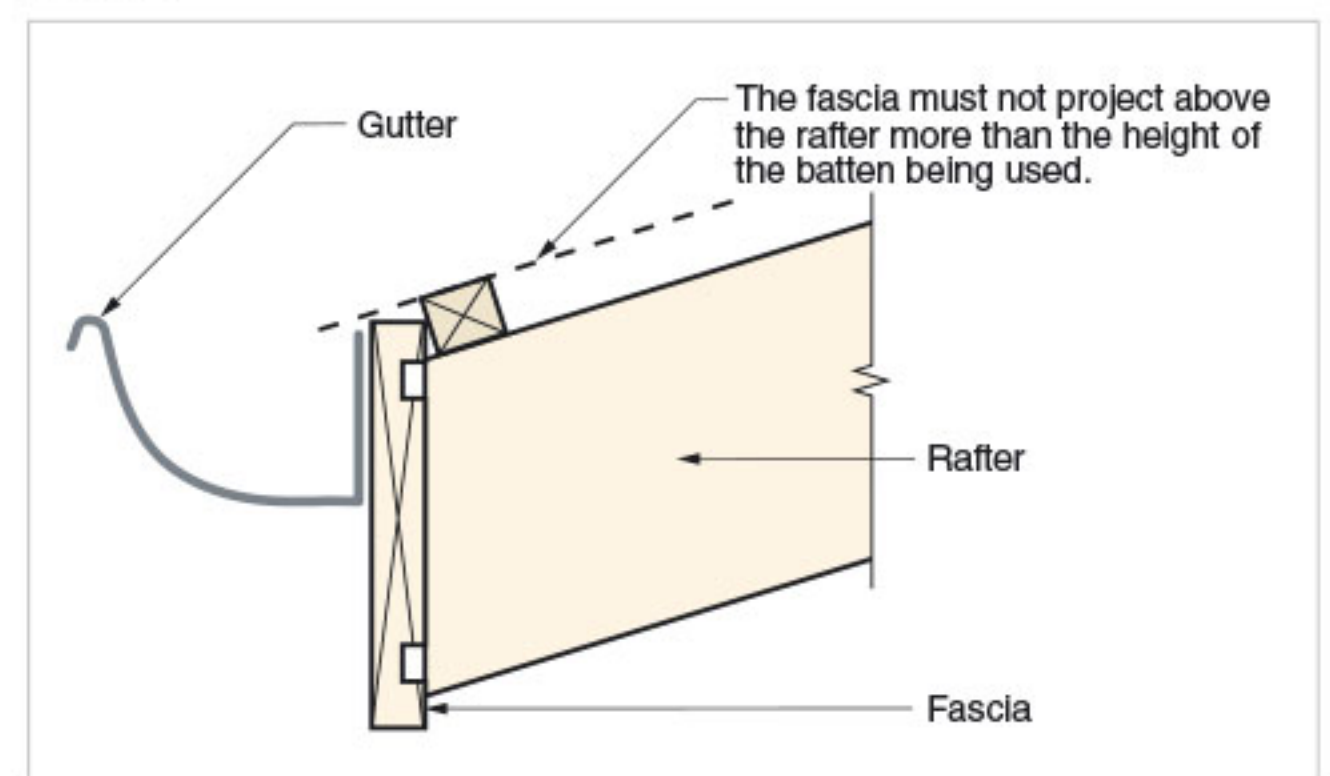
FIG 1.3.1



## 1.4 FASCIA

At eaves install fascia at batten height above the rafters. Fig 1.4.1.

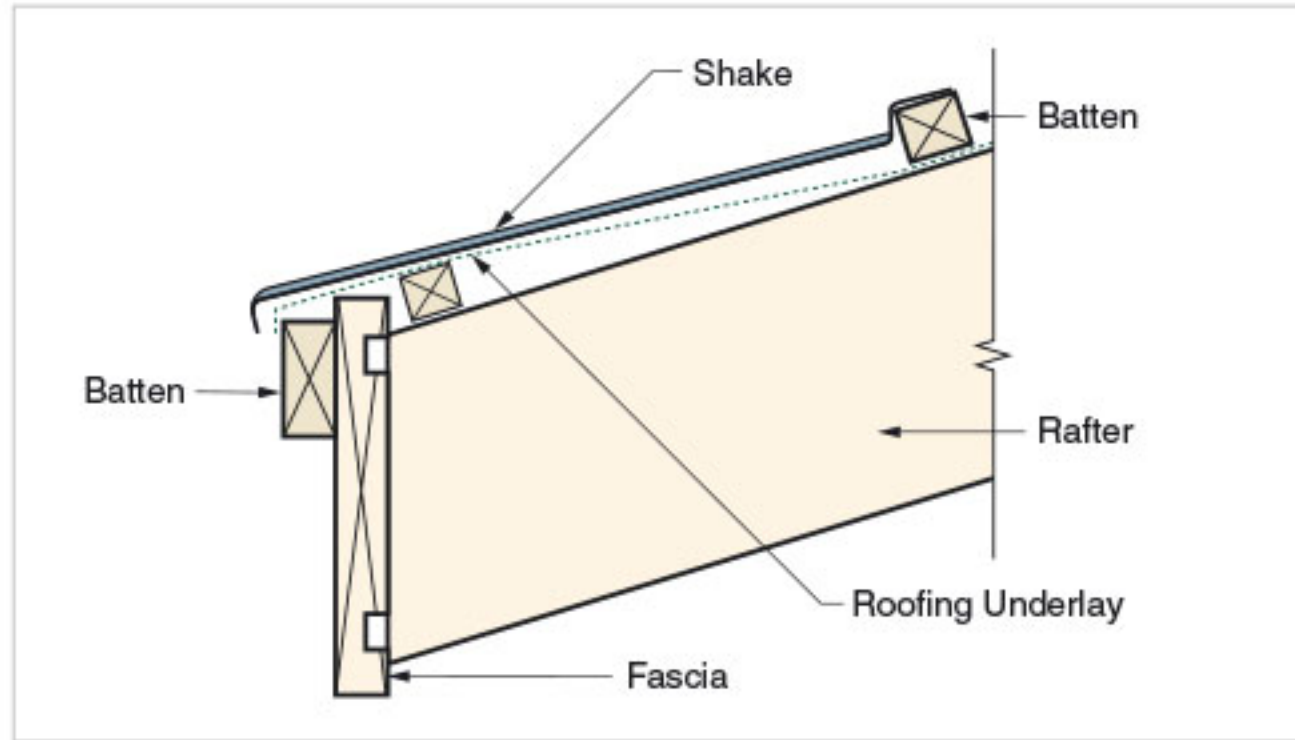
FIG 1.4.1



Where a rainwater collection system is not used and the Corona Shake overhangs the fascia, secure a 50 x 25 mm dressed batten to the front edge before the Corona Shakes are laid. Fig 1.4.2.

# ROOF FRAMING INFORMATION CONTINUED...

FIG 1.4.2



## 1.5 VALLEY

The following details suggest two ways in which the valley lining may be installed. Local practice, building regulations and site conditions will dictate the final method used.

### PREFABRICATED TRUSSES

150 x 25 mm valley boards are cut and installed between the trusses so that they can be nailed flush with the top of the rafters. Never nail inside the valley. Figs 1.5.1 and 1.5.2.

FIG 1.5.1

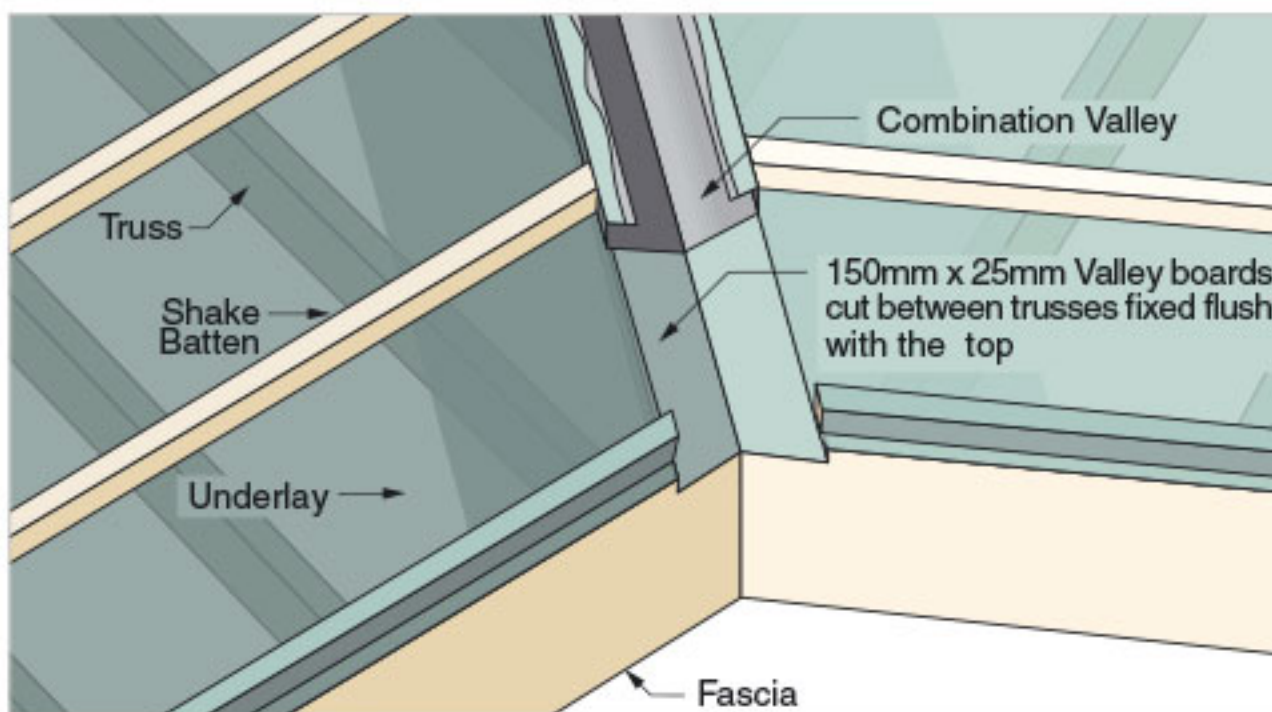
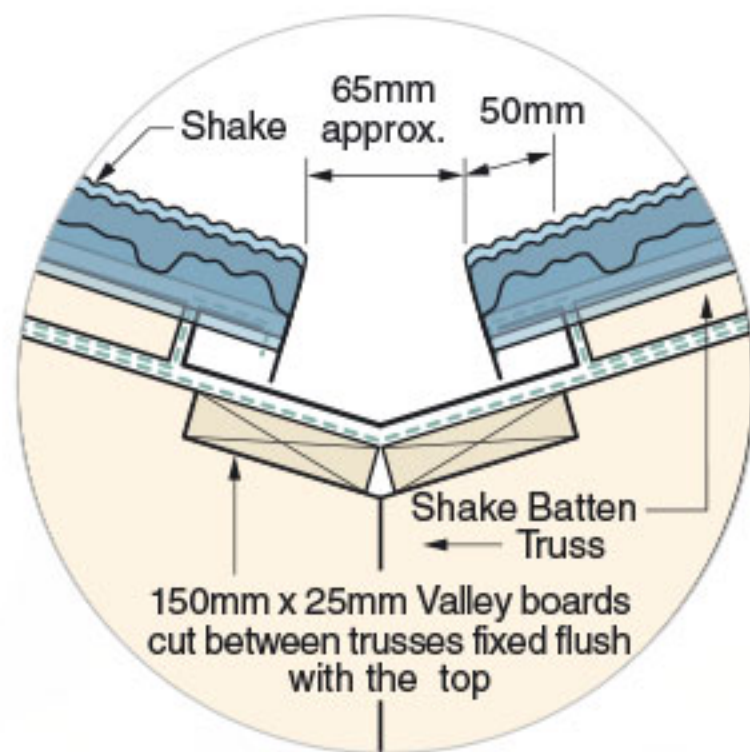


FIG 1.5.2



### PLYWOOD DECK

Valleys should be installed before battens. This will allow battens to be cut close to the edge of the valley. Secure the valley with a clip or by bending a nail over the outer edge. Never nail inside the valley. Figs 1.5.3 and 1.5.4.

