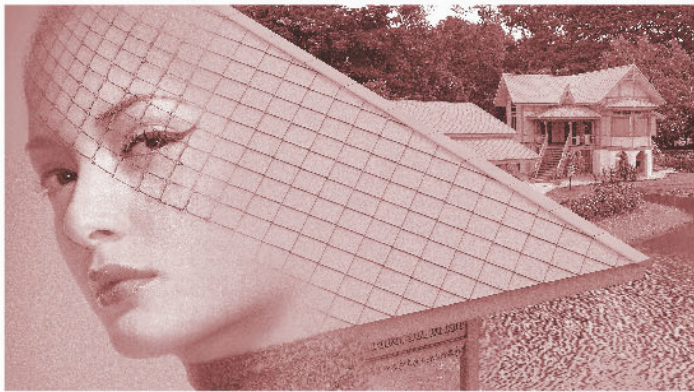


# Installation Manual

## SCG AYARA Roof

Roof  
Fiber Cement  
Safe and Asbestos Free



THE PERFECT MATCH  
TO YOUR STYLE



# THE PERFECT QUALITY



## SCG Ayara Roof

Tough and Durable, ensure for working load of 180 kg/sq.cm.

### Durable, Impermeable, Leak-Proof

- SCG Ayara Roof is made from SCG Portland cement mixed with the synthetic fiber, which is safe and asbestos-free, blended together by modern technology. Tile texture then shall be very tough and durable with special ductility.
- Install the tile and cover using SCG Dry Ridge System set for SCG Araya Roof which is free of mortar. No more problem from dirty cement water stain.
- SCG Araya Roof, after roofing completely, can support personal point load of 180 kg safely. The roof can support several positions of such load simultaneously due to 3 layers of superimposing, which can assure load supporting.

### Confident in Efficiency of Reverse Flow Prevention

- With design of intercepting valley in product, and appropriate installation and over-lapping methods, including the reliable testing methods carried out under Thailand's standard circumstances (water, wind, and rain), these can ensure that the SCG Ayara roof with 30-45 degree slope can definitely prevent reverse flow of rain water.

### Light Weight, minimize structural cost and time

- Lighter weight can reduce building structure with large size of roof panel.
- Appropriate size of tile panel, reduce installation time.

## Safety Regulation during operation

1



Always wear qualified personal protection equipments, such as safety helmet, rubber shoe, and gloves, etc.

3



Always step on the tiles to where battens are placed directly beneath during walking on the roof tiles. To ensure safety, place 1.5"x4" timber pieces on tiles which are in the same batten alignment for walking on roof.

2



Always wear dust protection equipments, such as dust protection goggle, dust protection mask during tiles cutting in order to prevent dust entering into eyes and nose.

4



Whenever perform works on roof, always wear safety belt that can be firmly and strongly hold to structures' part.



# CONTENT

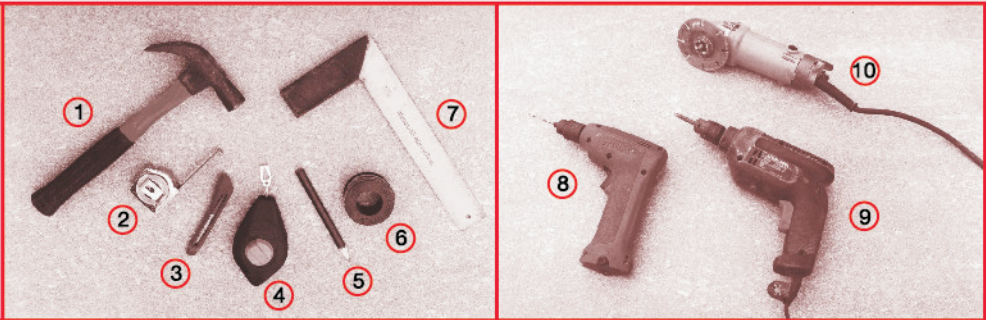
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# 1. Tools and recommendation for installation

To ensure for elegant roof, without leakage problem

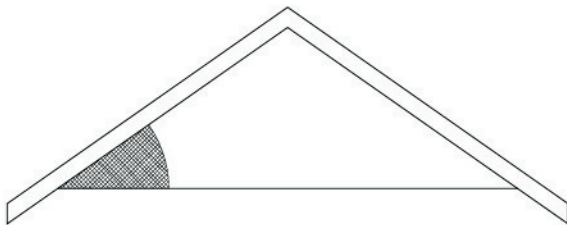
## Installation tools

- |                 |                          |
|-----------------|--------------------------|
| 1. hammer       | 7. right angle           |
| 2. Measure      | 8. drilling machine      |
| 3. cutter knife | 9. electric screw driver |
| 4. line marker  | 10. grinder              |
| 5. Pencil       |                          |
| 6. tendon       |                          |



## Recommendation for Installation

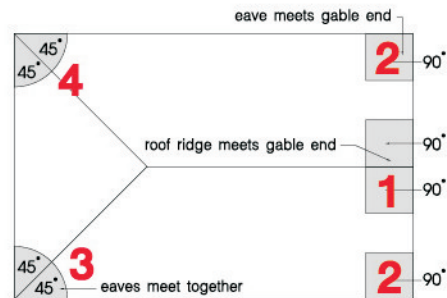
### 1. Design the roof with slope to match with each designed roof model



\*25° - 45° fro all roof models of SCG Ayara except Classic Look with 9° and 30° - 45° for Classic Look with 9°

- If slope of roof is less than the minimum specified value, Sub-Roof must be firstly installed. However, SCG reflector sheet can be used instead.
  - If slope of roof is more than 45 degree, then SCG Ayara roof ridge cover cannot be used. Because SCG Ayara roof ridge cover will not be perfectly adhere to the roof panel.
- Remark:** Suitable for the roofs of general residential house with 15 m maximum length of rafter. In case of large size roof, recommend to consult with the company.

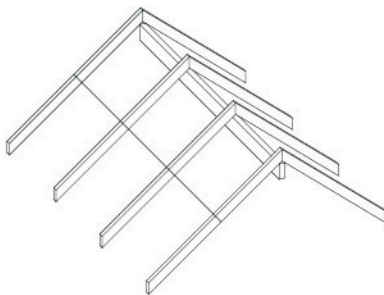
### 2. Ensure that the roof structure is in the right angle



#### Check at these following 4 points;

1. Point where roof ridge meets gable end.
  2. Point where eave meets gable end.
  3. Point where eaves meet together.
  4. Line of hip ridge must divide the angle of eaves into half.
- If all above 4 points are checked, the installation of SCG Ayara roof then shall be elegantly performed.

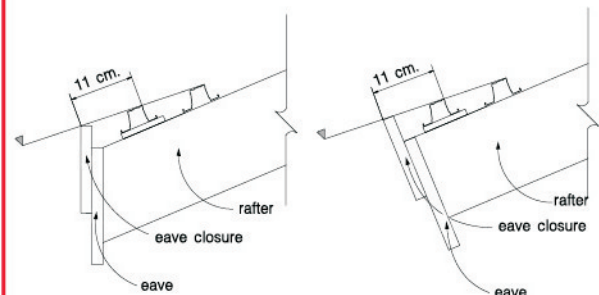
### 3. Ensure that the roof planes are all in line and same level



#### By checking 2 lines of rafters as following;

1. No bending of rafter line
2. Levels of each rafter are equal. If roof structures are in plane, installation of SCG Ayara roof shall be done neatly, resulting in roof elegance and prevent leakage.

### 4. Fasia board must be installed prior to installation of SCG Ayara roof



- To support tile's edge, and install with same level to batten's top, and at 11 cm distance from batten in lowest row.
  - Eave, use 8" SCG Smartwood eave board
  - Eave closure, use 6" SCG Smartwood eave board

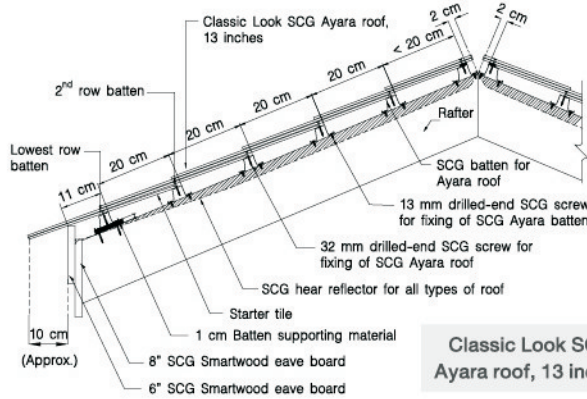


## 2. Recommendation for installation of Classic Look

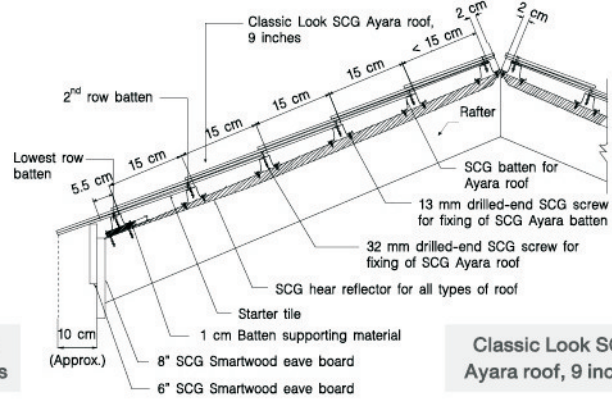
### 1. Batten space

#### Classic Look

1. Support the in lowest row batten 1 cm height.
2. Provide batten in lowest row to be placed at 11 cm from eave, for 13" size, and 5.5 cm for 9" size.
3. Provide batten in next other rows to have spacing 20 cm for 13" size, and 15 cm for 9" size.
4. Provide batten in highest row to be at 2 cm from roof ridge line.



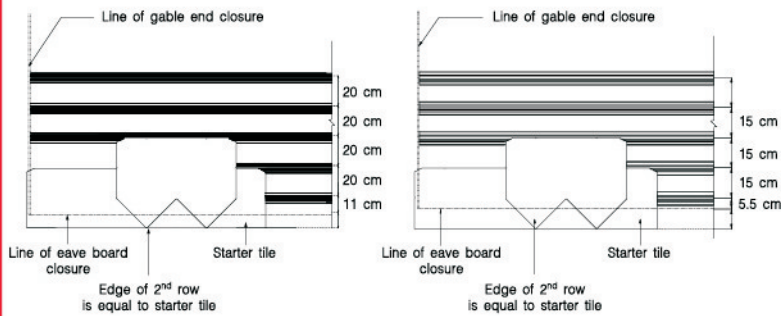
Classic Look SCG Ayara roof, 13 inches



Classic Look SCG Ayara roof, 9 inches

### 2. Installation of starter tile at eave, before tiling of SCG Ayara roof

Always correctly allocate batten spacing and starter tile as specified. Install starter tile to extend 10 cm further from line of eave board closure for aesthetic concern and prevent reverse flow of water on eave board.

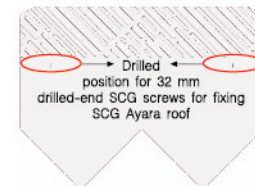


Classic Look, 13 inches

Classic Look, 9 inches

### 3. Prevention of leakage at screw-head area, and simplicity of tile reparation afterward

- Fix the tile with batten by using self drilling screw 32 mm. for fixing SCG Ayara roof. Locate position of screw on the location that already determined on the tile.