FIG 1.5.3

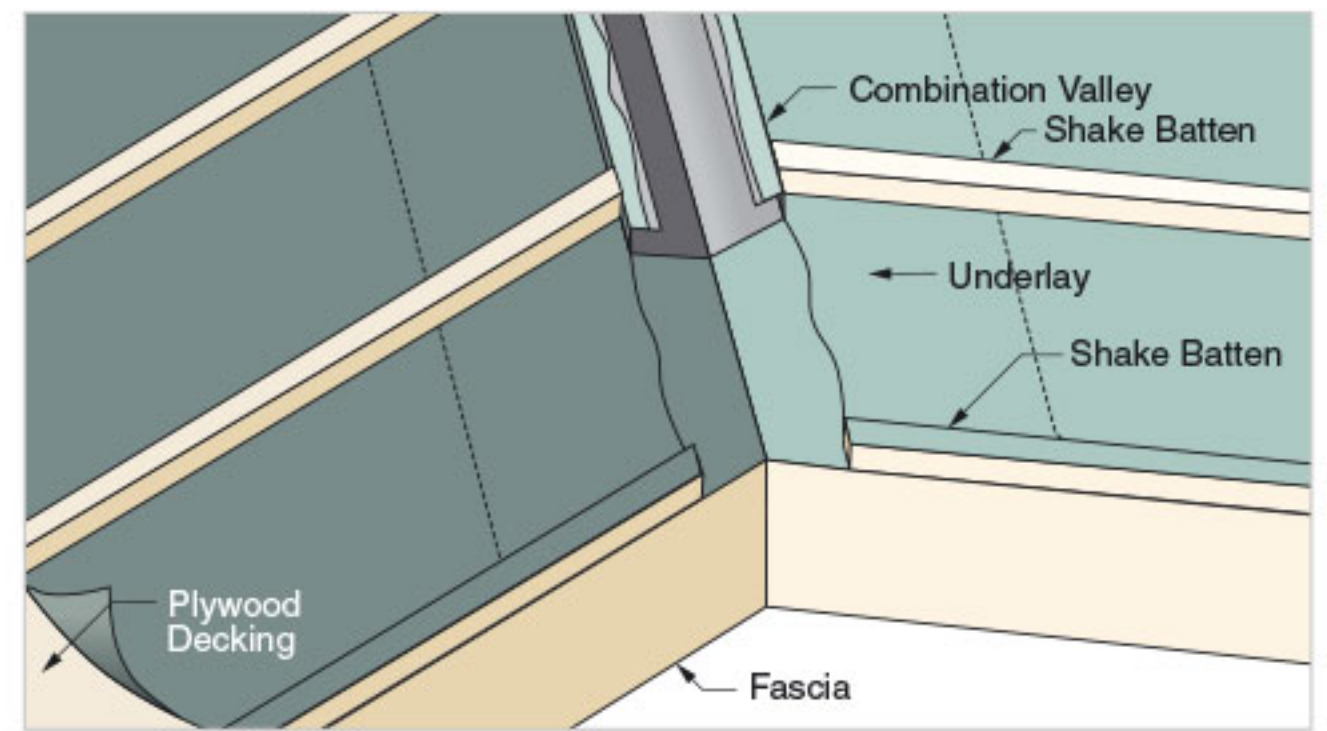
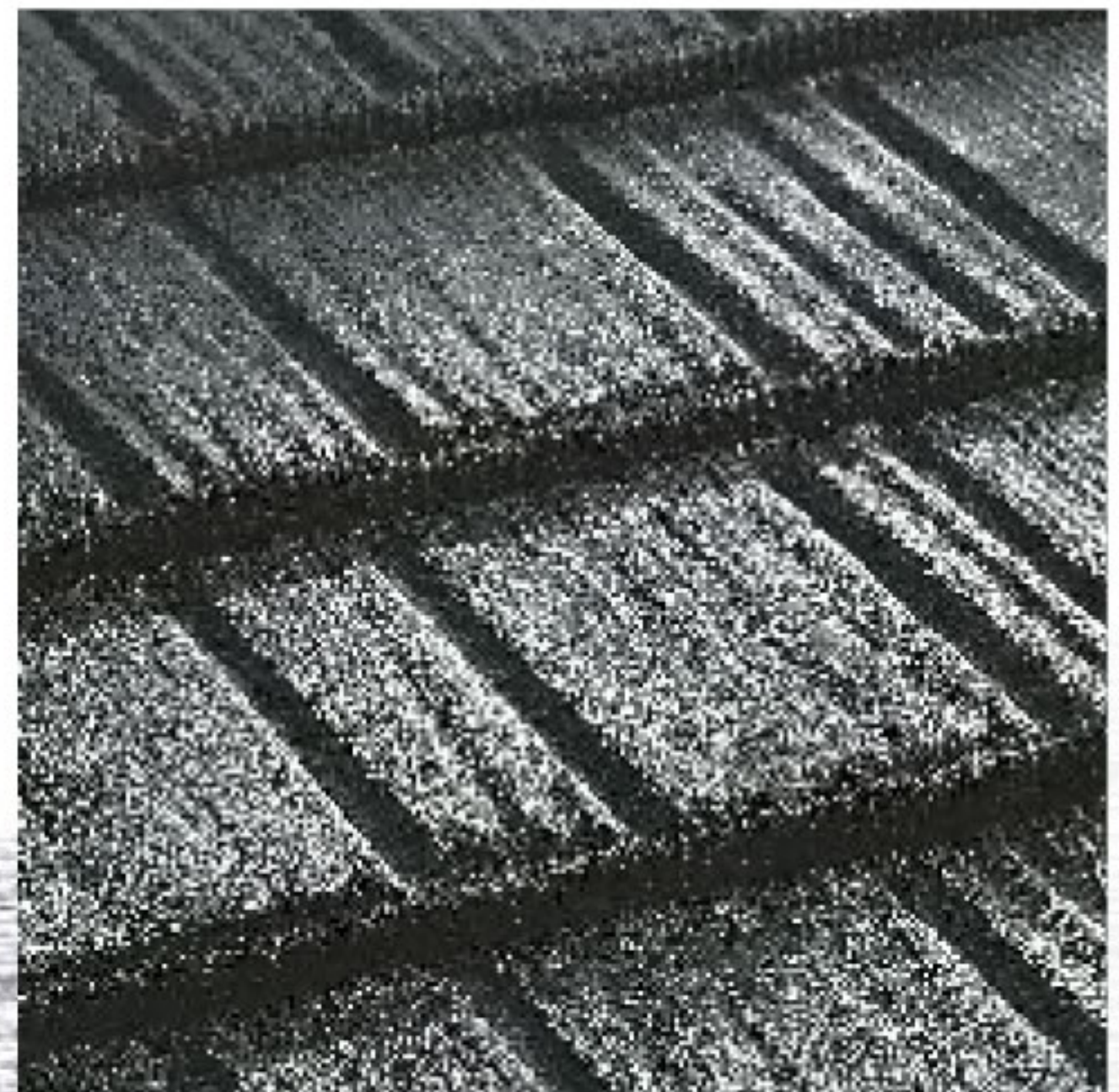
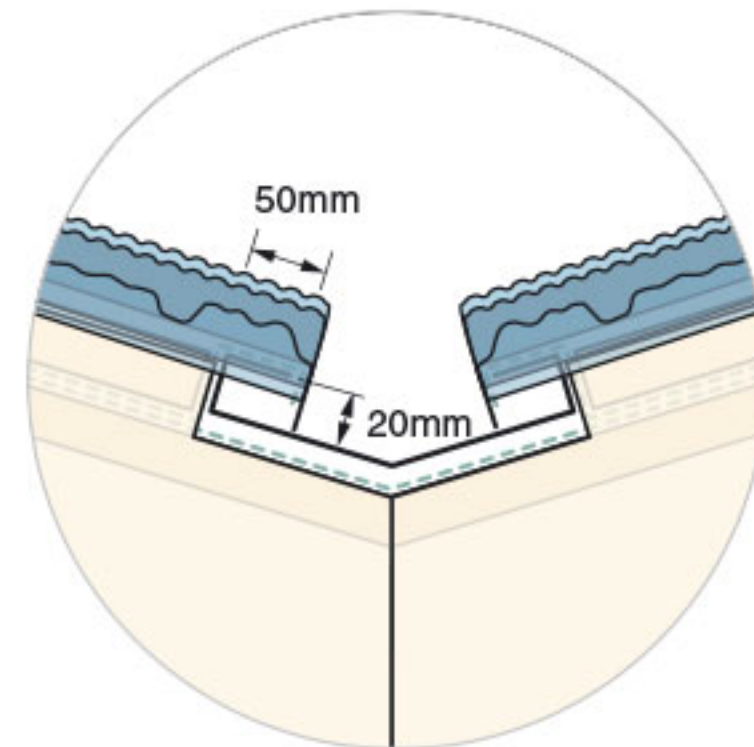


FIG 1.5.4



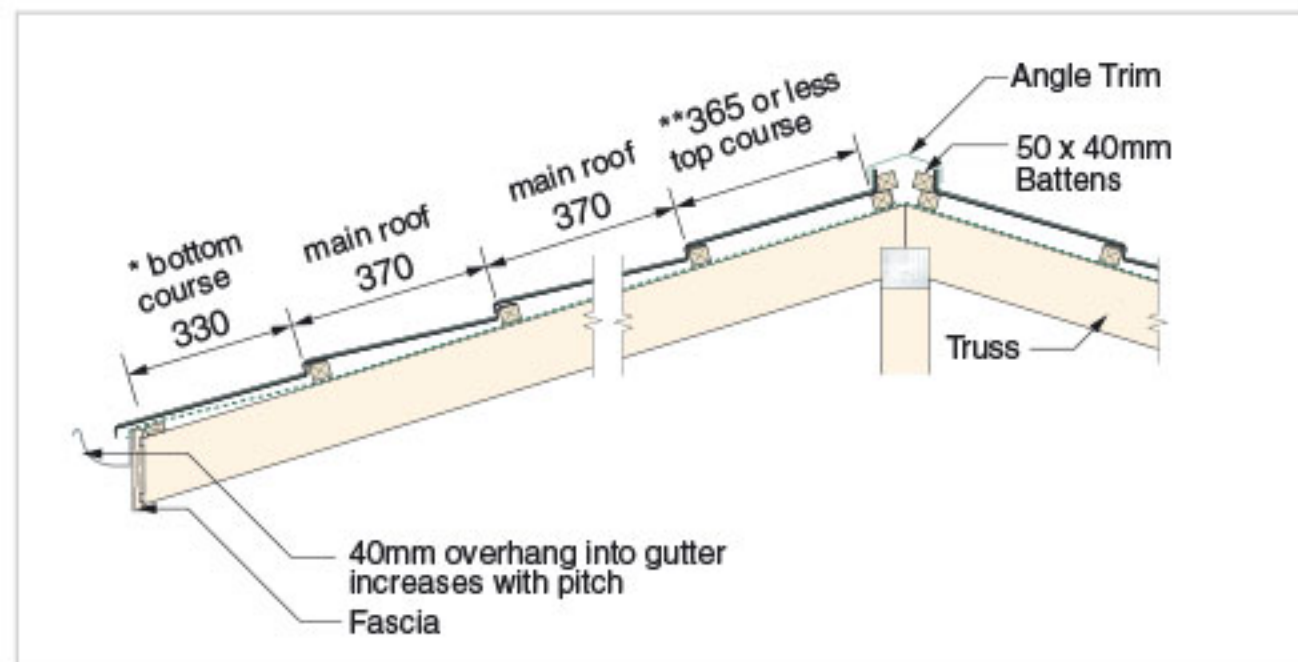
# BATTEN INSTALLATION

## 2.1 BATTEN SETTING OUT

The most critical factor in the laying out of the Corona Shakes is accurate setting out of the battens. If this is not adhered to the Corona Shakes will not fit correctly.

Corona Shake batten spacing is 370 mm. Fig 2.1.1.

FIG 2.1.1



\*Variable depending on the type of rainwater collection system used.

\*\*Dimensions will vary depending on rafter length.

## 2.2 BATTEN INSTALLATION PROCEDURE

All measurements should be made from the front of battens. This is the surface where Corona Shakes will be fixed to the battens.

### Timber Battens – No Rainwater System

Nail a dressed 50 x 25 mm batten to the front of the fascia board (refer Fig 1.4.2). The Corona Shake will be fixed to this batten. The next batten up the rafter will then be laid 370 mm from the front of this batten. Subsequent battens will be installed every 370 mm up the rafter, measuring from the front of each batten.

### Timber Battens – With Rainwater System

If a rain water system is to be installed then install the first batten just behind the fascia board (refer Fig 1.4.1). To install the second batten measure up 330 mm\* from the outside edge of the Starter batten. Tack a nail in place and repeat at the other end of the section of roof, then run a string line between the points. On each remaining rafter tack a nail at the string line. Fig 2.2.1.

\* May be varied to suit rain water goods

Using the measuring rod (pre-notched at 370 mm) hook it over the nail so that it lays up the rafter. Tack a batten nail in each slot as markers for the battens. Fig 2.2.2.

FIG 2.2.1

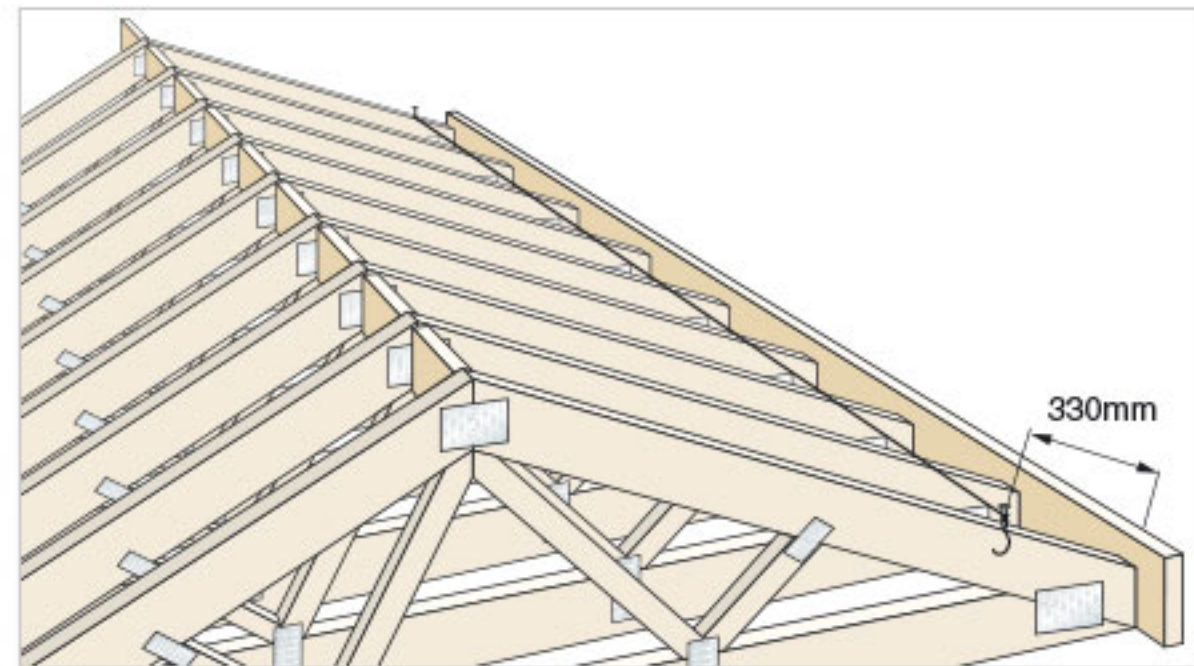
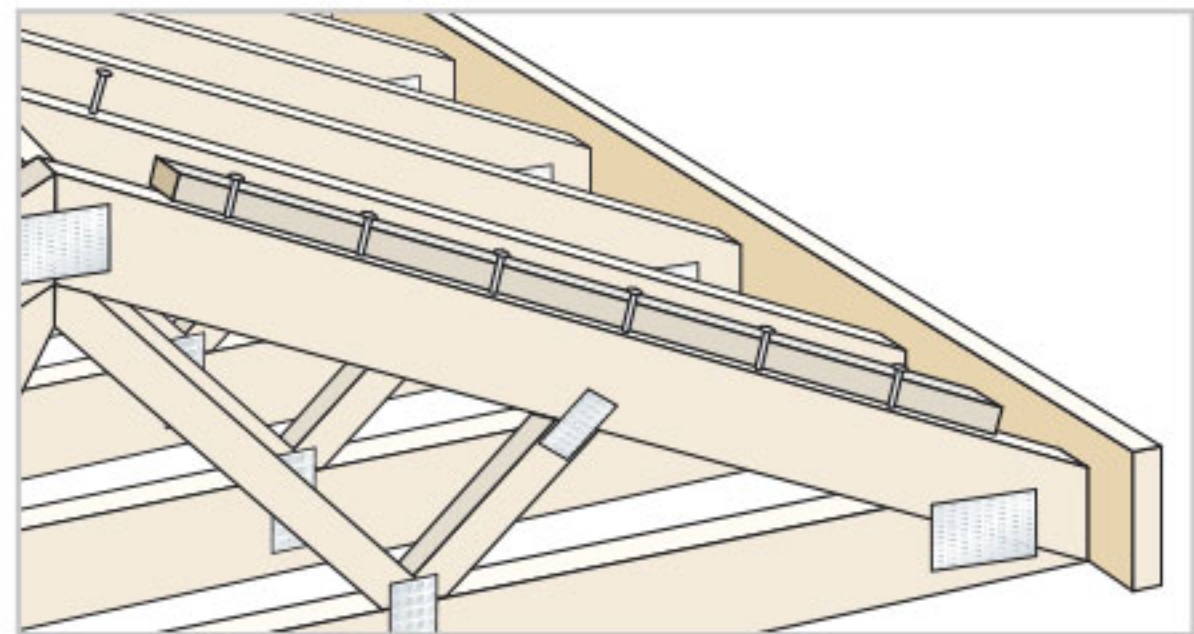


FIG 2.2.2



### Obstacles in a roof plane

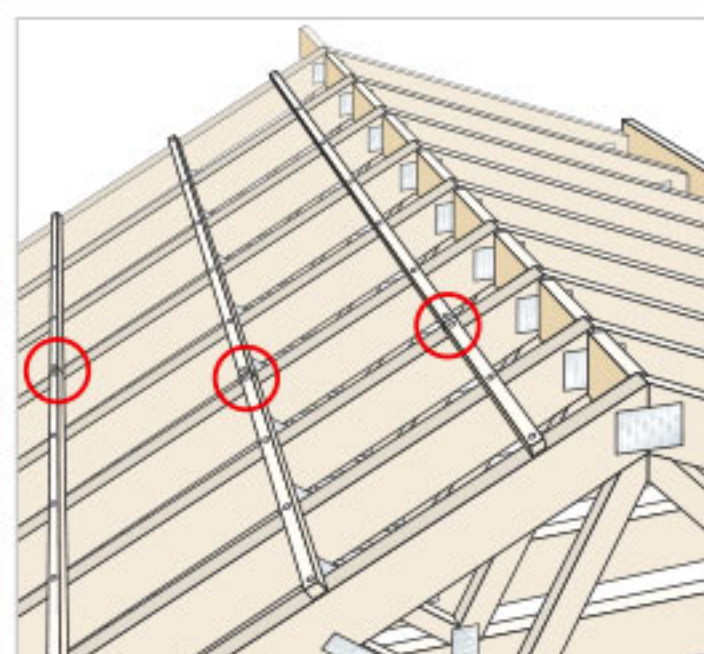
When you encounter an obstacle in the roof, e.g. a dormer window, run another string line over it and work down the other side with the measuring rod.

**If underlay is to be installed it is placed before the battens are nailed.**

Pin out marker nails help hold the underlay in place and battens laid every 3 courses but not fixed can be used to help roll out the underlay. Battens are then placed over the underlay and nailed in place to secure it firmly.

Load all the battens on to the roof and lay them in rows across the rafters, against the marking nails. Ensure the joints are staggered (Fig 2.2.3) and cut the battens to length so that they butt together on top of a rafter. Hold the batten firmly against the marking nail and nail through each batten into the rafter. Once installed, pull out the marking nail and use it to fix the next batten.

FIG 2.2.3



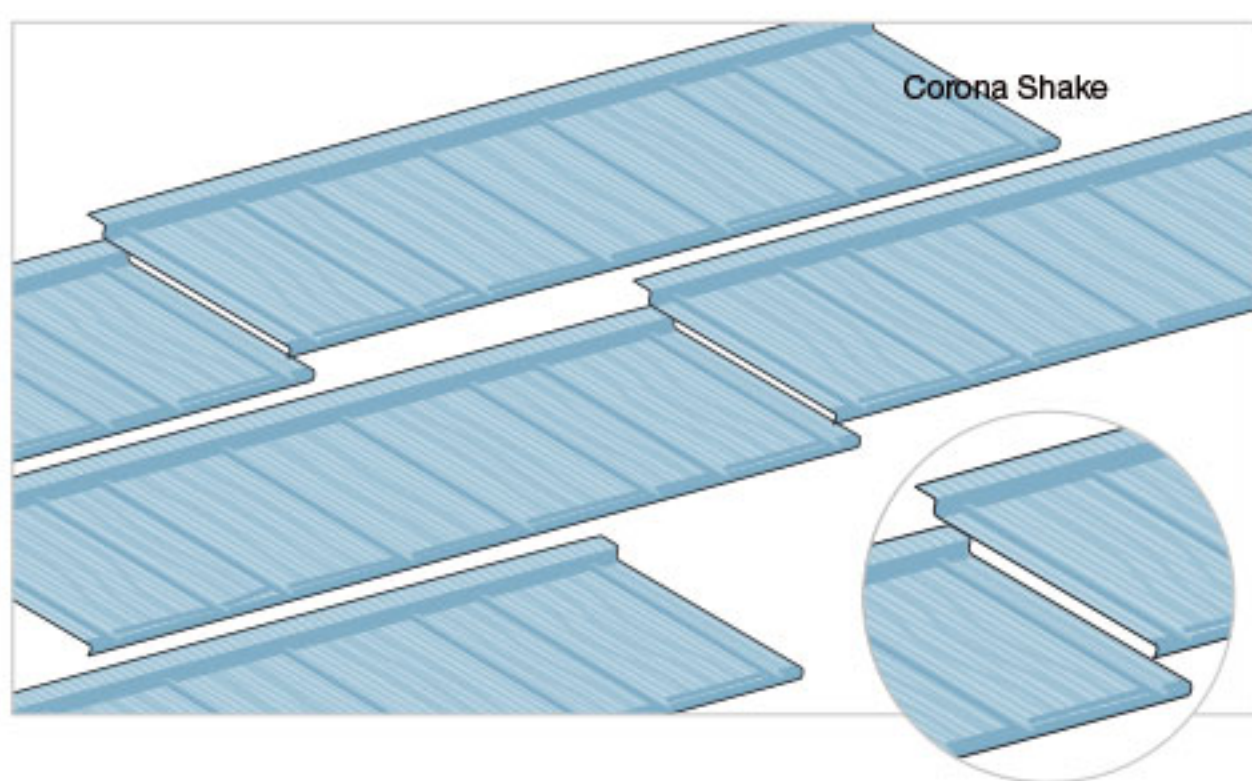
# CORONA SHAKE INSTALLATION

## 3.1 CORONA SHAKE LAYING

Corona Shakes can be interlocked either right over left or left over right (Fig 3.1.1) but should be laid with the laps facing away from prevailing winds or from discharging rain water pipes or Valleys. Where possible the Corona Shakes should also be laid with the laps facing away from the normal line of sight.

Corona Shakes are laid by lifting both Corona Shakes in the course above and sliding the next course under the nose of the Corona Shakes already in place.

FIG 3.1.1



## INSTALLATION SEQUENCE

Install the second to top course of Corona Shakes and nail them in position through the flat of the back edge sitting on the batten.

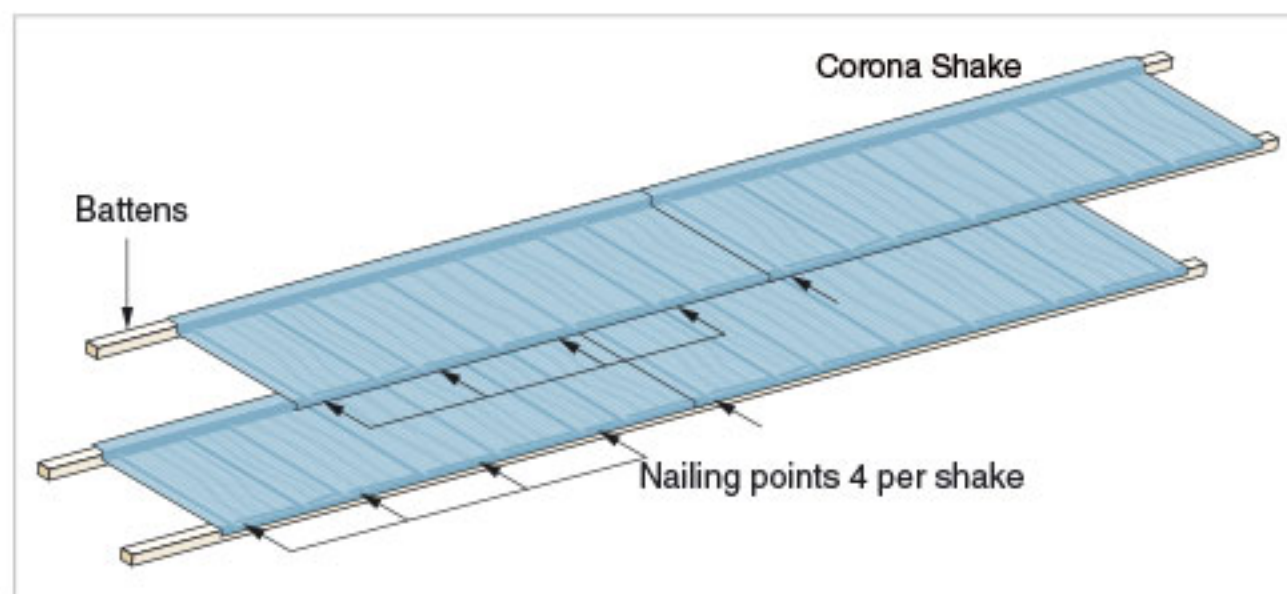
This holds them in place and allows lower courses of Corona Shakes to be laid without having to fasten each one. On low pitched roofs an entire area can be laid without fastening immediately. All Corona Shakes should be fastened in place before leaving the job site for any reason. On higher pitched roofs – over 30 degrees – Corona Shakes should be fastened two courses above the Corona Shakes that are being laid.

## 3.2 NAILING / FASTENING

The correct position for nailing Corona Shakes (Fig 3.2.1) to battens is shown below. Corona Shakes are secured by nailing through the front downturn flanges into the side of the batten (Fig 3.2.2 and Fig 3.3.1). Nails should be spaced approximately 300 mm apart. Care is required at the lap of

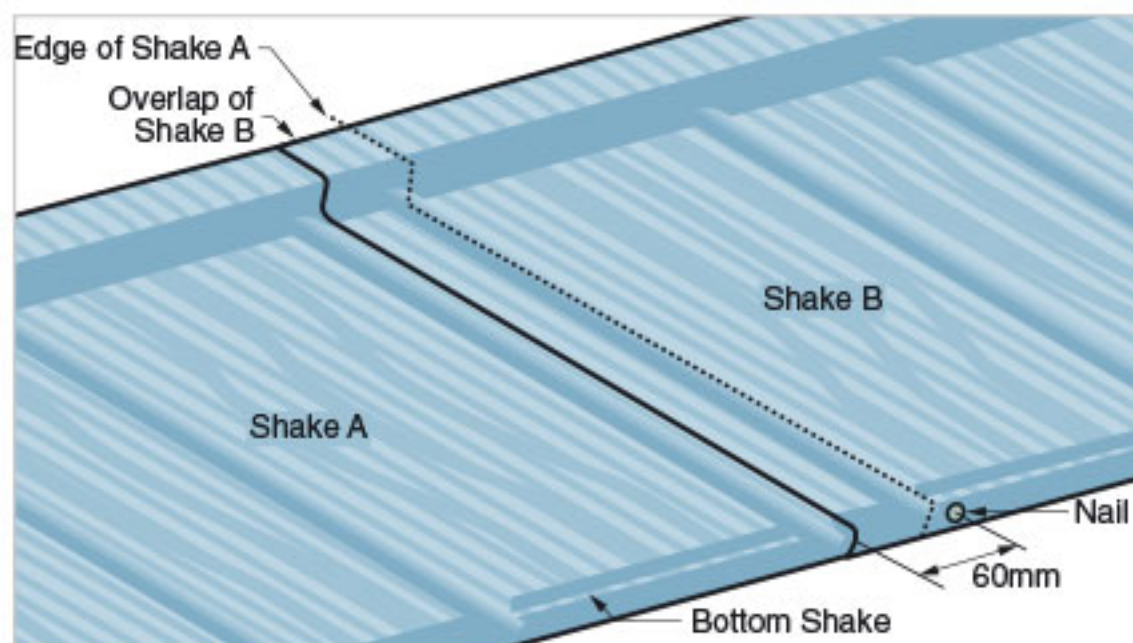
the Corona Shakes to ensure that the nail is placed outside of the hidden water channel (Fig 3.2.2) and at the same time restricting nail penetration to a maximum of two thicknesses of Corona Shake.

FIG 3.2.1



Note: In areas prone to cyclones, hurricanes or typhoons, installation must meet local standards and by-laws and nailing should be at 7 points per Corona Shake (approximately 160 mm spacing).

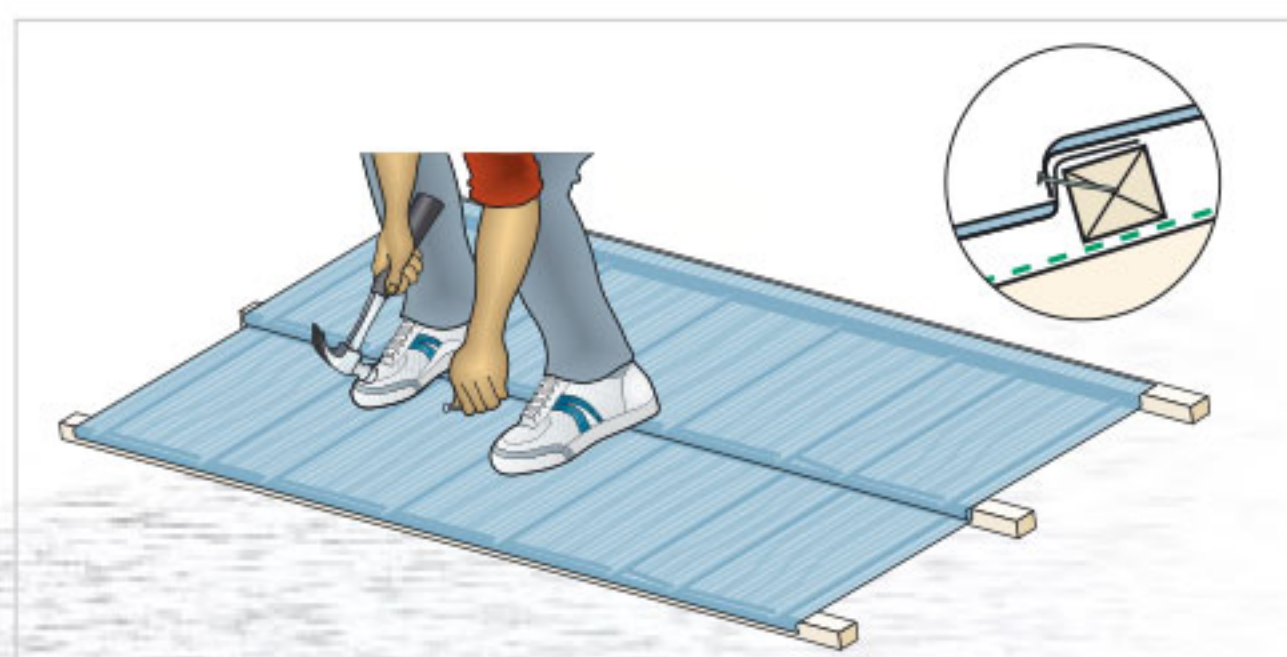
FIG 3.2.2



## 3.3 NAILING /FASTENING TECHNIQUE

The person nailing should stand on the Corona Shake being fastened facing the eave and nailing as shown. Fig 3.3.1. Gun nailers using AHI Roofing specified nails can also be used to securely fasten Corona Shakes.