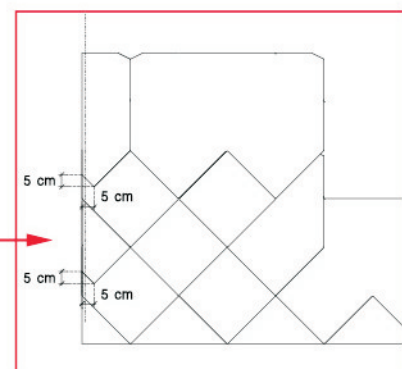
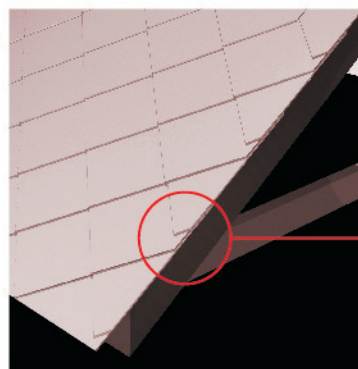
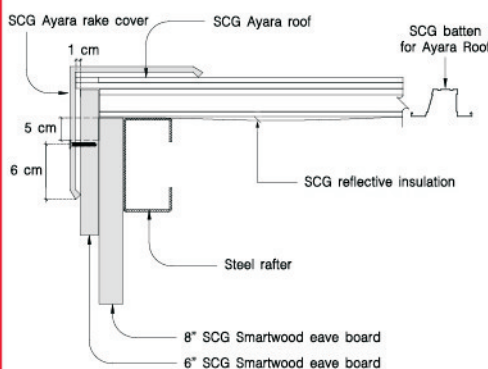
• 32 mm drilled-end SCG screws for fixing SCG Ayara roof

### 4. Prevention of water reverse flow into edge of gable end

1. Install gable end board at level equal to batten's top.
2. Install tile out of gable end board about 1 cm.
3. Cut out tile corner closed to line of gable end board about 5 cm.

(details in page 13, Item No.2)

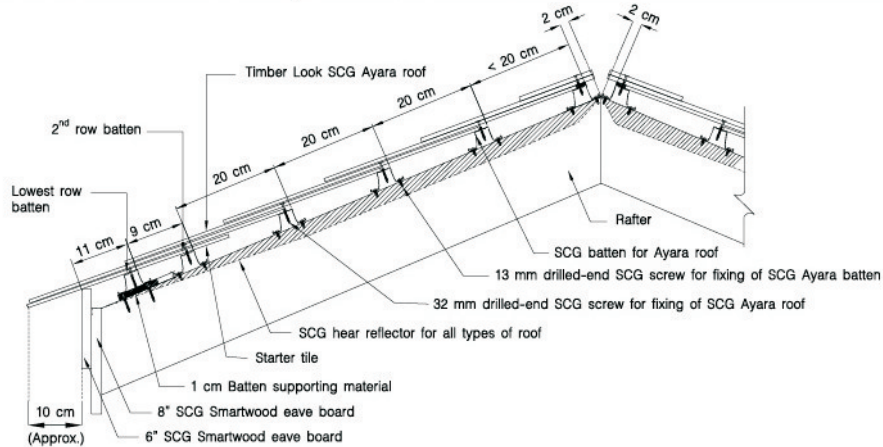
(details in page 15, Item No.11)



## 1. Determination of batten space

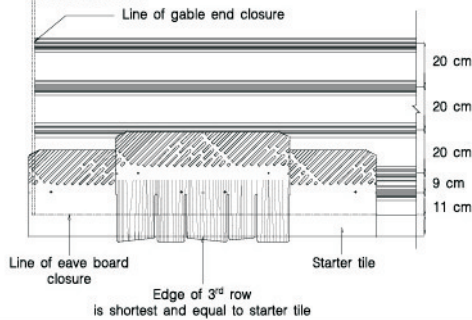
### Timber Look

1. Support batten in lowest row another 1 cm height.
2. Provide batten in lowest row to be placed at 11 cm from eave
3. Provide batten in 2nd row at 9 cm apart from batten in lowest row.
4. Provide batten in next other rows to have spacing 20 cm.
5. Provide batten in highest row to be at 2 cm from roof ridge line.



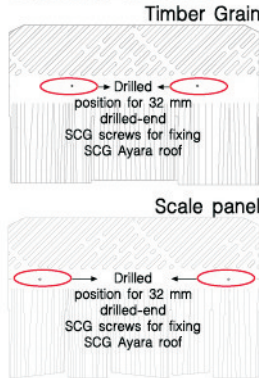
## 2. Installation of starter tile at eave, before tiling the whole roof

Always correctly allocate batten spacing and starter tile as specified. Install starter tile to extend 10 cm further from line of eave board closure for aesthetic concern and prevent reverse flow of water on eave board. Place the edge of tile panel to be at center of starter tile.



## 3. Prevention of leakage at screw-head area, and simplicity of tile reparation afterward

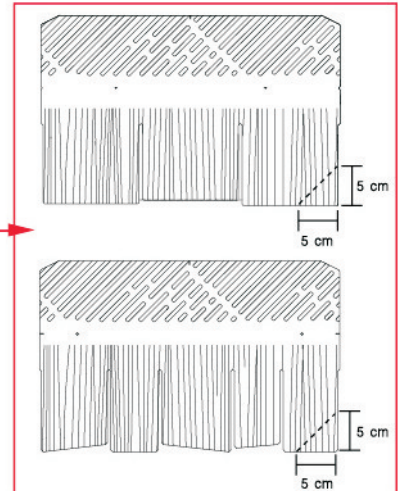
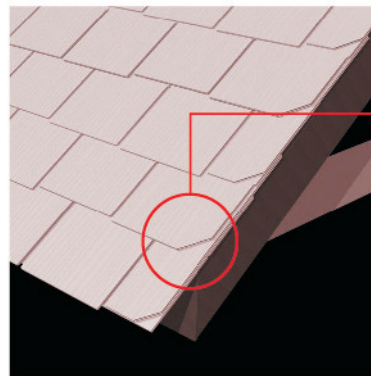
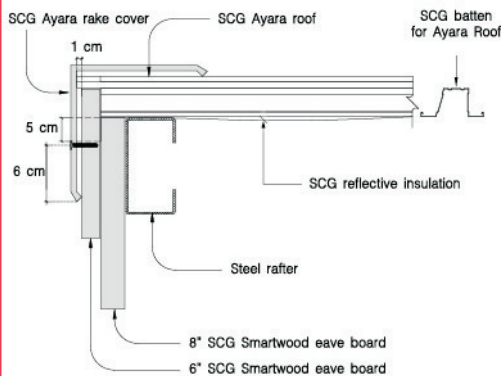
- Fix the tile with batten by using 32 mm drilled-end SCG screws for fixing SCG Ayara roof. Locate position of screw on the location that already determined on the tile.



• 32 mm drilled-end SCG screws for fixing SCG Ayara roof

## 4. Prevention of water's reverse flow into edge of gable end

1. Install gable end board at level equal to batten's top.
2. Install tile out of gable end board about 1 cm.
3. Cut out tile corner closed to line of gable end board about 5 cm. (details in page 15, Item No.11)





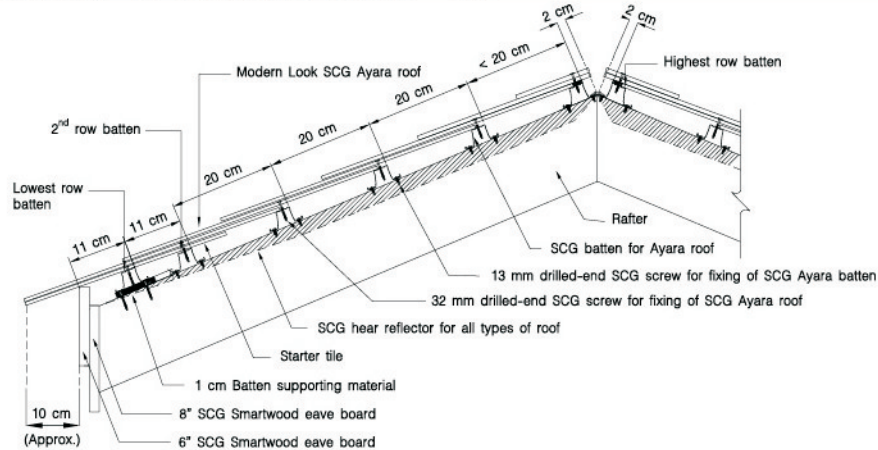
## 2.

# Recommendation for installation of SCG Ayara Modern Look

### 1. Determination of batten space

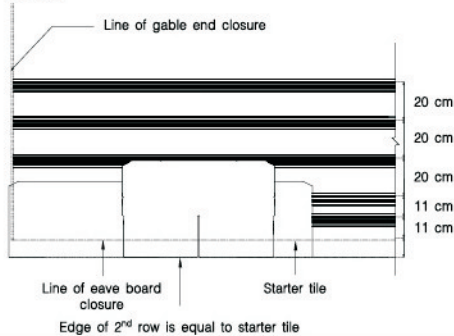
#### Modern Look

1. Support batten in lowest row another 1 cm height.
2. Provide batten in lowest row to be placed at 11 cm from eave.
3. Provide batten in 2<sup>nd</sup> row at 11 cm apart from batten in lowest row.
4. Provide batten in next other rows to have spacing 20 cm.
5. Provide batten in highest row to be at 2 cm from roof ridge line.



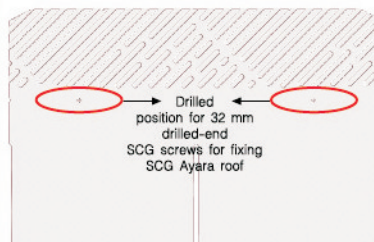
### 2. Installation of starter tile at eave, before tiling SCG Ayara roof

Always correctly allocate batten spacing and starter tile as specified. Install starter tile to extend 10 cm further from line of eave board closure for aesthetic concern and prevent reverse flow of water on eave board.



### 3. Prevention of leakage at screw-head area, and tile reparation

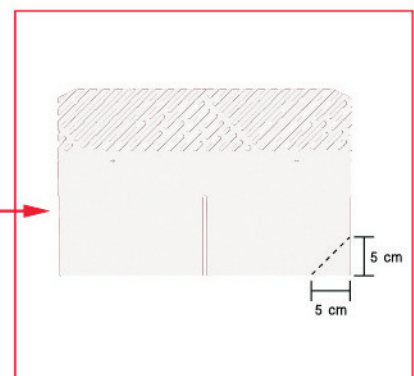
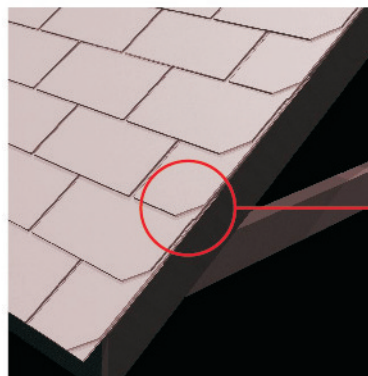
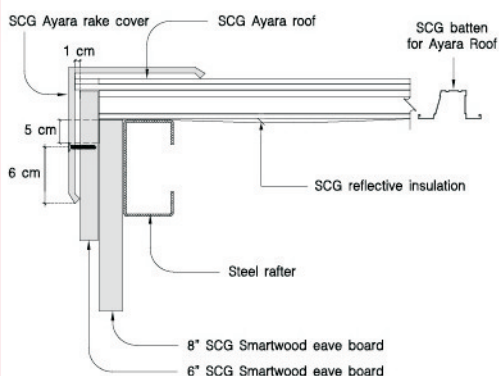
- Fix the tile with batten by using 32 mm drilled-end SCG screws for fixing SCG Ayara roof. Locate position of screw on the location that already determined on the tile.