FIG 3.3.1



# CORONA SHAKE INSTALLATION

## 3.4 GABLE ROOF

Lay the second to top course of Corona Shakes from gable end to gable end, turning the edge of the end Corona Shakes up against the barge battens. Tack these Corona Shakes temporarily in position through the flat of the back edge sitting on the batten.

Starting from the course already laid, lay the Corona Shakes two courses at a time from end to end. The Corona Shake laps must be staggered down the roof, using part Corona Shakes at the end where laying started to create the stagger.

The person laying the Corona Shakes should be two courses ahead of the person nailing.

## 3.5 HIP ROOF

On the second to top course, lay a Corona Shake that has been cut and bent to suit the angle of the hip. Tack this in place through the flat on the back edge that is sitting on the batten. Continue to lay towards the other hip until the last full Corona Shake will fit and secure them through the flat on the back of the Corona Shakes.

Pre-cut and bend Corona Shakes for all of the courses of Corona Shakes adjacent to the starting hip. (Vary the length of the Corona Shakes to create a staggered pattern of laying).

Refer to section 3.7 Hip Installation to complete measuring and installing Corona Shakes at the finishing end.

## 3.6 CORONA SHAKE INSTALLATION – RIDGE

Measure the distance (A) from the last Corona Shake to the ridge board (Fig 3.6.1). Add 40mm to the measurement (turn up allowance) and mark the Corona Shake to be cut. Fig 3.6.2.

Place the full Corona Shake in the combined bender. Line up the marks showing the bend line and bend the Corona Shake upwards. Corona Shakes can be bent in either the bender or, depending on the length, with the full-tile bending attachment. Finally, cut along the marked cutting line using the guillotine or hand shears.

FIG 3.6.1

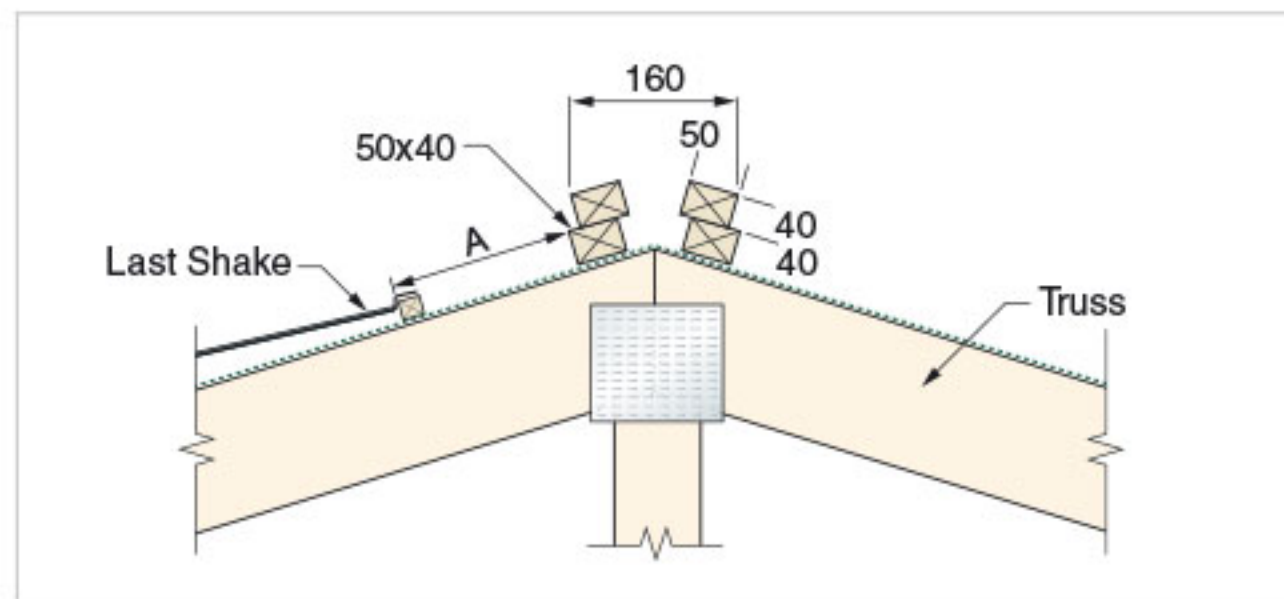
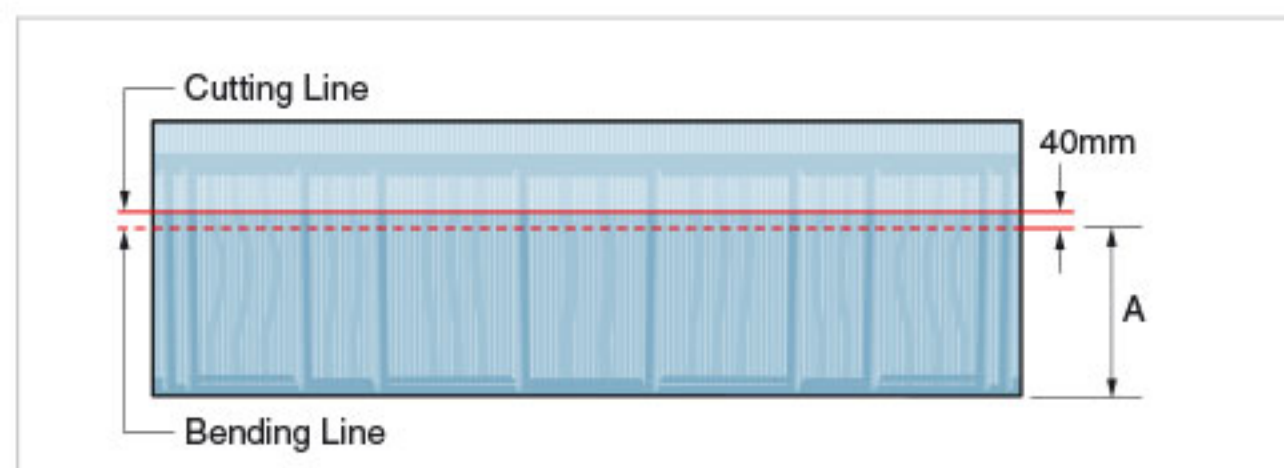
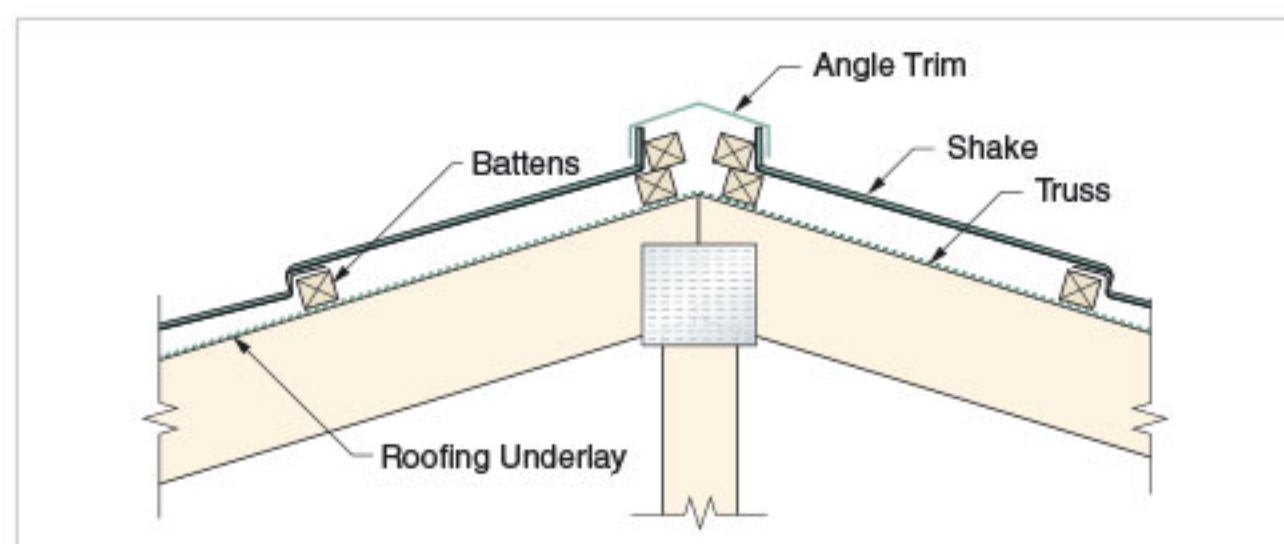


FIG 3.6.2



Note: It is essential to bend the Corona Shake before cutting to avoid Corona Shake distortion. Install the top course of Corona Shakes to the ridge board by nailing each Corona Shake through the up-stand to the batten in 4 places and nailing the bottom edge as previously described. Ensure that the top course of Corona Shake follows the same pitch as the other courses. Fig 3.6.3.

FIG 3.6.3



## 3.7 CORONA SHAKE INSTALLATION HIP

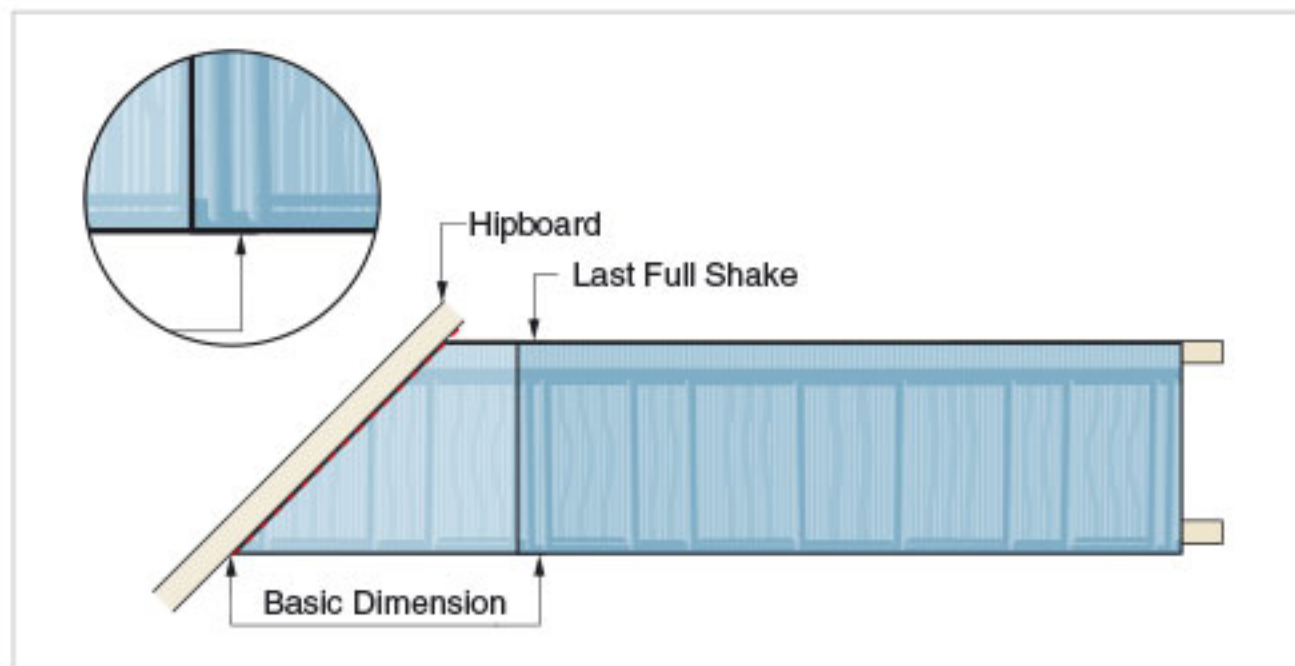
Measurements are made on the roof, but Corona Shakes are normally marked, cut, bent and stacked on the ground. The following steps should be followed.

- (i) The first hip Corona Shakes can be cut and bent before laying any full Corona Shakes, no length measurement of the Corona Shake is required.

# CORONA SHAKE INSTALLATION

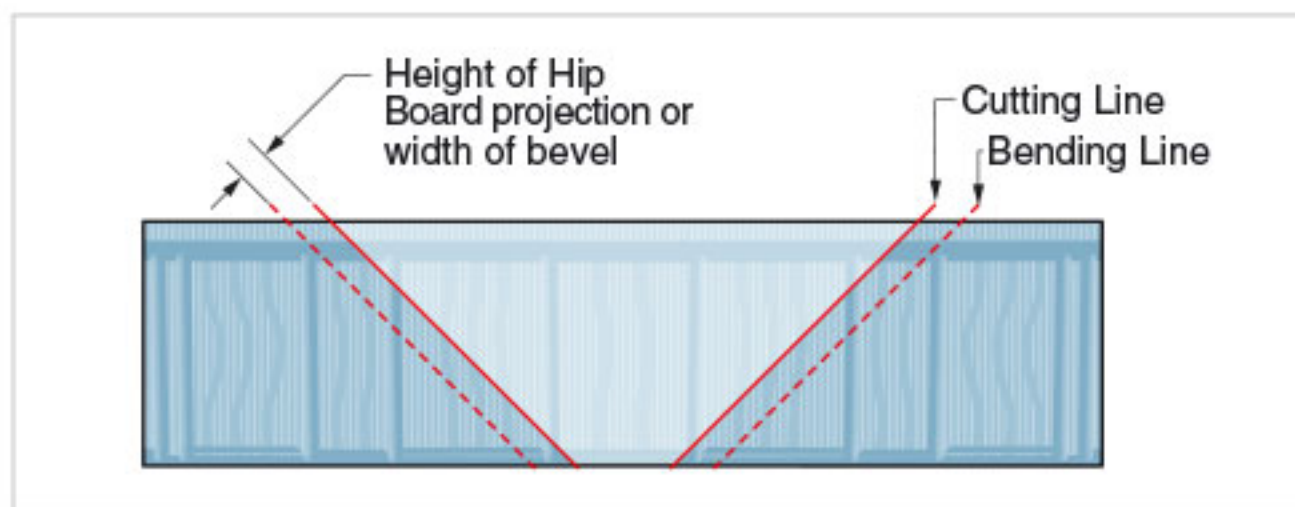
- (ii) Corona Shakes at the other end of the hip course need to be cut and bent after measuring the gaps left. Take the basic measurement (as shown in Fig 3.7.1) from the water channel to the hip batten along the front edge of the Corona Shake batten. The angle can be taken by measuring both the front and the back of the remaining gap or by using a bevel which is set up against the batten face and the side of the hip batten.

FIG 3.7.1



- (iii) Measure and mark on the Corona Shake with chalk or similar. The measurement is done from the edge of the lap on the Corona Shake adding the basic dimension taken from the roof, the angle is marked using the bevel. This is the bending line for the hip Corona Shake. Add 40 mm to the bending line measurement to create the cutting line as shown in Fig 3.7.2.

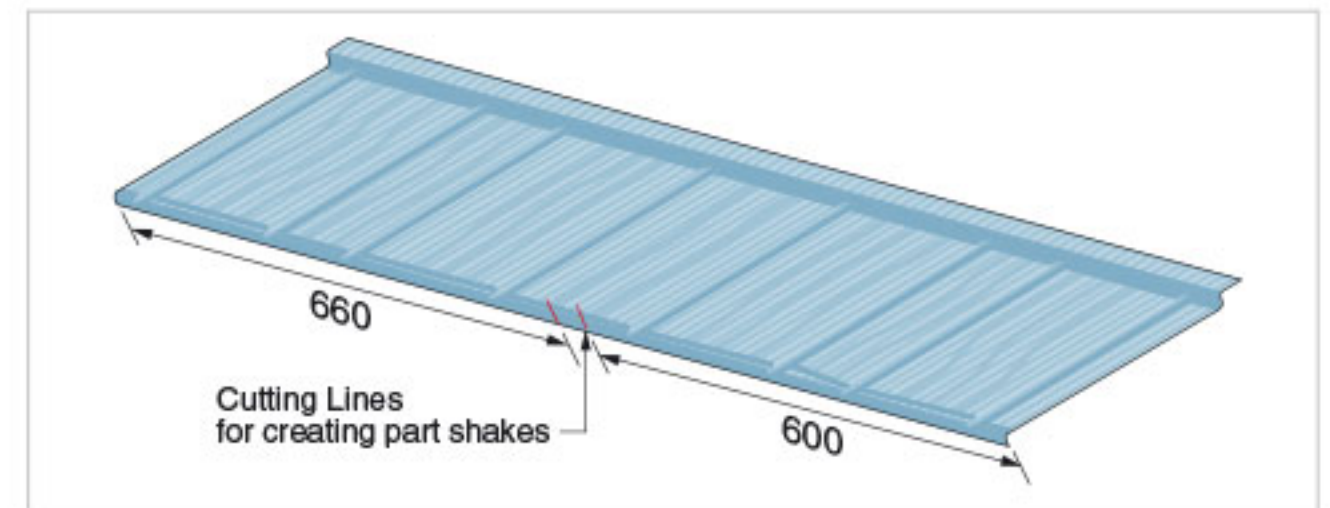
FIG 3.7.2



- (iv) If a small part Corona Shake (less than a course width) is required, then it will be necessary to remove the adjacent full Corona Shake and insert a part Corona Shake – this will allow a full width Corona Shake to be cut and bent to suit.

A half Corona Shake can be made by cutting the Corona Shake in Half – at the centre of the Corona Shake there are 3 raised sections – cut correctly, these match the end 50 mm sections of the Corona Shake. Fig 3.7.3.

FIG 3.7.3



## 3.8 CORONA SHAKE INSTALLATION - VALLEY

Valley Corona Shake measurements are made in the same way as hips and the bend line is transferred to the Corona Shake. The cutting line differs in that the line is 30 mm wide at the back of the Corona Shake and 40 mm at the front. The Corona Shakes are cut and then bent down using the short tile bender.

Note: As measurements are taken from the face edge of the batten, measurement lines on the Corona Shake should also be on this line.

Cut and bend all Corona Shake according to the method described above.

Install cut and bent Corona Shakes from the eaves up by nailing through the turn-up in to the hip batten and one or more nails into the front edge of the Corona Shakes as per other Corona Shakes on the roof.

# ACCESSORY INSTALLATION

## 4.1 BARGE INSTALLATION

Before installation it is essential that the edge of the end Corona Shake is turned up against the barge batten. The Angle Trims are bent to a 90 degree angle and the edge bent as shown in Fig 4.1.1 before placement. The Angle Trims are then tacked temporarily in place working up the barge board (Fix caps as shown in Fig 4.1.2). Sight along the barge board to ensure that the Angle Trims are straight and true. Adjust if necessary, then drive the nails home. Note that the nails need to be near the bottom edge of the Angle Trims to ensure that the bottom edge is firmly positioned against the barge board. Pre-punched holes are provided for this purpose. Finish the apex neatly by scribing the Angle Trims together.

Finish junctions of the barge and ridge, scribing accessories to fit – seal the joint and rivet together. Figs 4.1.3 and 4.1.4.

FIG 4.1.1

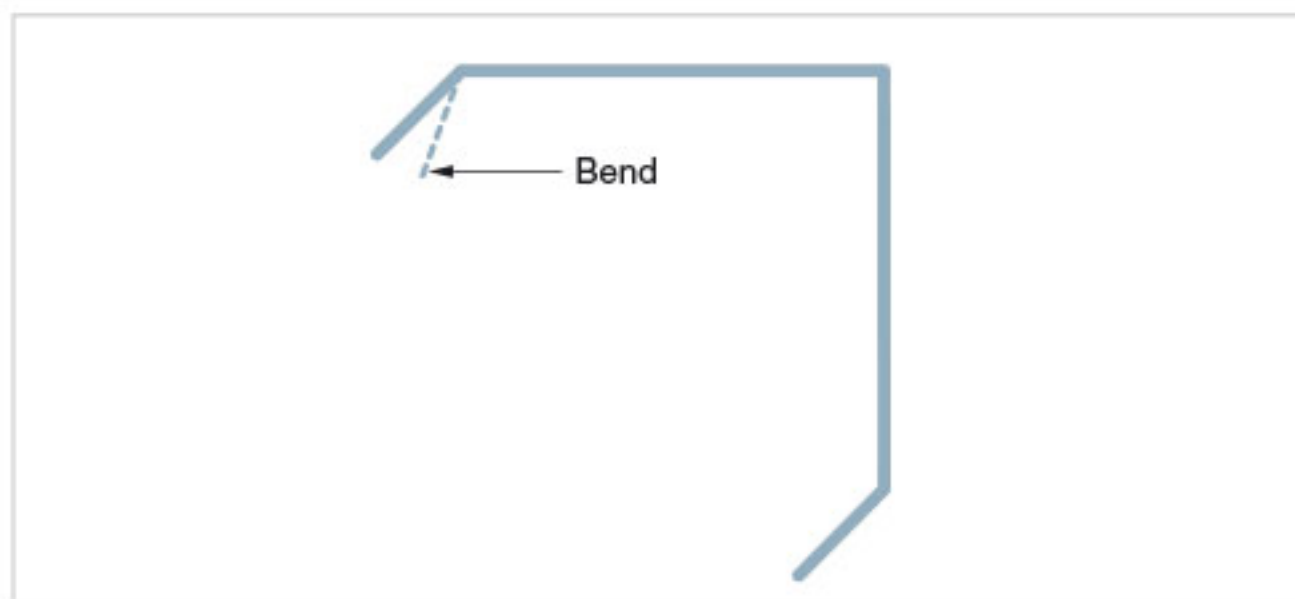


FIG 4.1.2

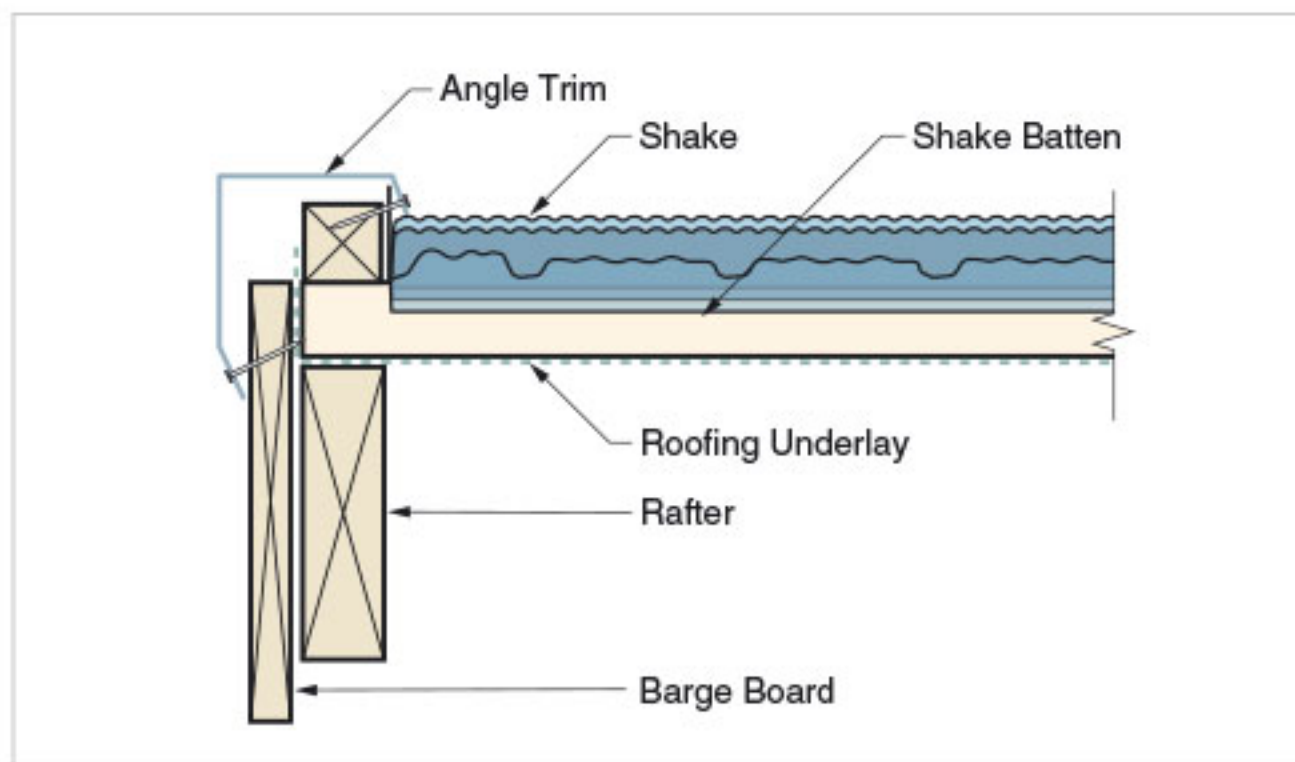


FIG 4.1.3

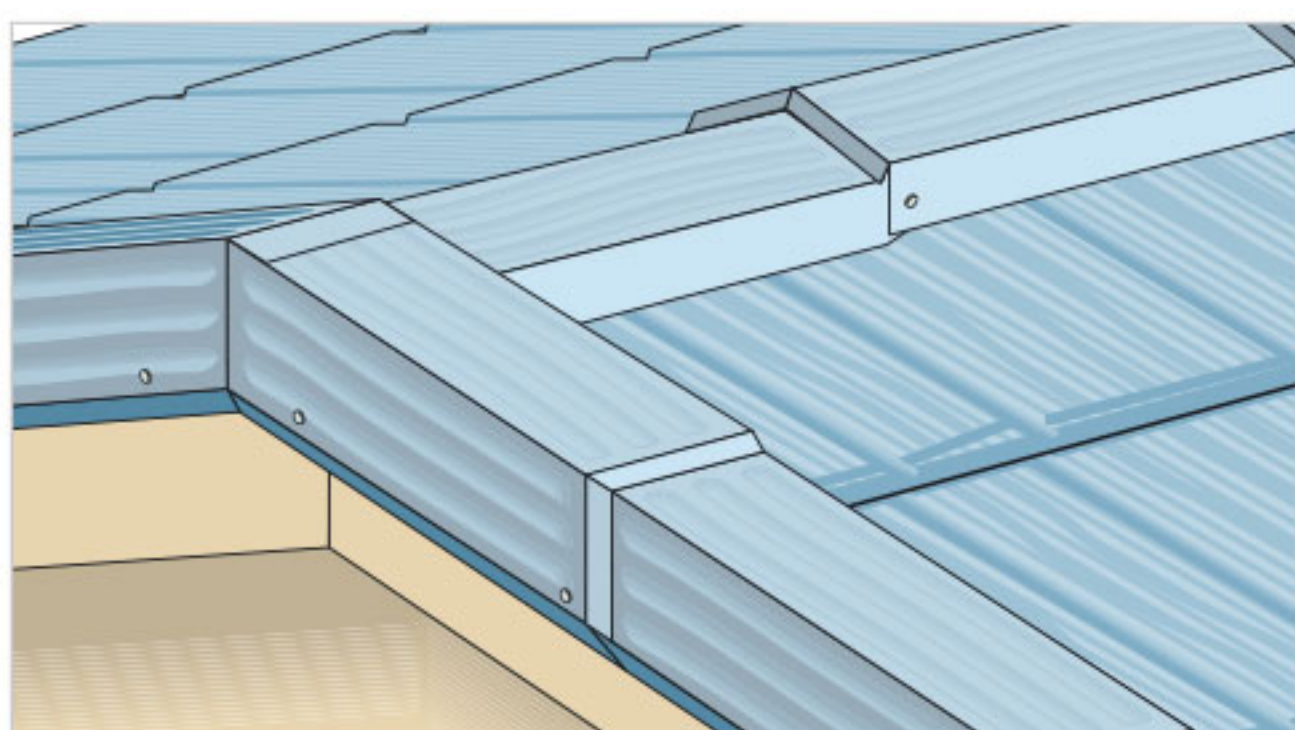
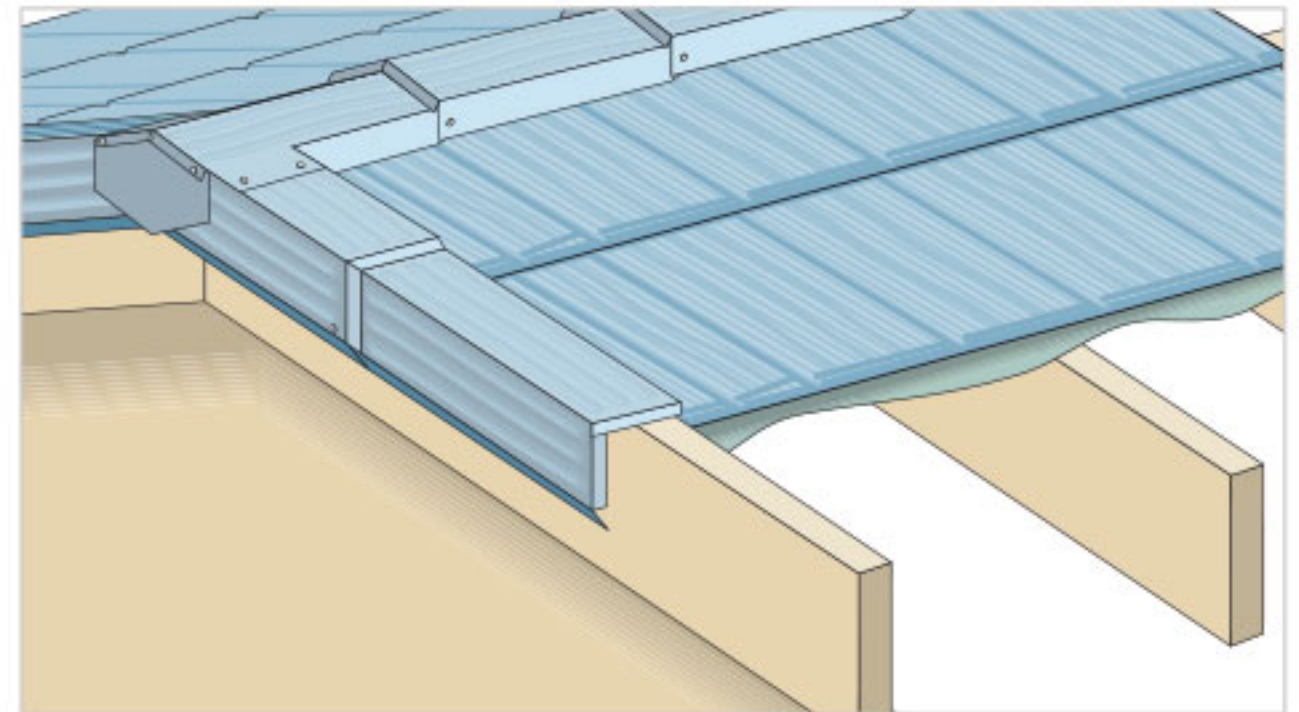