• 32 mm drilled-end SCG screws for fixing SCG Ayara roof

### 4. Prevention of water's reverse flow into edge of gable end

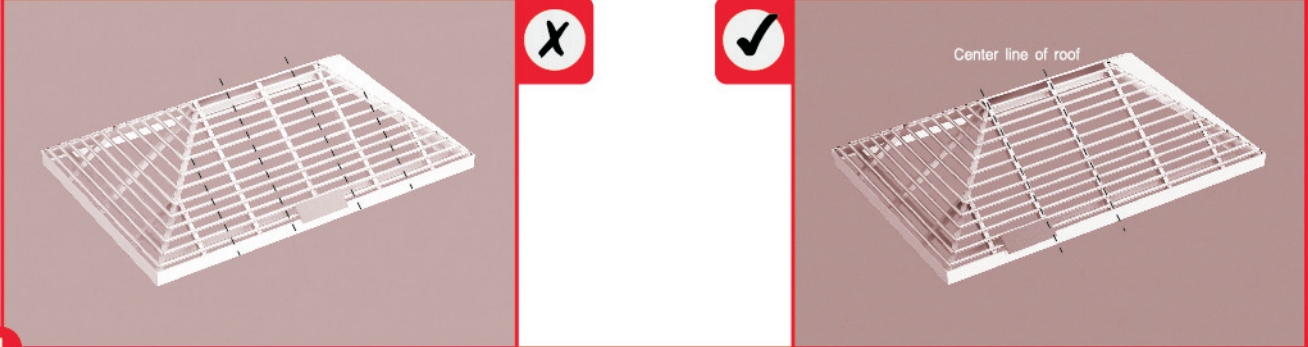
1. Install gable end board at level equal to batten's top.
2. Install tile out of gable end board about 1 cm. (details in page 13, Item No.2)
3. Cut out tile corner closed to line of gable end board about 5 cm. (details in page 15, Item No.11)





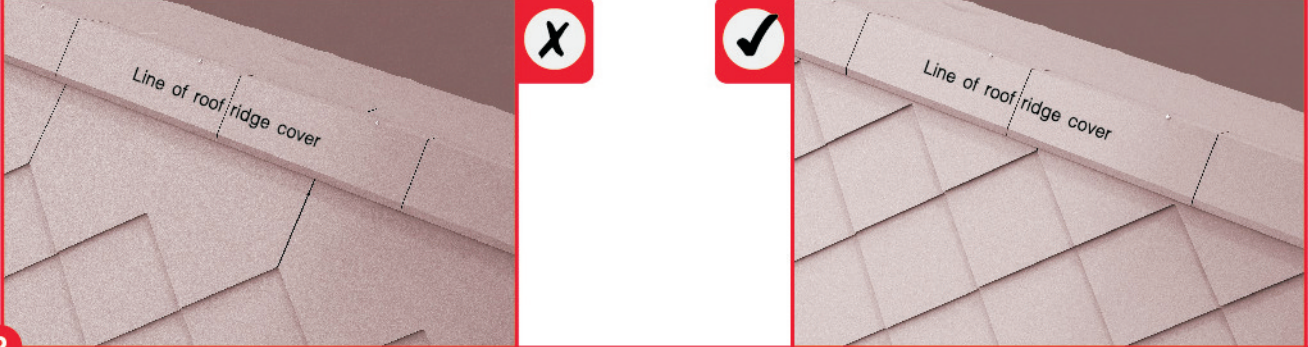
### 3. Caution for roofing of SCG Ayara roof

1



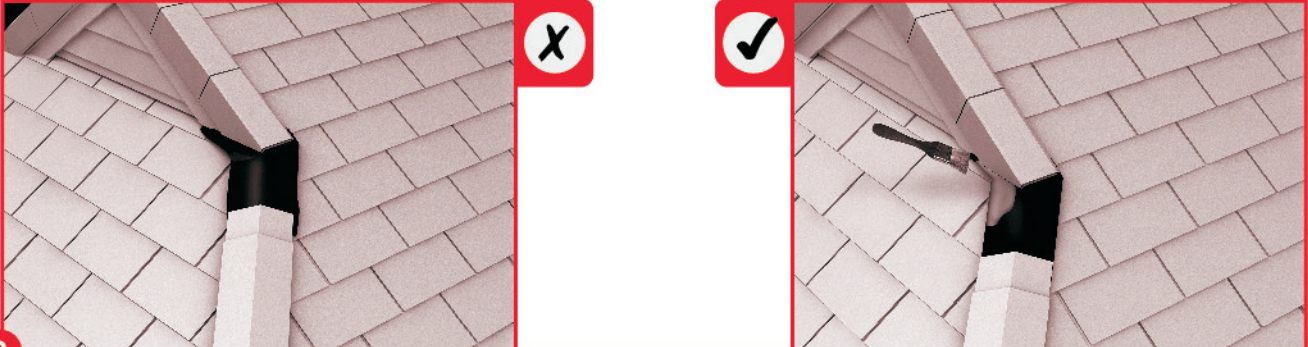
Hip form roof, the roofing shall be started from only one specified center line of the roof (as shown in Figure), if the roofing is not started from this line, the completed roof will not be in good appearance.

2



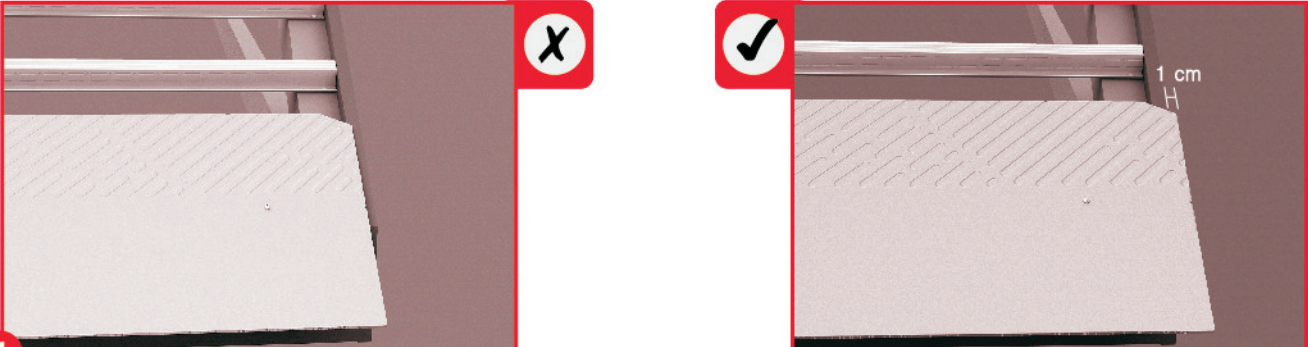
Roofing of SCG Ayara roof shall be finished so that tile pattern is ended at roof ridge cover.

3



The area where will be attached with flashing shall be completely compressed and coloring furnished to harmonize with tile.

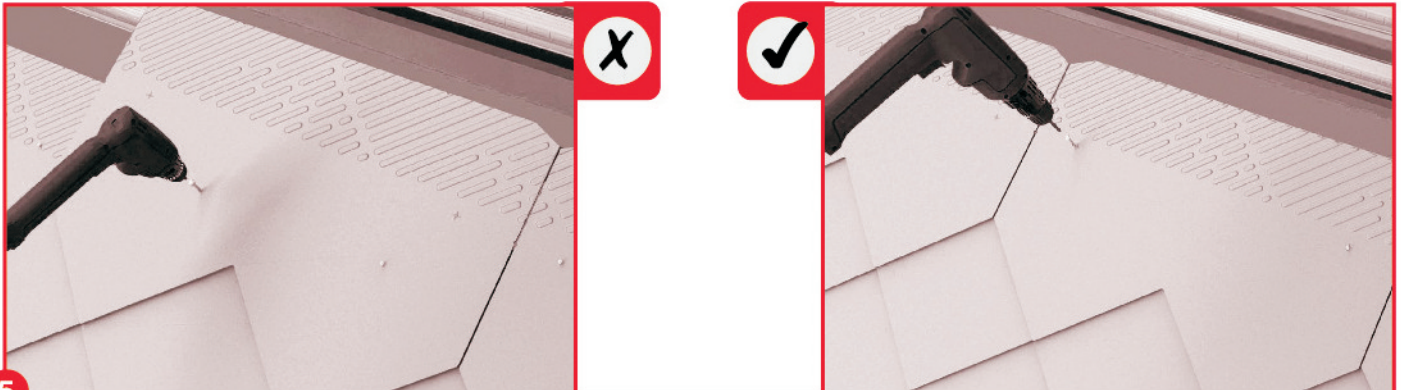
4



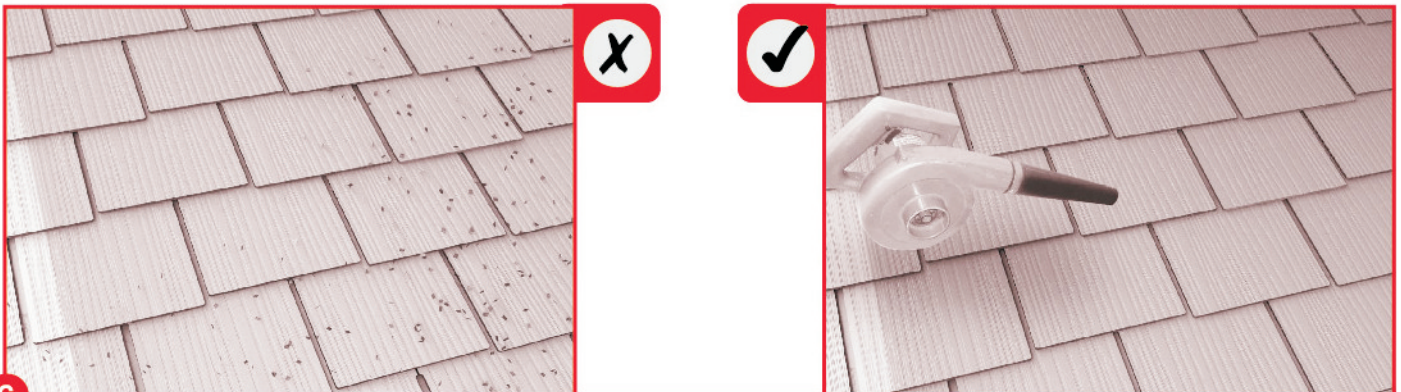
Level of gable end board must be equal to that of batten's top, and the tile shall be further out of gable end board for about 1 cm in order to prevent water's reverse flow into between gable end board and roof's edge



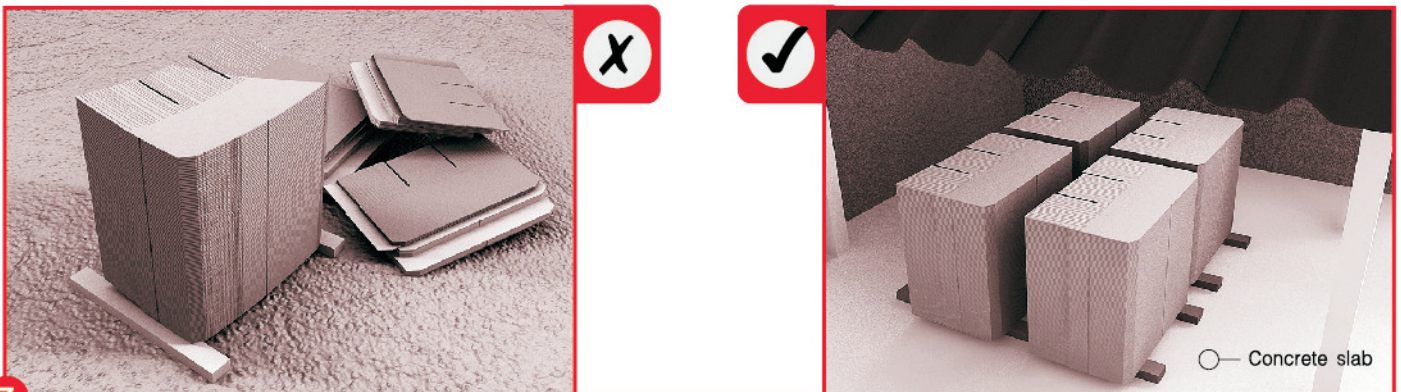
### 3. Caution for roofing of SCG Ayara roof



5 Fix the roof tile at correct position which specified for screw on the roof panel only, in order to prevent water leakage and for simplicity of roof reparation



6 Always clean the roof after completion of roofing work.



7 Correction method for storing of the SCG Ayara roof tile

- Store the SCG Ayara roof tile inside.
- Store on strong, smooth and ground, without containing stayed water.
- Put the tiles on palate, or use 2 pieces of soft wood of 1" x 3" support at 3 points (both edges and middle) of SCG Ayara roof tile.
- Piling up of the SCG Ayara roof tile shall not be more than 150 tiles per set.



## 4. SCG Ayara Perfect Cover System

In order to experience the roof with **SCG Ayara Roof** will be more perfectly elegant without leakage problem, use SCG Ayara integrated cover and equipment system for installation

### Ridge

Installed in line of roof ridge  
width x length x thickness (cm) : 21 x 45 x 0.5  
weight 1.0 kg/tile  
application amount : 2.5 tiles/m



### Hip Ridge

Installed in line of hip ridge  
width x length x thickness (cm) : 21 x 45 x 0.5  
weight 1.0 kg/tile  
application amount : 2.5 tiles/m



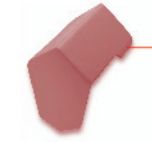
### Hip end Ridge

Installed at end of hip ridge  
width x length x thickness (cm) : 21 x 45 x 0.5  
weight 1.0 kg/tile  
application amount : where required



### End Ridge

Installed at both ends of roof ridge  
width x length x thickness (cm) : 25 x 30 x 0.5  
weight 0.8 kg/tile  
application amount : where required



### Barge End

Installed at the lowest end of gable end  
width x length x thickness (cm) : 21 x 45 x 0.5  
weight 1.2 kg/tile  
application amount : where required



### Barge

Installed as gable end of gable form roof  
width x length x thickness (cm) : 21 x 45 x 0.5  
weight 1.0 kg/tile  
application amount : 2.5 tiles/m



### 2 Ways Ridge

Installed in roof ridge line for reversal of ridge cover direction  
width x length x thickness (cm) : 21 x 50 x 0.5  
weight 1.2 kg/tile  
application amount : where required



### T - type Apex

Installed as closure at connecting point of 2 ridge lines perpendicular cross together in T shape  
width x length x thickness (cm) : 21 x 50 x 0.5  
weight 1.3 kg/tile  
application amount : where required



### 3 Ways Apex

Installed as closure at connecting point of 2 hip ridge lines jointing with a roof ridge line in Y shape of Hip form roof  
width x length x thickness (cm) : 40 x 40 x 0.5  
application amount : 1 at each required point



Degree	30°	35°	40°	45°
Weight (kg)	1.0	1.0	1.1	1.2

### 4 Ways Apex

Installed as closure at connecting point of 4 hip ridge lines jointing together of Hip form roof  
width x length x thickness (cm) : 41 x 41 x 0.5  
application amount : 1 at each required point



Degree	30°	35°	40°	45°
Weight (kg)	1.4	1.4	1.4	1.4



## 5. SCG Ayara Perfect Accessories

In order to experience the roof with **SCG Ayara Roof** will be more perfectly elegant without leakage problem, use **SCG Ayara Perfect Cover and Perfect Accessories Systems** for installation

### 1. SCG Self Drilling Tile Screw 32 mm

**Special properties** : 32 mm length, Self drilling screw, specially coated treatment, high-strength, long term anticorrosion

**Application** : For fixing of Ayara tile with SCG Batten, for Ayara roof, or box steel batten of 1.6-3.2 mm thickness by using electrical drill without advanced drill

**Containment** : 500 pieces / box



### 7. SCG Epoxy Adhesive

**Special properties** : Made from excellent adhesive material, can be painted over by 100% acrylic paint color

**Application** : For fixing of the tile in where fixing screw is not applicable, such as tile piece at trough gullet, and on the hip ridge

**Net Volume** : 100 grams / tube



### 2. SCG Self Drilling Screw 13 mm

**Special properties** : 13 mm length, Self drilling screw, specially coated treatment, high-strength, long term anticorrosion

**Application** : For fixing of SCG Batten with 1.2-3.2 mm thickness of steel rafter, for Ayara roof by using electrical drill without advanced drill

**Containment** : 500 pieces / box



### 8. SCG Roofing Paint for Ayara, SCG Roofing Shield for Ayara

**Special properties** : 100% acrylic paint color, excellent quality, mercury & lead free

**Application** : For color furnishing or color repair of SCG Ayara roof tile and SCG Ayara cover. Paint once and leave to dry, and then paint over again by tile coating color

**Net Volume** : 1 kg / can



### 3. SCG Galvanized Steel Batten for Ayara Roof

**Special properties** : anticorrosion-coated steel batten, particularly designed to provide a straight line on batten to specify fixing line of Ayara tile, ensure for leveled fixing

**Application** : For installation on rafter with maximum spacing of 1 m, by using Self Drilling Batten Screw to fix at both sides to the rafter without advanced drill

**2 thickness sizes** : 0.55 mm, and 0.70 mm Thickness 4.0 m length / piece



### 9. SCG Flashing

**Special properties** : Made from special material reinforced by aluminium mesh and acrylic plate resulting flexibility, can be bent to perfectly adhere to all joints. This will ensure for the enhancing of leakage preventing property for the roof joints. Can be painted over, heat and moisture endurance.

**Application** : Used for cover all joints in any location on roof which risk to leakage, such as joints of the tiles at frontal area, or joints between the valley trough gullet

**Sizes** : width x length x thickness (cm) : 35 x 50 x 0.2



### 4. SCG Reflective Insulation (for all types of roof)

**Special properties** : Made from Polyethylene as main structure which enhances the reflector material ductile and moisture preventive, further from the products heat insulation property

**Application** : Lay over the rafter prior to installation of batten

**2 thickness sizes** : width x length (m) : 1.25 x 20 m (cover 20 sq.m / roll)  
: 1.25 x 60 m (cover 60 sq.m / roll)

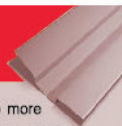


### 5. SCG Valley Trough

**Special properties** : Made from No.28 galvanized steel for rust protection, no more problem of corrosion, rusting, roof leakage, providing width of gullet flange 18.40 cm / side with foldable edges to prevent water spilling, excellent water drain, no more problem of water spill over the gullet

**Application** : For prevent water intruding under the roof in hip gullet area, used together with hip gullet

**Sizes** : 15 cm valley width, 5 cm depth, 18.40 cm width of gullet flange (each side), 2 m length



### 10. SCG Wall Flashing

**Special properties** : Made from special material reinforced by aluminium mesh and acrylic plate resulting flexibility, can be bent to perfectly adhere to all joints. This will ensure for the enhancing of leakage preventing property for the roof joints. In addition, the product can be painted over, heat and moisture endurance.

**Application** : Used for cover all joints in any location on roof and wall, in order to efficiently prevent the leakage.

**Sizes** : width x length x thickness (cm) : 20 x 300 x 0.2



### 6. SCG Dry Ridge System Set

**Special properties** : Used for co-installation with the Ayara cover by dry method without using of mortar on the roof, enhance easy installation, beautiful work, and perfectly prevent leakage.

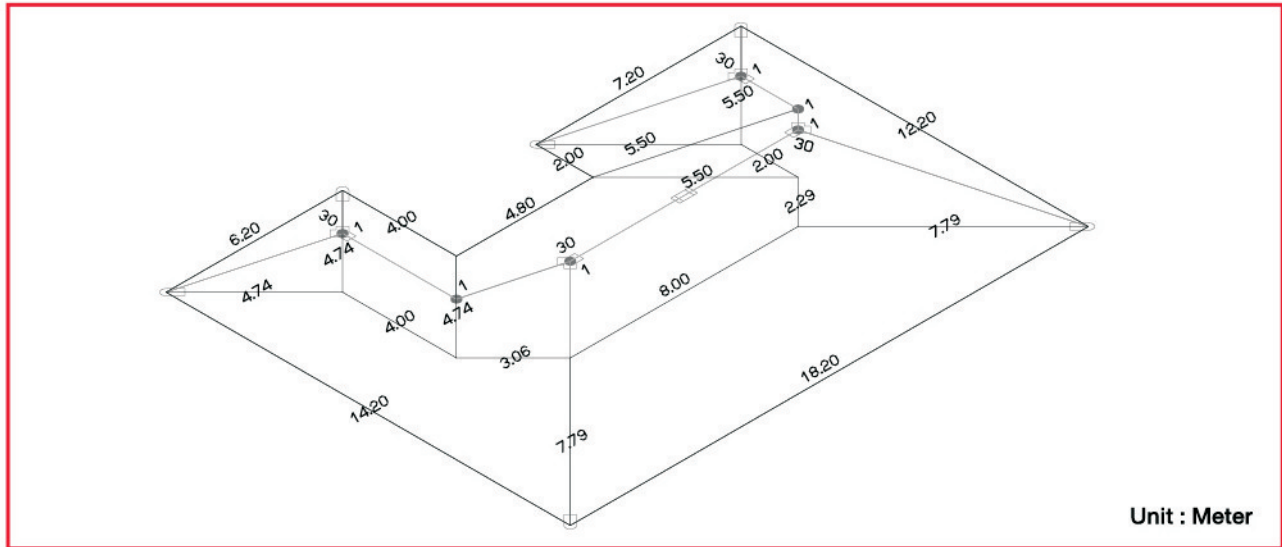
**Application** : Installed in the roof ridge and hip ridge prior to installation of Ayara cover.