FIG 4.1.4

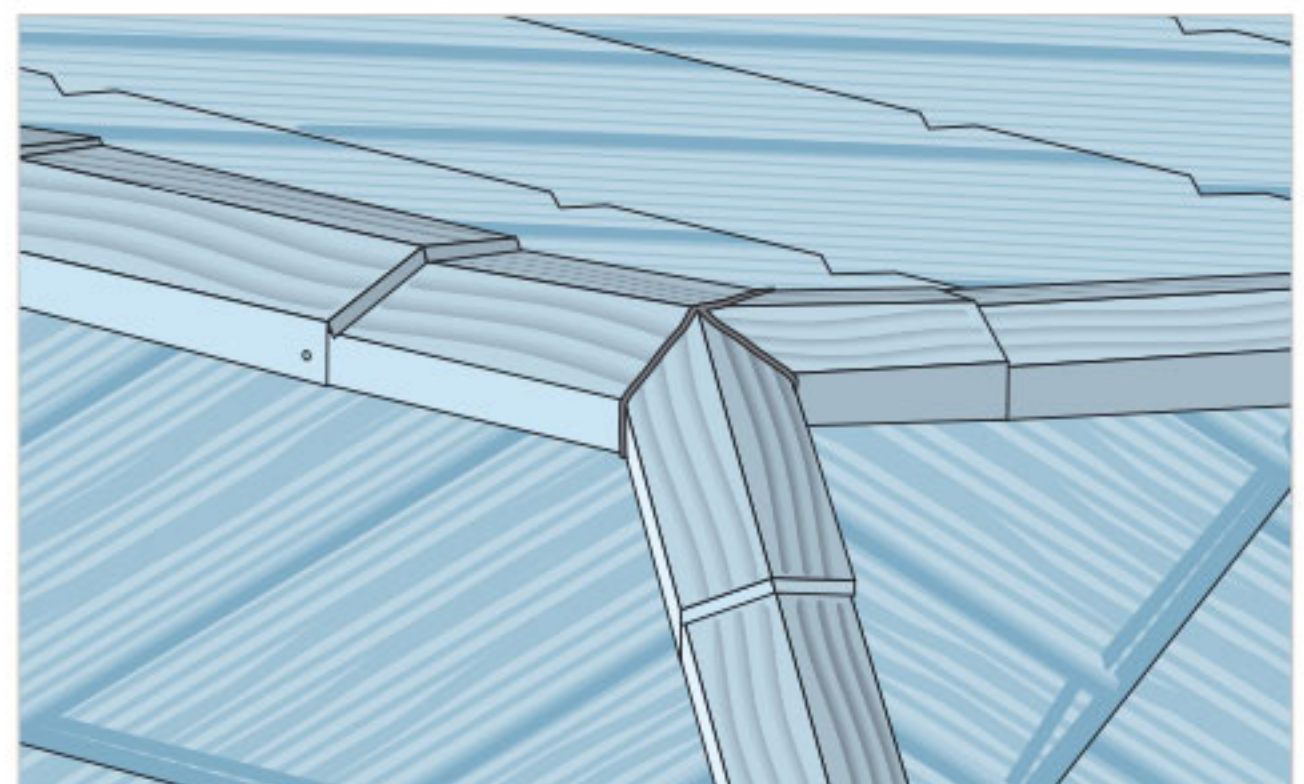


## 4.2 RIDGE HIP INSTALLATION

Lay the Angle Trims over the ridge and hip battens starting at the eaves. The Angle Trims are then tacked temporarily in place. Have someone sight along the hip or ridge to ensure that the Angle Trims are straight and true. Adjust if necessary, then drive the nails home.

Finish junctions of hip and ridge scribing accessories to fit – seal the joint and rivet together Fig 4.2.1.

FIG 4.2.1



## 4.3 FLASHING

Great care is needed where the roof surface joins a vertical wall such as in the case of two storey or split level homes, or where dormer windows protrude from a steep pitch roof. It is essential to bend the ends of all Corona Shake courses up under the flashings. Measure the gap (allowing for overlap) from the last Corona Shake to the vertical surface; this gives the bending line. Add 40mm for the cutting line. Cut and bend up the Corona Shake. Secure the upturned Corona Shake in place with the upturn against the wall. Do not secure the Corona Shake to the wall. (Refer to Figs 4.3.1, 4.3.2 and 4.3.3). Nail the Side Flashing to the wall ensuring that the Side Flashing is hard down and straight.



# ACCESSORY INSTALLATION

Alternatively, a hidden gutter is sometimes specified. In this case, the end of the tile battens stop short of the vertical studs by 45mm in order to accommodate the gutter. The gutter is positioned before the roof is installed (Fig 4.3.4). Flashings for brick veneer and roofs sloping away from the wall are shown in Figs 4.3.5 and 4.3.6.