**Application amount** : 1 set for 3 m length of roof ridge or hip ridge



Item	Size	No. / set	Application
1. U-shape steel leg	-	4 pcs	To support the Cover supporting C-Line steel
2. Cover supporting C-Line steel	38 mm width, 14 mm height, 0.55 mm thickness, 3 m length	1 line	Used for supporting and fixing steel of the Ayara Covers
3. Leg / Steel frame fixing screw	No. 10, 13 mm length	35 pcs.	Used for fixing of U-shape steel leg to the Cover supporting C-Line steel, and for fixing of U-shape steel to rafter or hip ridge
4. Cover insert sheet	24 cm width, 3 m length	1 roll	Leakage preventive material, used for sealing along the line of roof ridge and hip ridge after installation of Cover supporting C-Line steel
5. Self drilling screw for cover fixing	No.12, 55 mm length	10 pcs.	Used for fixing of Ayara Cover to Cover supporting C-Line steel

## 6. Calculation of working volume



### Simplified Calculation Method for SCG Ayara Roof

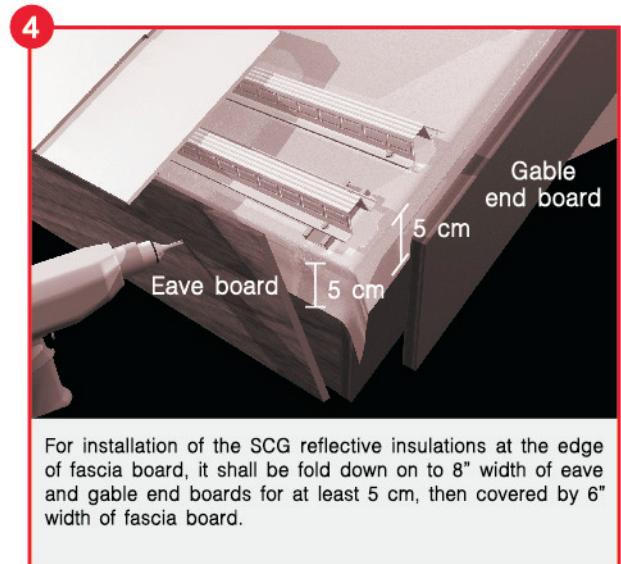
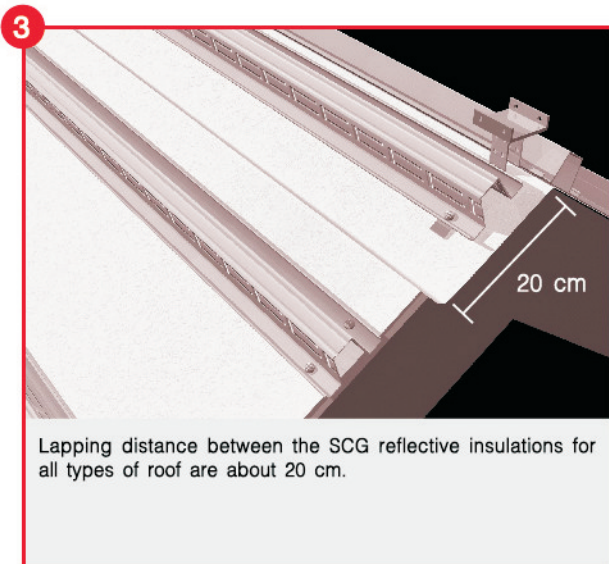
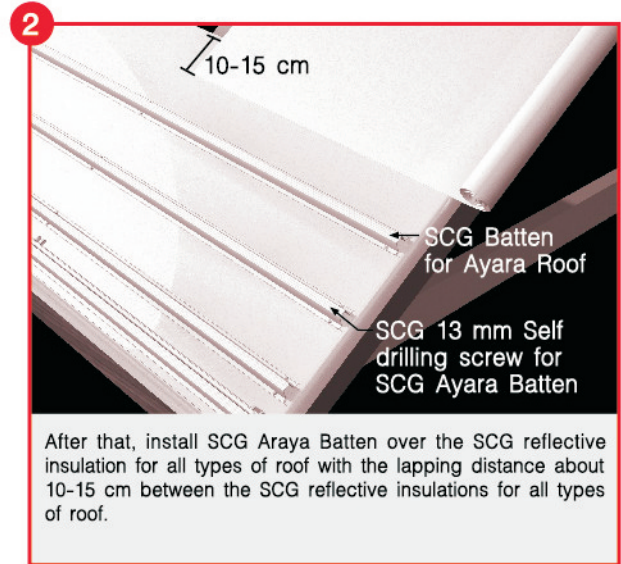
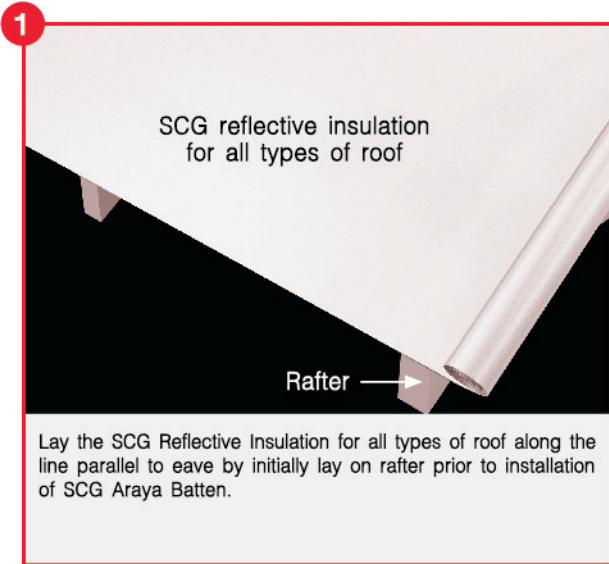
All Models of SCG Ayara Roof, except 9 inches size	SCG Ayara Roof, 9 inches size
• Roof Area = A sq.m	Same to other models
• Number of Ayara tile = A x Number of tiles per sq.m = A x 6.25	A x 11.11
• Number of starter tile = Total length of eave (m) x 1.25	Total length of Eave (m) x 1.67
• Number of roof ridge cover = Total length of roof ridge (m) x 2.50	Same to other models
• Number of hip ridge cover = [Total length of hip ridge (m) x 2.50] – End hip ridge cover	Same to other models
• Number of rake cover = [Total length of gable end (m) x 2.50] – End rake cover	Same to other models
• Number of End rake cover, gable cover = As required position	Same to other models
• Number of purlin (pcs.) = (A x 5) / 3.90	( A x 6.67 ) / 3.90
• Number of SCG 13 mm Self drilling screw For SCG Ayara Batten (box) = [Number of Purlin (pcs.) x 8] / 500	Same to other models
• Number of SCG 32 mm Self drilling screw For SCG Ayara Roof (box) = [Number of Tile (panel) x 2] / 500	Same to other models
• Number of SCG Dry Ridge System Set for Ayara Roof = [Total length of roof ridge (m) + Total length of hip ridge (m)] / 3	Same to other models

### Example of Calculation Method for SCG Ayara Roof, 13 inches Classic Look

• Roof Area = 260 sq.m	
• Number of Ayara tile = 260 x 6.25	= 1,625 panels
• Number of starter tile = 68.8 x 1.25	= 86 panels
• Number of roof ridge cover = 14 x 2.50	= 35 panels
• Number of hip ridge cover = [41.4 x 2.50] – 6	= 97.5 panels
• Number of End hip ridge cover = 6 pcs	
• Number of 3-Ways cover = 4 pcs	
• Number of purlin (pcs.) = (260 x 5) / 3.90	= 334 pcs
• Number of SCG 13 mm Self drilling screw For SCG Ayara Batten (box) = (334 x 8) / 500	= 6 boxes
• Number of SCG 32 mm Self drilling screw For SCG Ayara Roof (box) = [(1,625 + 86) x 2] / 500	= 7 boxes
• Number of SCG Dry Ridge System Set for Ayara Roof = (14 + 41.4) / 3	= 19 sets

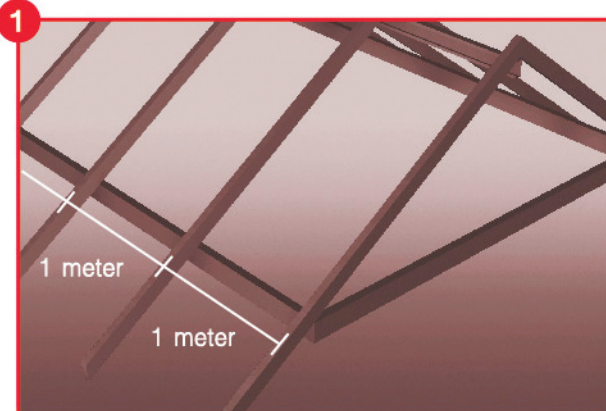


# 7. Installation of SCG reflective insulation for all types of roof

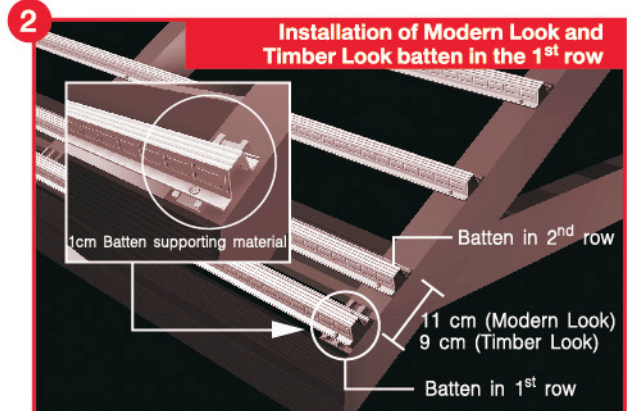




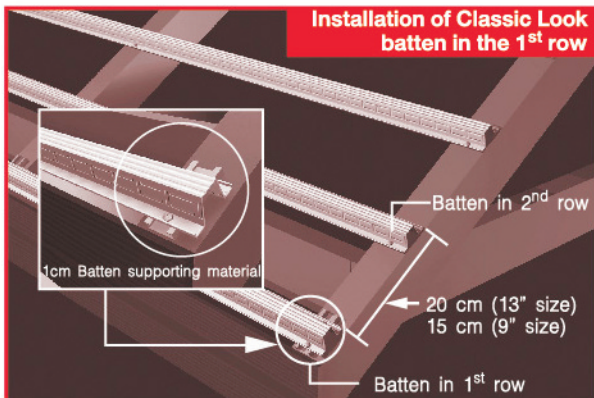
## 8. Installation of SCG batten for Ayara Roof



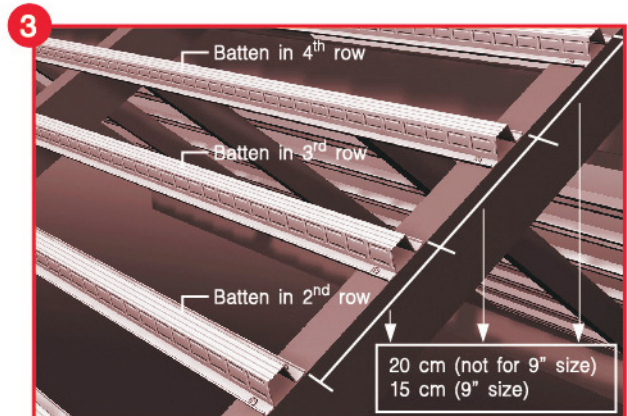
Install rafter with maximum spacing 1 m, and measure length of rafter from roof ridge to the eave in order to quantify the number of rows of batten. The level of rafter's top must be equal.



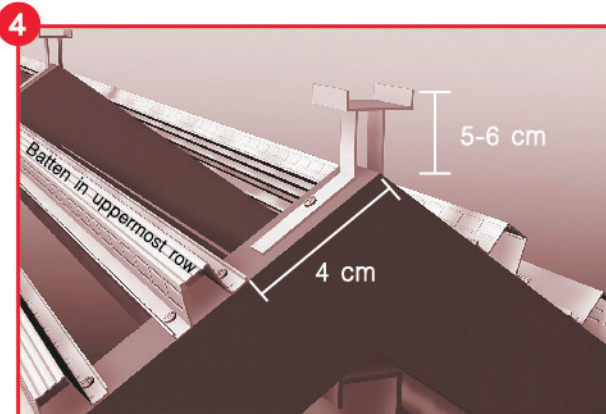
• For SCG Ayara roof, Modern Look and Timber Look Install battens in 1<sup>st</sup> row which are in lowest row, support to provide another 1 cm height. Install battens in 2<sup>nd</sup> row at 11 cm distance from the 1<sup>st</sup> row battens for Modern Look, and at 9 cm for Timber Look.



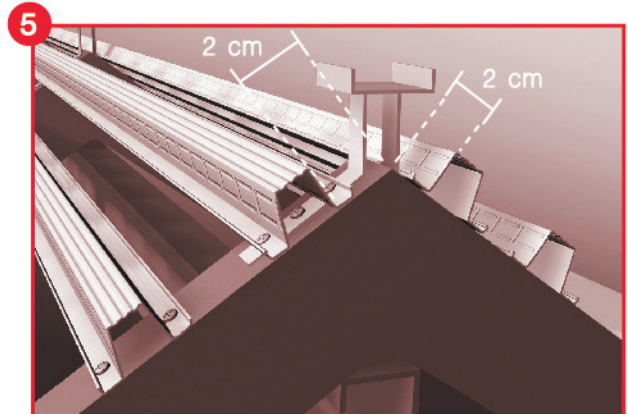
• For SCG Ayara Roof, Classic Look Install battens in 1<sup>st</sup> row which are in lowest row, support to provide another 1 cm height. Install battens in 2<sup>nd</sup> row at 20 cm distance for 13" size, and 15 cm distance for 9" size, from battens in the 1<sup>st</sup> row.



Install battens in 3<sup>rd</sup> row of all Modern Look, Timber Look, and Classic Look to be at 20 cm distance from battens in 2<sup>nd</sup> row. Then, install battens in next rows at 20 cm spacing until reach the roof ridge. For 9" Batten of Classic look, the battens spacing will be at 15 cm until roof ridge.



Prior to installation of batten in uppermost row on both sides, install U-Shape steel leg which was prepared previously with 5-6 cm height, located at the distance of 4 cm from gable's ridge. Fix the battens to SCG Ayara Roof by 13 mm SCG Self drilling screws. Install U-Shape steel at each rafter interval.



Install battens on uppermost row on both sides at 2 cm distance from the roof ridge. Fix the battens by Self drilling screws for fixing of steel leg / steel frame (contained in SCG Dry Ridge System Set for Ayara Roof) as shown in figure.

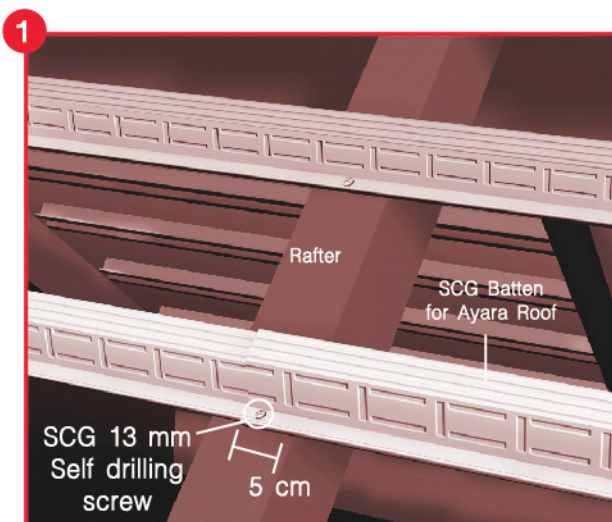


## 8. Installation of SCG Galvanized Steel batten

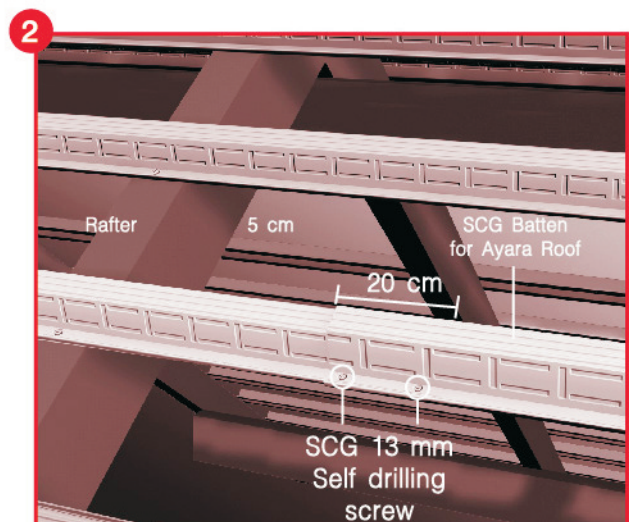


Bring the cover supporting C-Line steel to place on top of U-Shape steel leg along the whole length of roof ridge. Fixed by 2 of self-drilling screws for fixing of steel leg/steel frame on each side (contained in the SCG Dry Ridge System Set for Ayara Roof).

### Recommendation for connecting of SCG Galvanized Steel batten

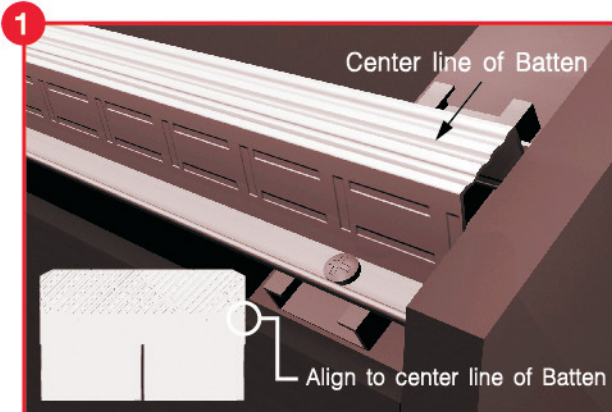


**Connect on Rafters:** Provide 5 cm of lapping distance, fixed by 2 of SCG 13 mm Self drilling screws for fixing of the batten to Ayara Roof (1 for each side). Adjust level of Battens' top to be equal.

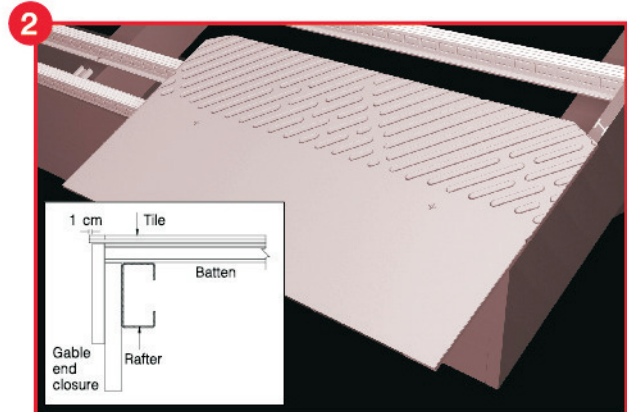


**Connect between Rafters:** Provide 20 cm of lapping distance, fixed by 4 of 13 mm SCG Self drilling screws for fixing the batten to Ayara Roof (2 for each side). Connect battens and adjust the levels of both purlins to be equal prior to installation.

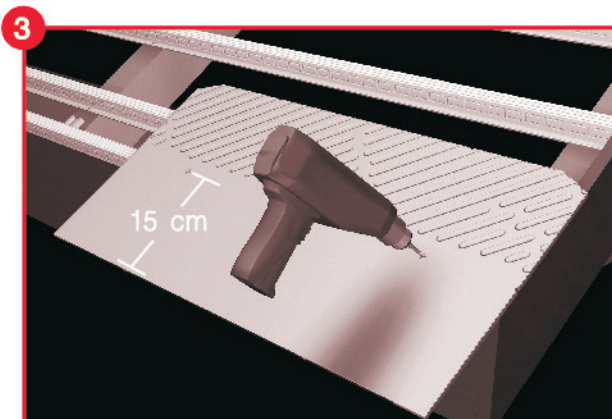
## 9. Roofing of SCG Ayara roof, for Gable Form Roof



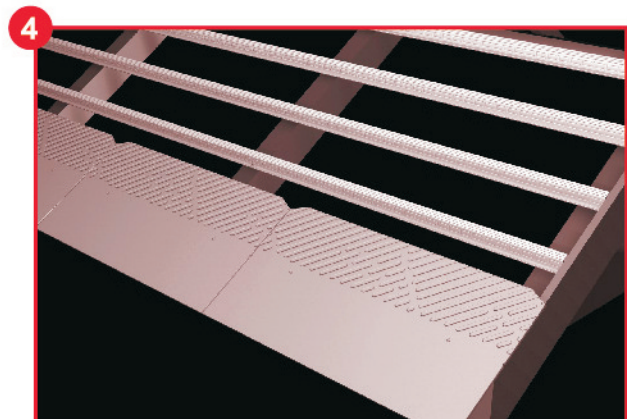
Prior to installation of SCG Ayara Roof, notice the center line of SCG Batten for the Ayara Roof as this will be the line for fixing of roof panel.



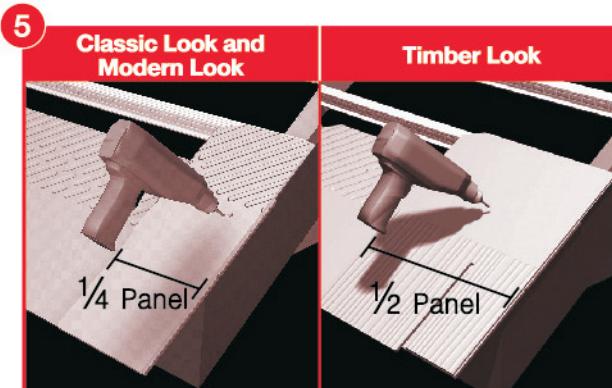
Place starter tile of SCG Ayara Roof tile on battens in 1<sup>st</sup> row, and 2<sup>nd</sup> row. Leave the side of tile panel to further the line of gable end about 1 cm. Make the roof fixing point to be aligned to the center line of SCG batten for Ayara Roof.



Place the lower edge of SCG Ayara Roof starter tile to be further out of batten's center about 15 cm. Fix the starter tile at 2 center points of batten by SCG 32 mm Self drilling screws for fixing of SCG Ayara Roof.