FIG 4.3.1

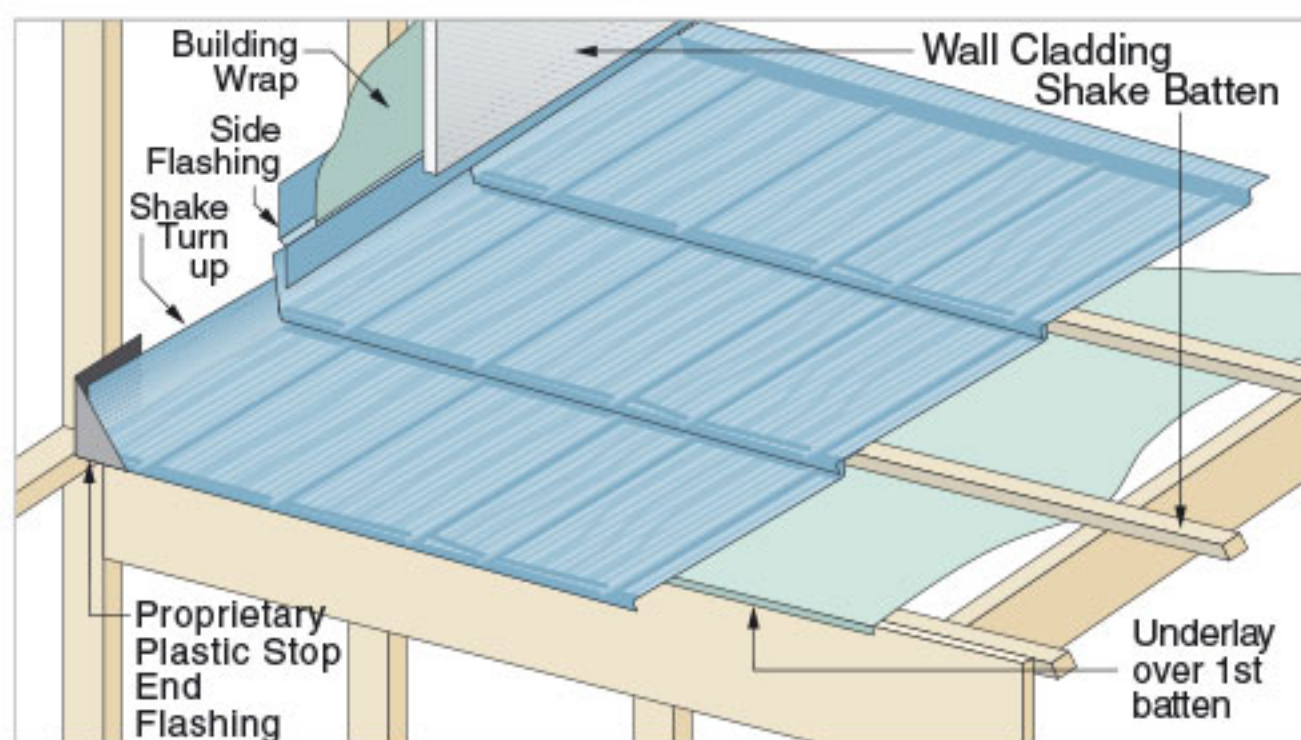


FIG 4.3.2

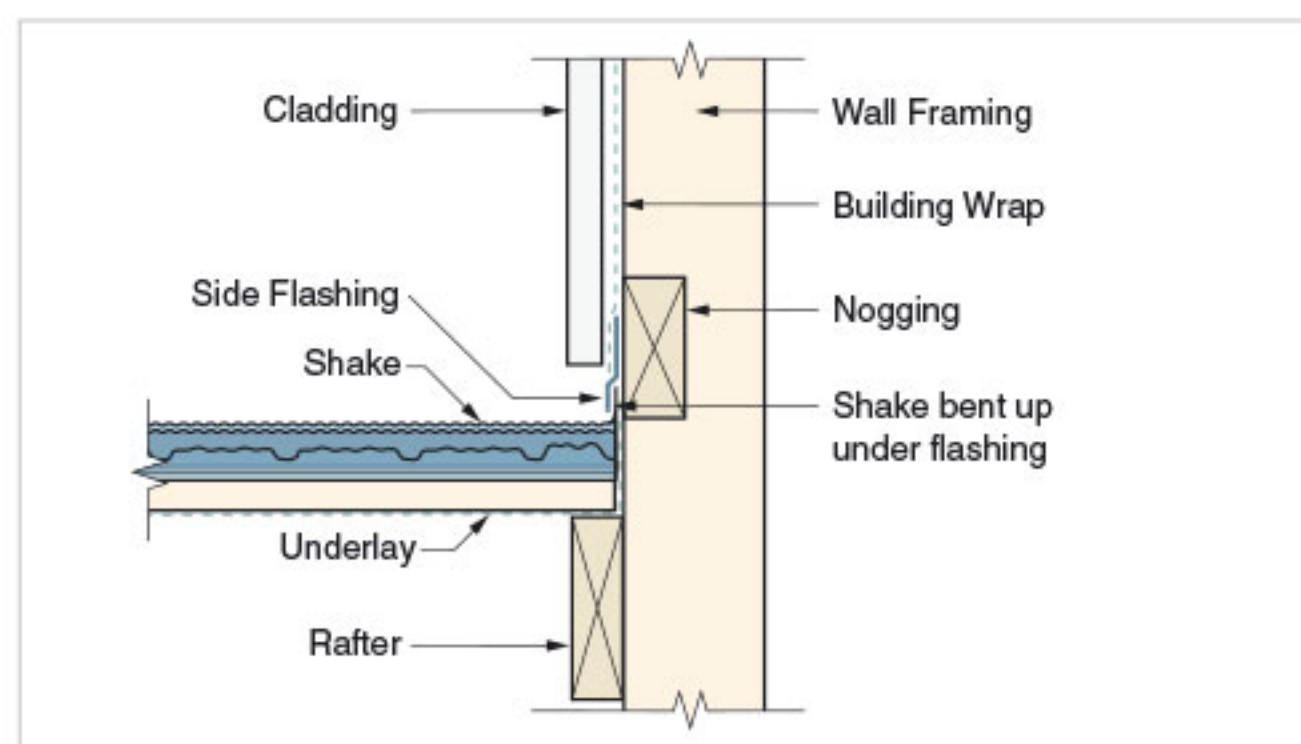


FIG 4.3.3

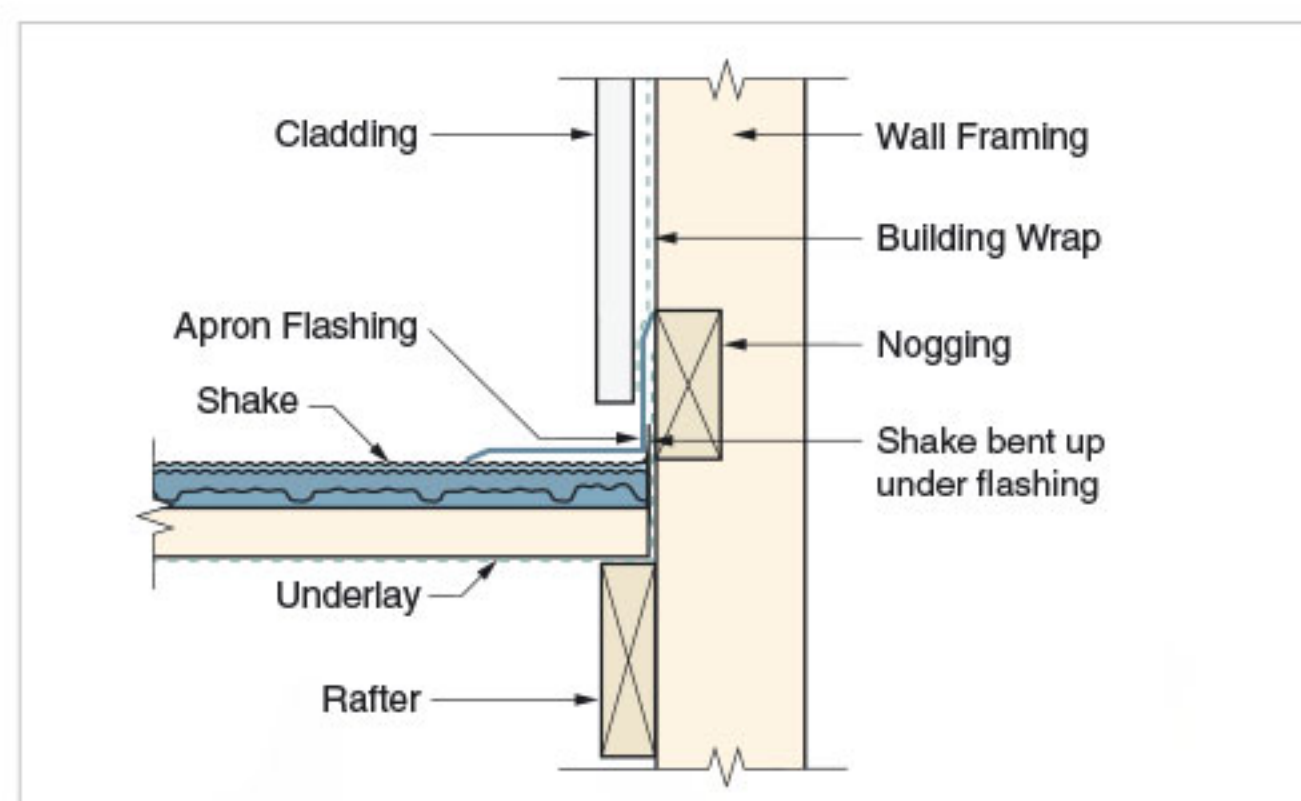


FIG 4.3.4

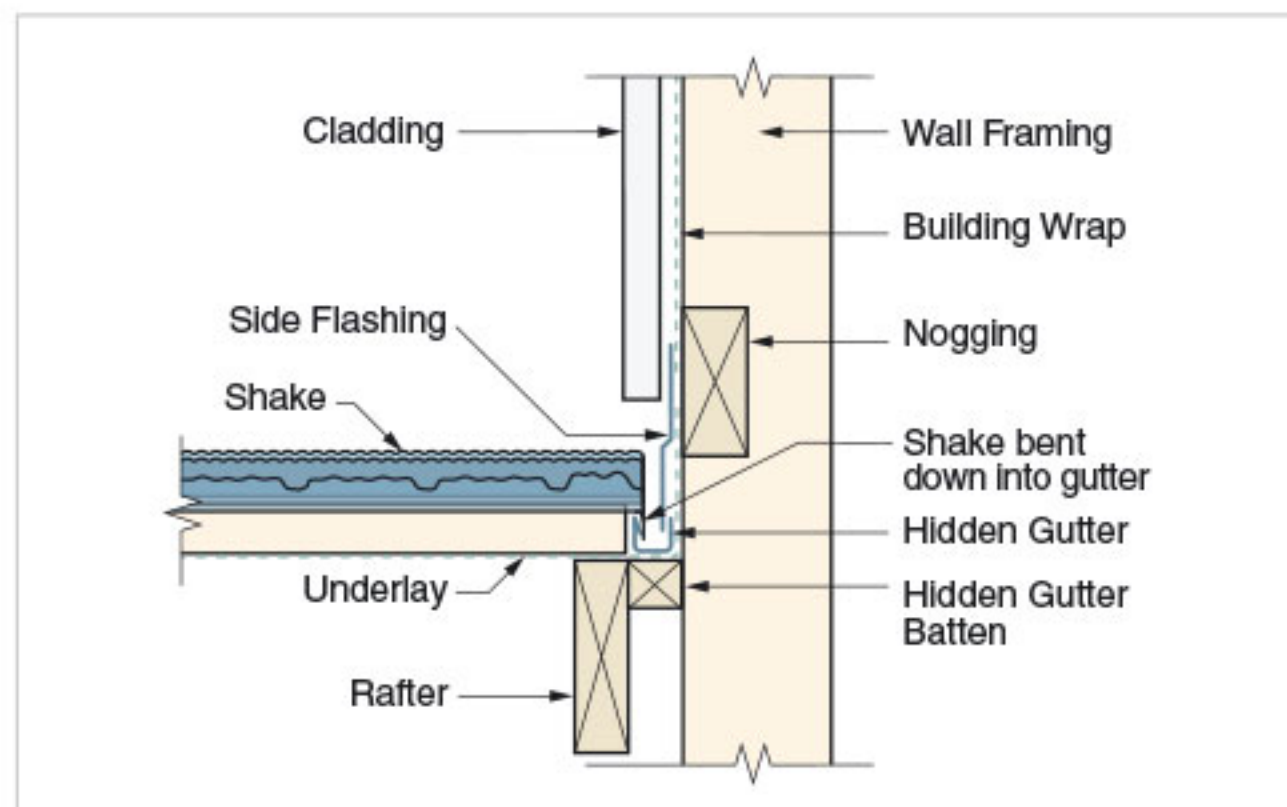


FIG 4.3.5

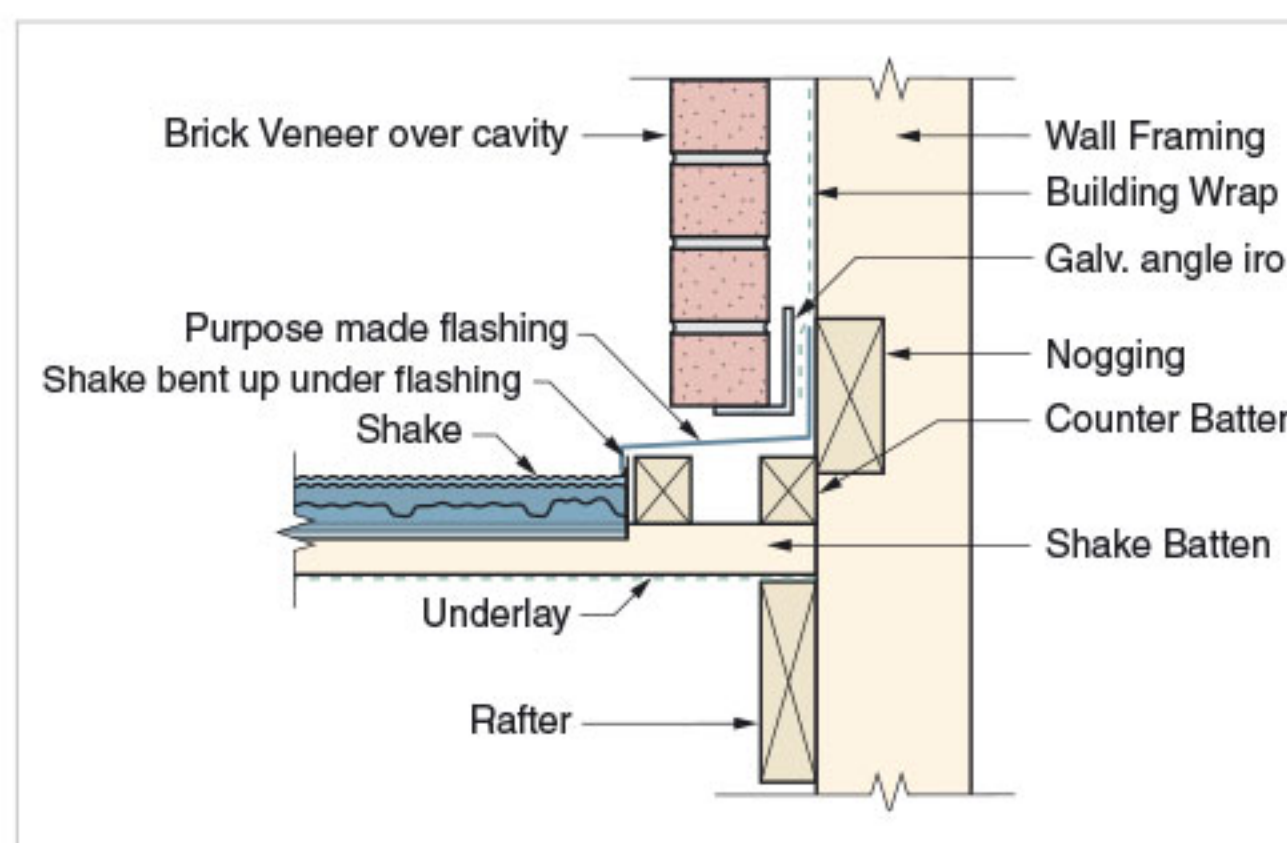
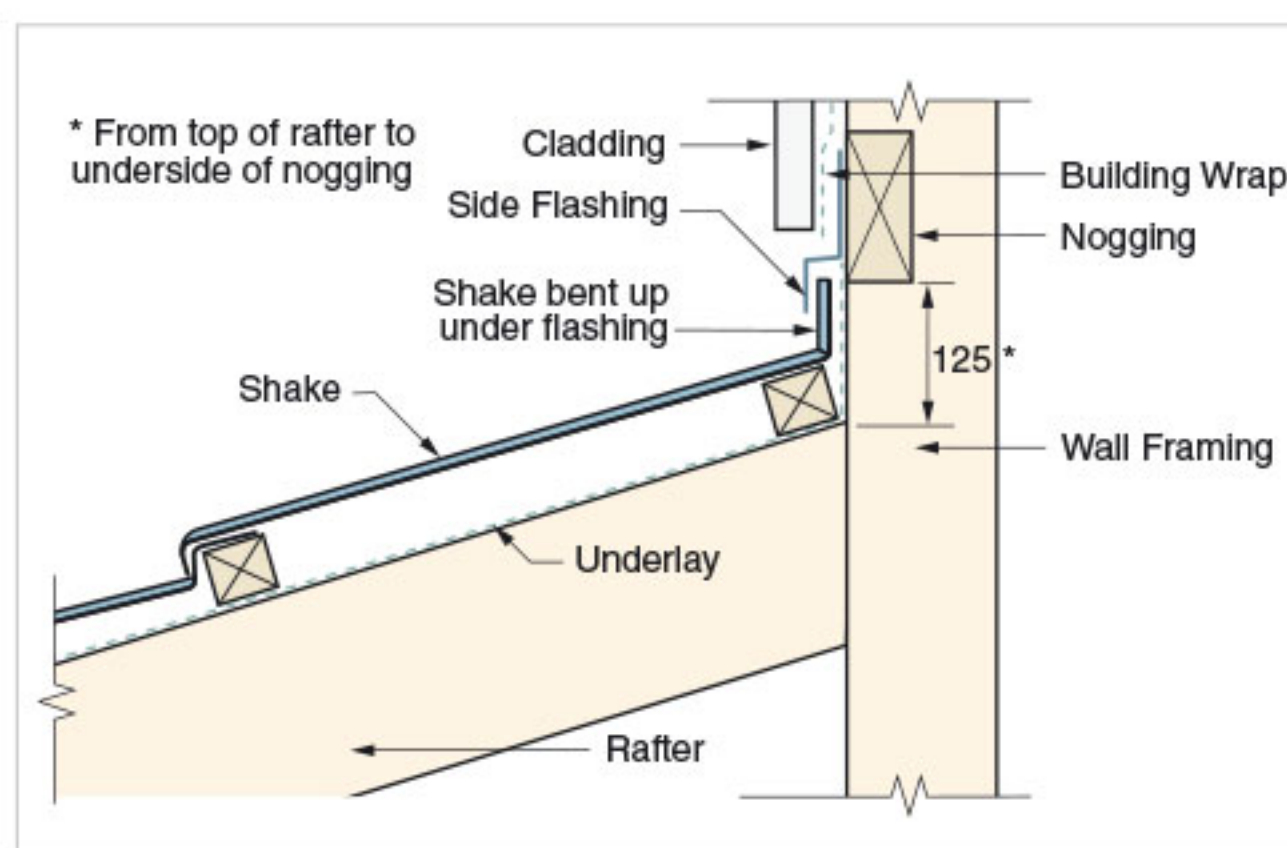


FIG 4.3.6



## 4.4 MANSARD

Where standard accessories are not suitable, custom flashings can be made on site using Flat Sheets. These can be neatly bent to conform to the shape of the mansard top.

## 4.5 NAIL HEADS

Touch up all nail heads using the Touch Up Kit if required.

# ESTIMATING DATA

## 5.1 STRAIGHT GABLE

- (i) Determine the rafter length (Fig 5.1.1) and calculate the number of courses of Corona Shakes from Table 5.1. Always ensure that fractional Corona Shakes are counted as whole Corona Shakes as these will have to be cut at the ridge batten.
- (ii) Determine the overall length of the roof (Fig 5.1.2) and refer to Table 5.1 for the number of Corona Shakes required. Ensure that fractional Corona Shakes are counted as whole Corona Shakes.
- (iii) Multiply Corona Shakes (i) x Corona Shakes (ii).
- (iv) Multiply result (iii) x 2 when estimating for both sides of the roof.

FIG 5.1.1

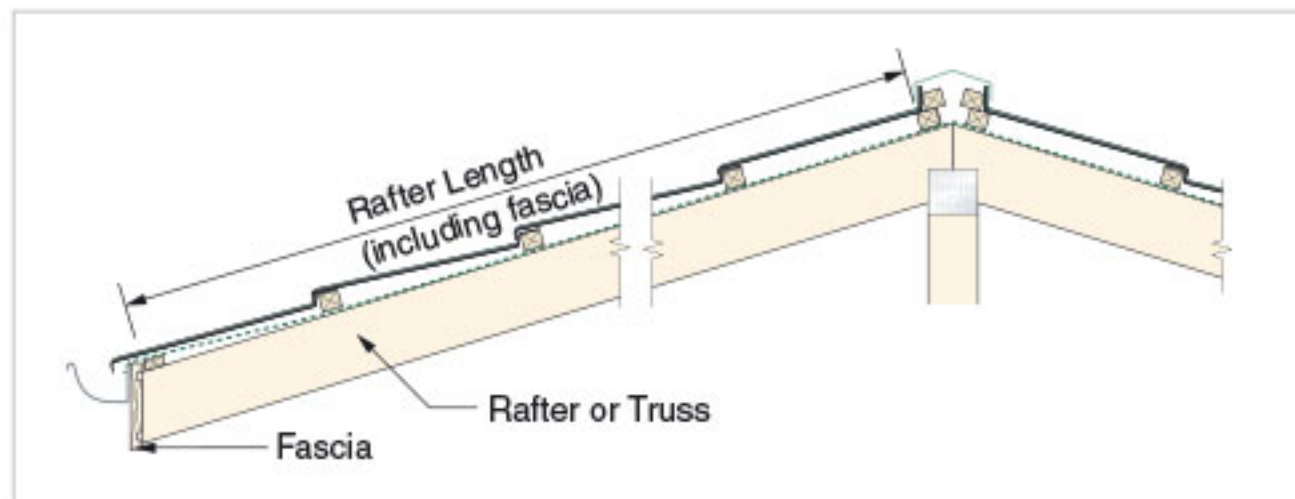
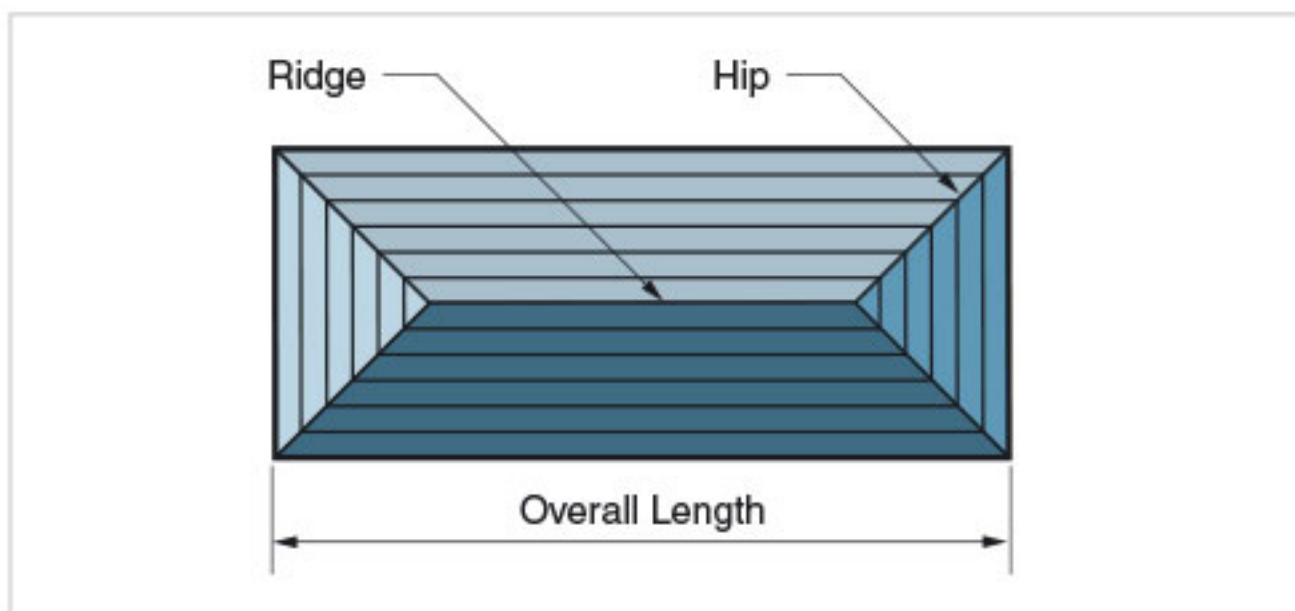