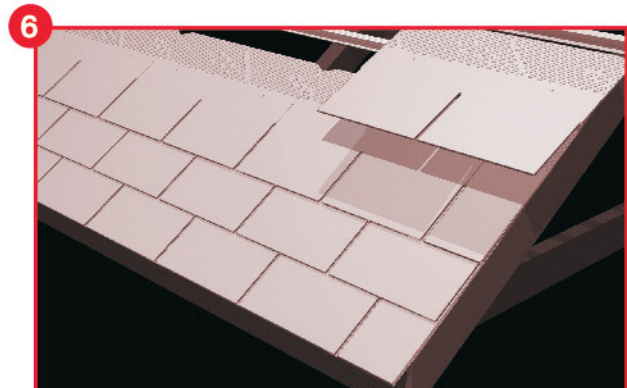
Install next SCG Ayara Roof starter tiles until complete the row.



All Looks, shall be installed alternately and extend further out from line of gable end for 1 cm, and fix the tile at the center of battens in 2<sup>nd</sup> row by SCG 32 mm Self drilling screws for fixing of SCG Ayara Roof.

**Classic Look, and Modern Look**, fix lower edge of tile to be equal level to the edge of starter tile.

**Timber Look**, fix lower edge of shortest tile to be equal level to starter tile, this will make the eave exhibited extending part of tile for aesthetic concern.



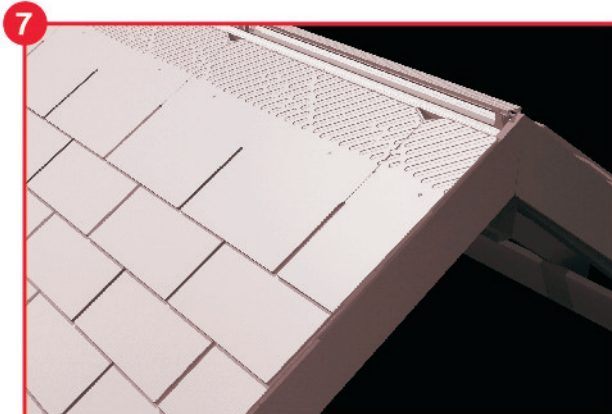
Install roof tiles in next row until complete the whole roof panel, try to maintain the line of SCG Ayara Roof in both vertical and horizontal lines as;

**Vertical line:** tense tendon to maintain the line at every 10 SCG Ayara roof tiles

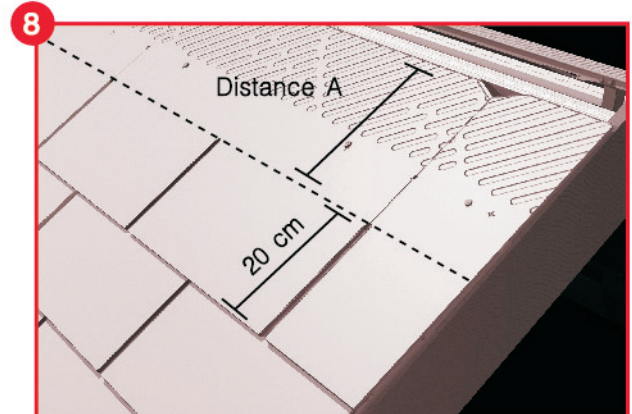
**Horizontal line:** notice the marking line on the SCG Ayara roof tiles to be equal



## 9. Roofing of SCG Ayara roof, for Gable Form Roof



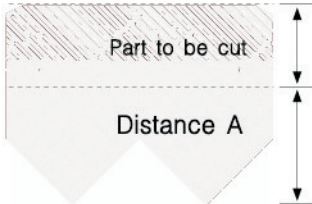
Continue installation of SCG Ayara Roof tile into whole roof panel.



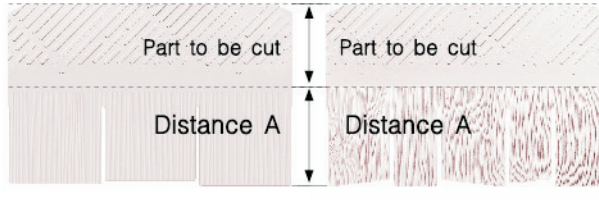
At top row of roof pane, measure from lower edge of SCG Ayara Roof tile to a distance of 20 cm, one shall get the remaining distance on top until the roof ridge as A distance (as shown in figure).

### 9 Figure shows the method for cutting of remaining part (A)

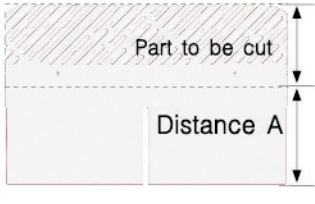
**Classic Look**



**Timber Look**



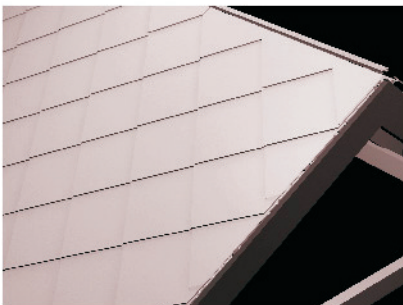
**Modern Look**



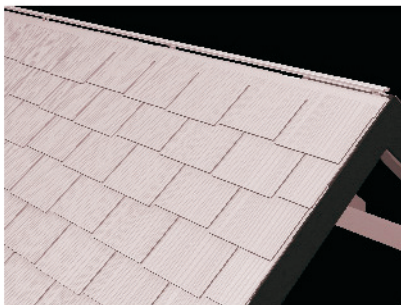
Bring full panel of the SCG Ayara Roof tile to cut by measure from the lower edge equal to distance A (in item No. 8), and cut the upper part.

### 10

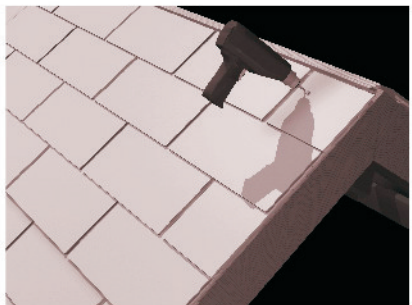
**Classic Look**



**Timber Look**



**Modern Look**



Bring the SCG Ayara Roof tile which is already cut to a desired size from Item No.9 to be fixed by SCG 32 mm Self drilling screw for fixing of SCG Ayara Roof, and continue installation until complete the row.

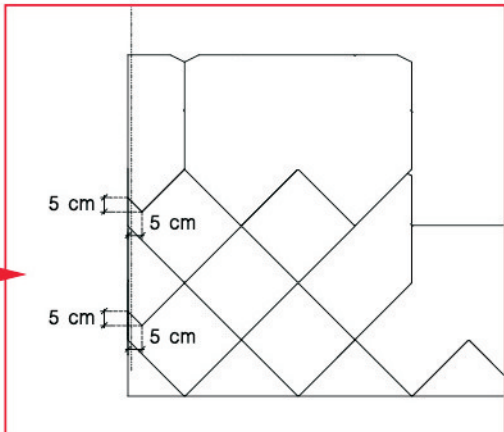
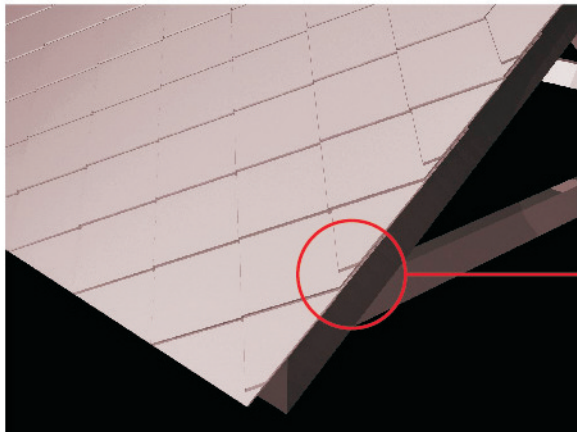
9.

Roofing of SCG Ayara roof, for Gable Form Roof

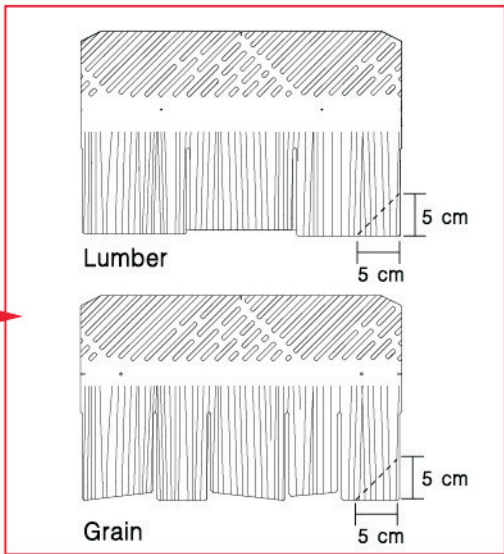
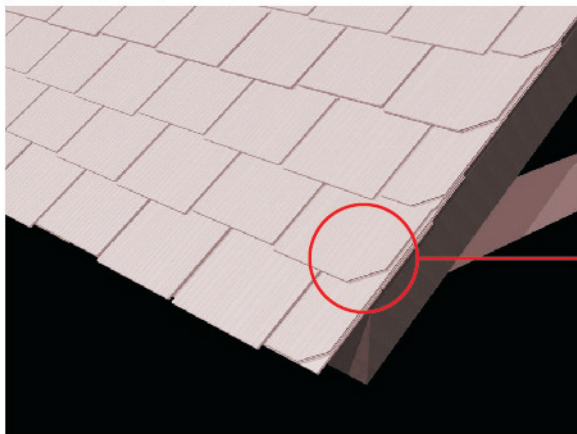
11

Figure shows cutting of tile's corner at gable end side

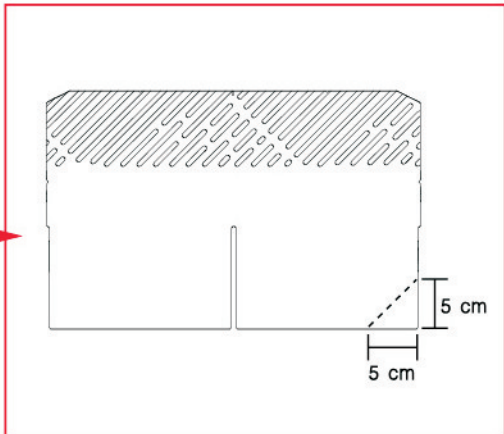
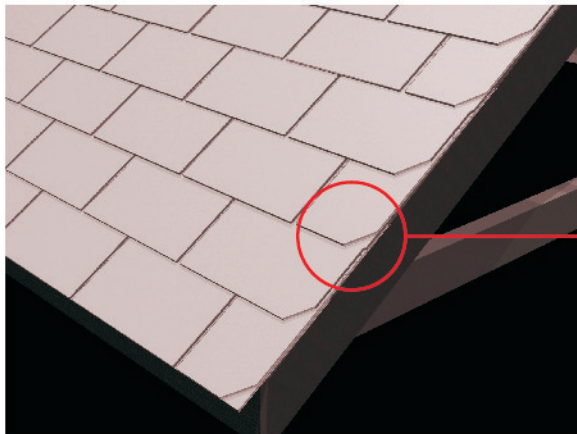
**Classic Look** 9" and 13"