FIG 5.1.2



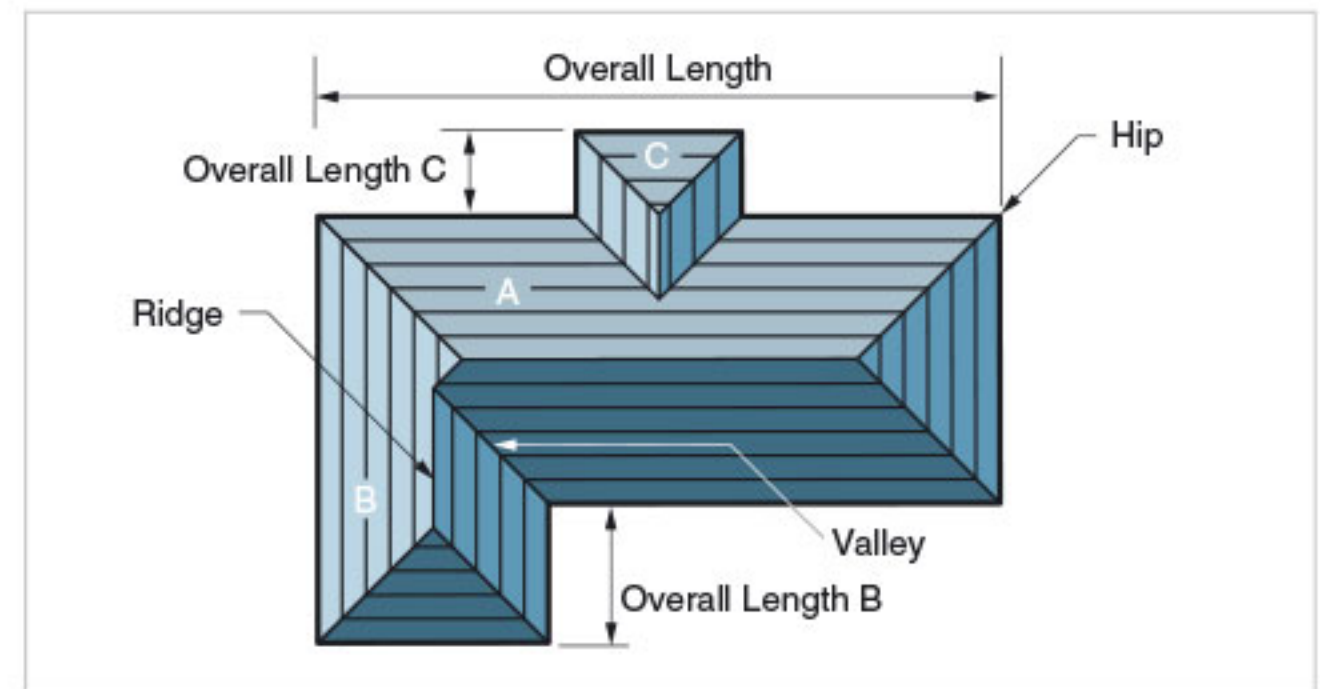
## 5.2 HIP AND VALLEY ROOFS

- (i) **HIP ROOFS:** Treat the roof initially as a straight gable roof. Find the overall length (Fig 5.1.2) and refer to Table 5.1 to calculate the number of Corona Shakes required for the coverage. Multiply the result by the number of courses of Corona Shakes needed to cover the rafter length. Multiply again by two when calculating both sides of the roof. Find the total hip length and using one of the formulae outlined in (iii) below, calculate the Corona Shakes required for the hips. Add this to the Corona Shakes required for the body of the roof.
- (ii) **HIP AND VALLEY ROOFS:** First take the section with the longest rafters (section A Fig 5.2.1). From Table 5.1 calculate the requirements for that section and then for the remaining sections (sections B and C Fig 5.2.1).

Find the total length of hips and valleys and using the formula outlined in (iii) below, calculate the additional Corona Shakes required for hips and valleys to obtain the total Corona Shake requirement.

- (iii) Additional Corona Shakes for hips and valleys may be estimated using the following formula: Additional Corona Shake quantity = Total hip and valley length in linear metres x wastage factor (where the wastage factor = 1.32 Corona Shakes per linear metre).

FIG 5.2.1



## 5.3 ESTIMATING ACCESSORIES

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

- (i) **Angle Trims:** Determine the total length of ridges, hips and barge boards, to be covered Divide by the linear cover of each unit (i.e. 370 mm) to calculate the number of Angle Trims required.
- (ii) **Side Flashings and Flat Sheet Flashings:** Determine the overall length of flashing required. Divide by the linear coverage per flashing unit (i.e. 1900 mm) to calculate the number of Side Flashings and Flat Sheets required.

## 5.4 ESTIMATING BATTENS FOR NEW ROOFING

Provide 3 linear metres of batten per square metre of roof

Note: Where laying over solid decking provide 2.7 linear metre of battens per square metre of roof or only battens for the length of hips, barges and the ridge.

## 5.5 ESTIMATING BATTENS FOR OVERLAY RE-ROOFING

Provide 5 linear metres of batten per square metre of roof.

## 5.6 ESTIMATING CORONA SHAKE NAIL QUANTITIES

Provide 1 kilogram of nails per 22 square metres of roof.

# ESTIMATING DATA

TABLE 5.1

RAFTER LENGTH*		OVERALL RAFTER LENGTH		
TO SUIT FULL COURSE OF SHAKES	NO. OF BARGE COURSES	ROOF LENGTH	NO. OF SHAKES	
0.330 m	1	1.365 m	1	
0.700 m	2	2.615 m	2	
1.070 m	3	3.865 m	3	
1.440 m	4	5.115 m	4	
1.810 m	5	6.365 m	5	
2.180 m	6	7.615 m	6	
2.550 m	7	8.865 m	7	
2.920 m	8	10.115 m	8	
3.290 m	9	11.365 m	9	
3.660 m	10	12.615 m	10	
4.030 m	11	13.865 m	11	
4.400 m	12	15.115 m	12	
4.770 m	13	16.365 m	13	
5.140 m	14	17.615 m	14	
5.510 m	15	18.865 m	15	
5.880 m	16	20.115 m	16	
6.250 m	17	21.365 m	17	
6.620 m	18	22.615 m	18	
6.990 m	19	23.865 m	19	
7.360 m	20	25.115 m	20	
7.730 m	21	26.365 m	21	
8.100 m	22	27.615 m	22	
8.470 m	23	28.865 m	23	
8.840 m	24	30.115 m	24	
9.210 m	25	31.365 m	25	
9.580 m	26	32.615 m	26	
9.950 m	27	33.865 m	27	
10.320 m	28	35.115 m	28	
10.690 m	29	36.365 m	29	
11.060 m	30	37.615 m	30	

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

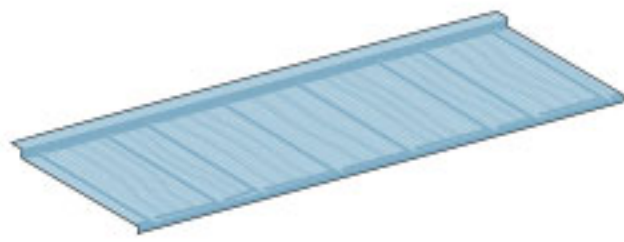


# GENERAL INFORMATION

## 6.1 LIST OF COMPONENTS

All dimensions given are nominal.

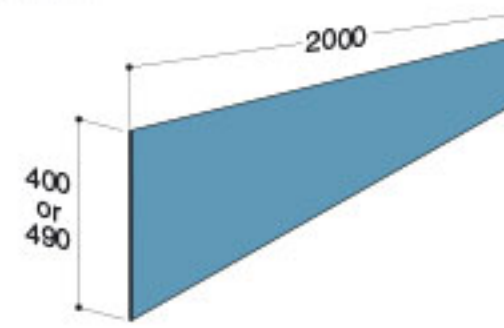
FIG 6.1



### Corona Shake

Overall length	1310 mm
Length of cover	1250 mm
Width of cover	370 mm
Upstand	25 mm
Roof cover/Shake	0.46 m <sup>2</sup>
Coverage	2.2 Shakes/m <sup>2</sup>
Weight/unit	3.0 kg

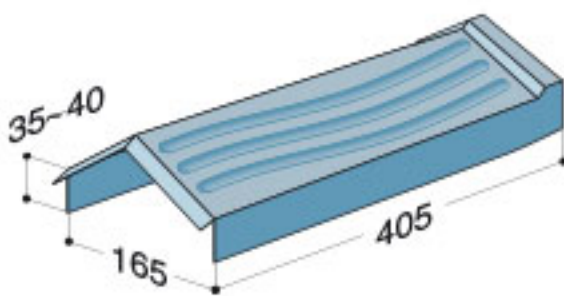
FIG 6.1.4



### Flat Sheet

Overall length	2000mm
Width	400mm/490mm
Weight/unit	3.9kg/4.8kg

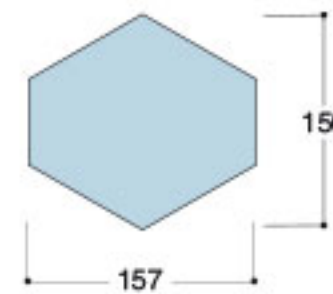
FIG 6.1.2



### Angle Trim

Overall length	405mm
Length of cover	370mm
Width	165mm
Weight/unit	0.5kg

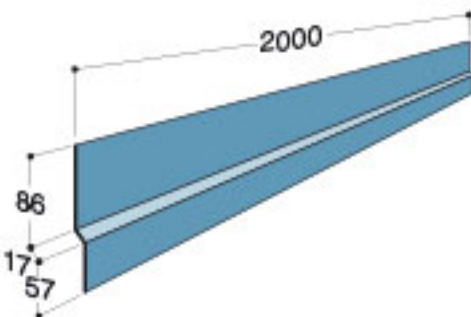
FIG 6.1.6



### Angle Trim End

Weight/unit	0.1kg
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FIG 6.1.3



### Side Flashing

Overall length	2000mm
Length of cover	1900mm
Upturn	86mm
Width	17mm
Downturn	57mm
Weight/unit	1.7kg

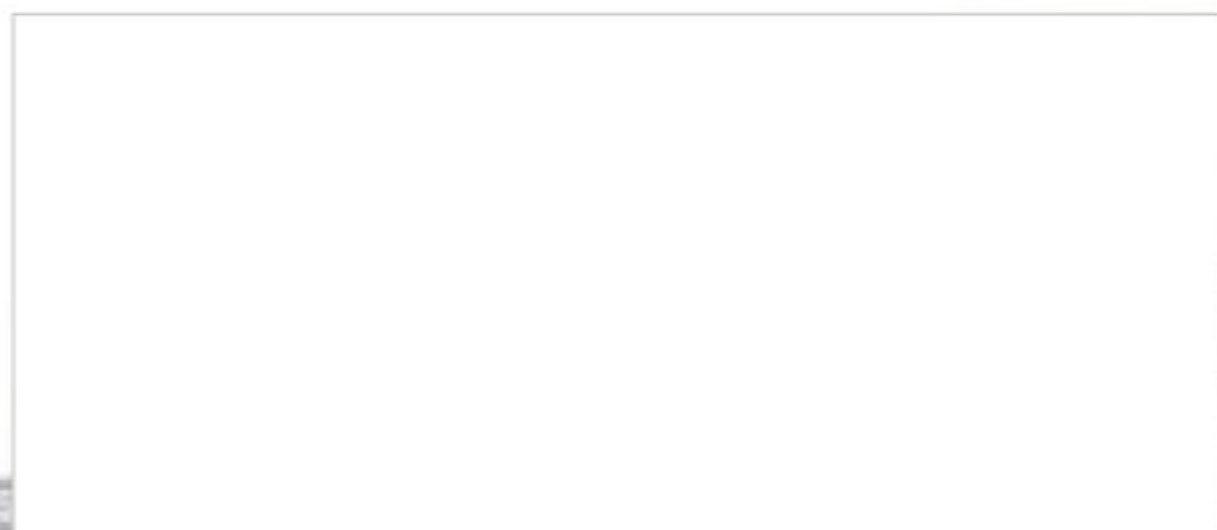
## 6.2 PACKING

Corona Shakes are packed on wooden pallets of base dimensions 1370 x 1070mm. The maximum height of a pallet of Corona Shake is 1000mm. 300 or 250 Corona Shakes are stacked on each pallet.

## 6.3 STORAGE AND HANDLING

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

Care should be taken when handling the Corona Shakes to avoid damage to the surface. Where minor damage does occur, the touch up kit should be used to repair the surface.



**AHI Roofing Limited**  
 90-104 Felton Mathew Avenue,  
 Glen Innes.  
 PO Box 18071, Glen Innes,  
 Auckland, New Zealand.  
 Tel: 64-9-978 9010  
 Fax: 64-9-978 9069  
 Email: [export@ahiroofing.co.nz](mailto:export@ahiroofing.co.nz)  
[www.ahiroofing.com](http://www.ahiroofing.com)