**Timber Look** Lumber and Grain



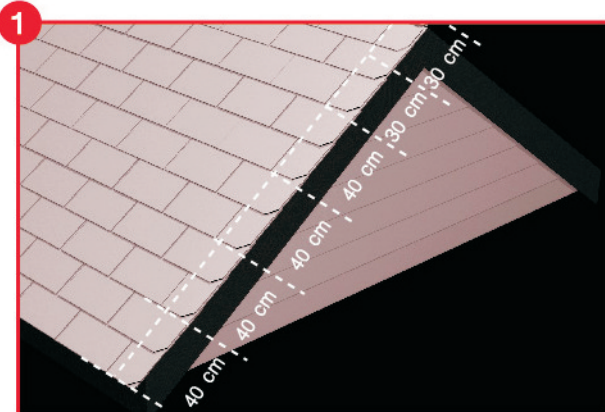
**Modern Look**



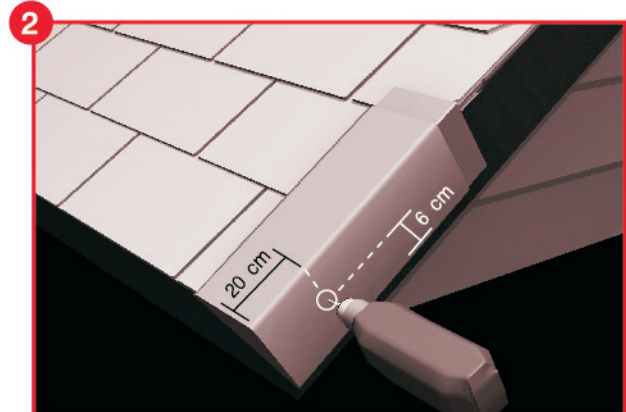
Cut the SCG Araya Roof tile's corner at side close to gable end, by measuring 5 cm from corners in both horizontal and vertical directions, in order to prevent rain water flow into beneath of gable end.



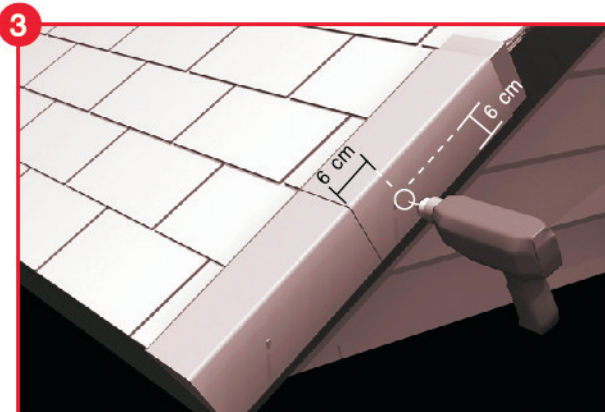
## 9. Installation of SCG Ayara Barge for Gable Form Roof



Arrange the length of gable end to quantify the amount of barge. In case that the number of cover is not divisible, average the length to be appropriate.



Install the barge and at the edge of gable end as a first cover, by measuring from the edge of lower panel 20 cm, and 6 cm at side. Make advanced drill and fixed by 38 mm SCG Self drilling screw for fixing of SCG Smartboard wall panel.



Install Rake cover over the End rake cover by measuring to a point at 6 cm from lower edge and tile end of cover. Use advanced drill, and then fixed by 38 mm SCG Self drilling screw for fixing of SCG Smartboard wall panel. Be careful not to tighten the screw too much, since the cover can be damaged or broken.



Install next barge until almost reach the ridge of gable.

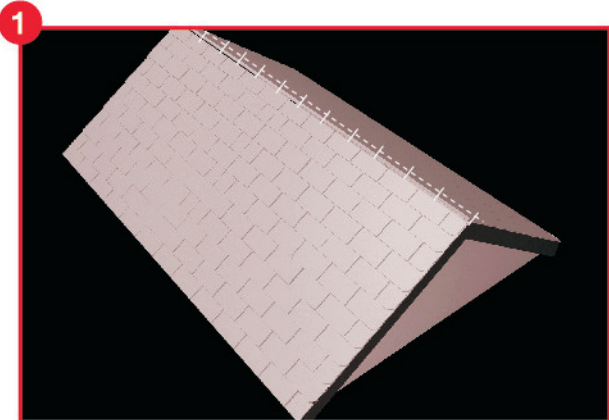


Bring 2 of uppermost barge to check of the assembly together with End Ridge, in order to find the best position to put the gable cover closely.

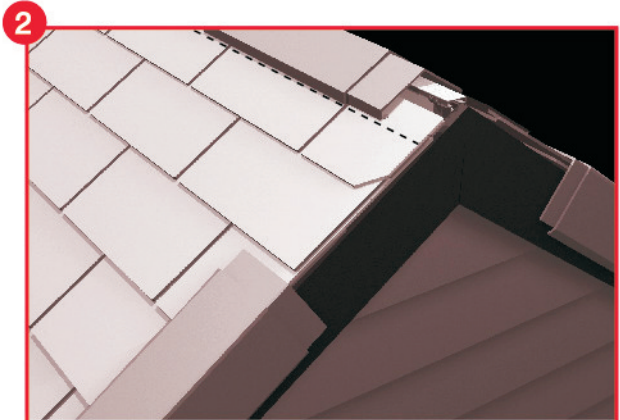


Cut the lapping parts of barge.

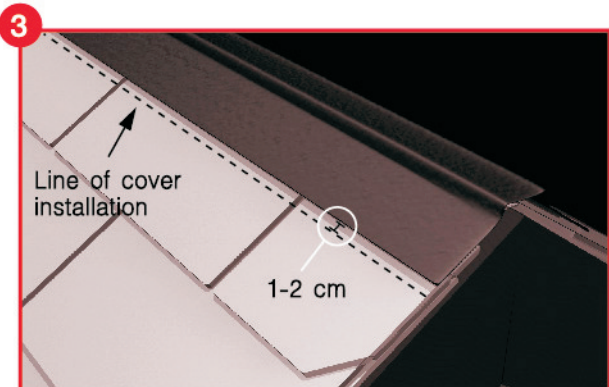
## 9. Installation of SCG Ayara Ridge



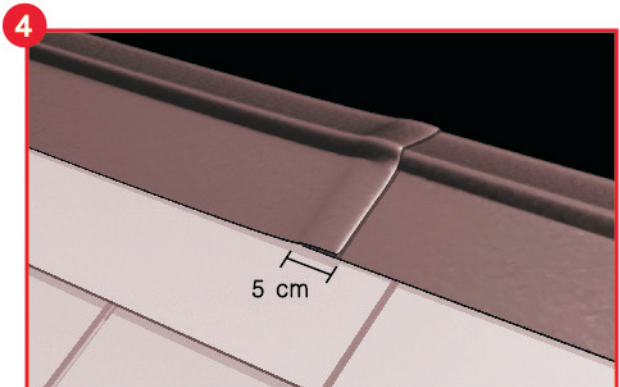
1 Check the amount of ridge, and the length of ridge by make average of the length to be appropriate.



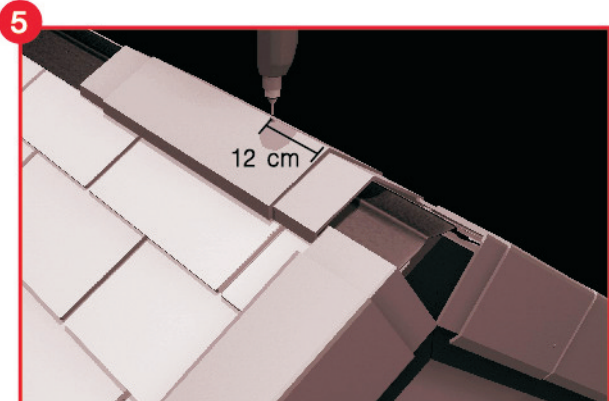
2 Put over the ridge on both sides. Use line marker to mark the spot along the roof ridge in order to get the line of eave.



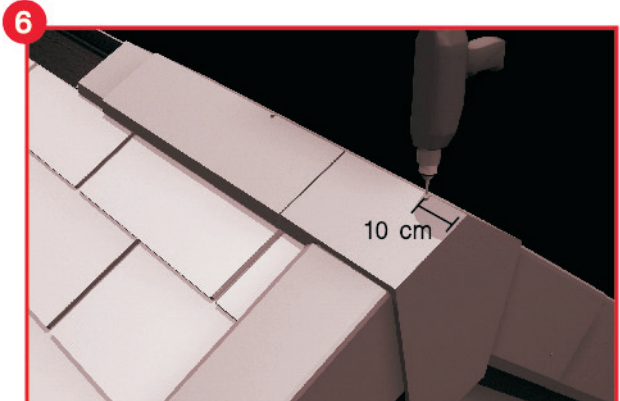
3 After get the appropriate position, clean roof panel to be out of dust, oil, and moisture. Then, install the seal sheet under cover by compress closely to the Cover supporting C-Line steel, and SCG Ayara Roof tiles on the top row as close as possible. The installed position shall be at 1-2 cm further out from that specified (Item No.2), in order that the seal sheet will not be out from the line of covers.



4 Lapping distance at least 5 cm shall be required in case that seal sheet under cover is needed to be connected. Compress closely.



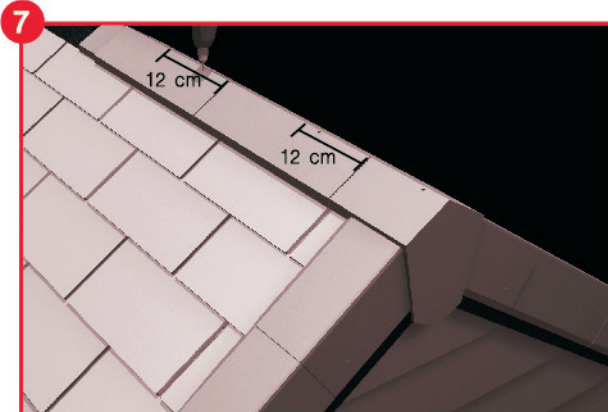
5 Install 2-Ways ridge by making the edge of 2-Ways ridge fit well to the rake cover, and fixed by cover fixing screws (contained in SCG Dry Ridge System Set for Ayara Roof) by measuring from upper edge about 12 cm (as shown in figure). Then, fix by cover fixing screw at the middle of cover.



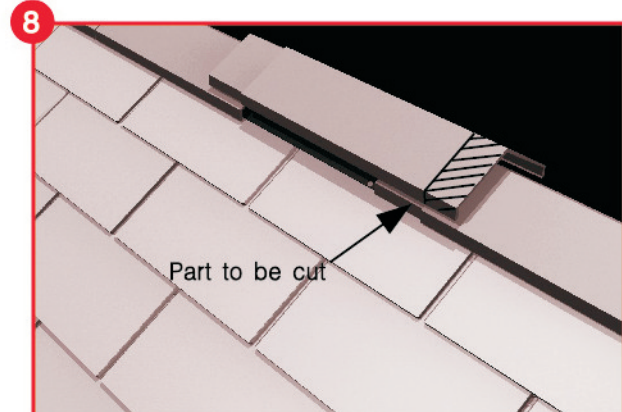
6 Install the end ridge over the barge by using ridge fixing screw (contained in SCG Ayara Dry Ridge System Set, at the roof ridge area and at 10 cm. far from gable.



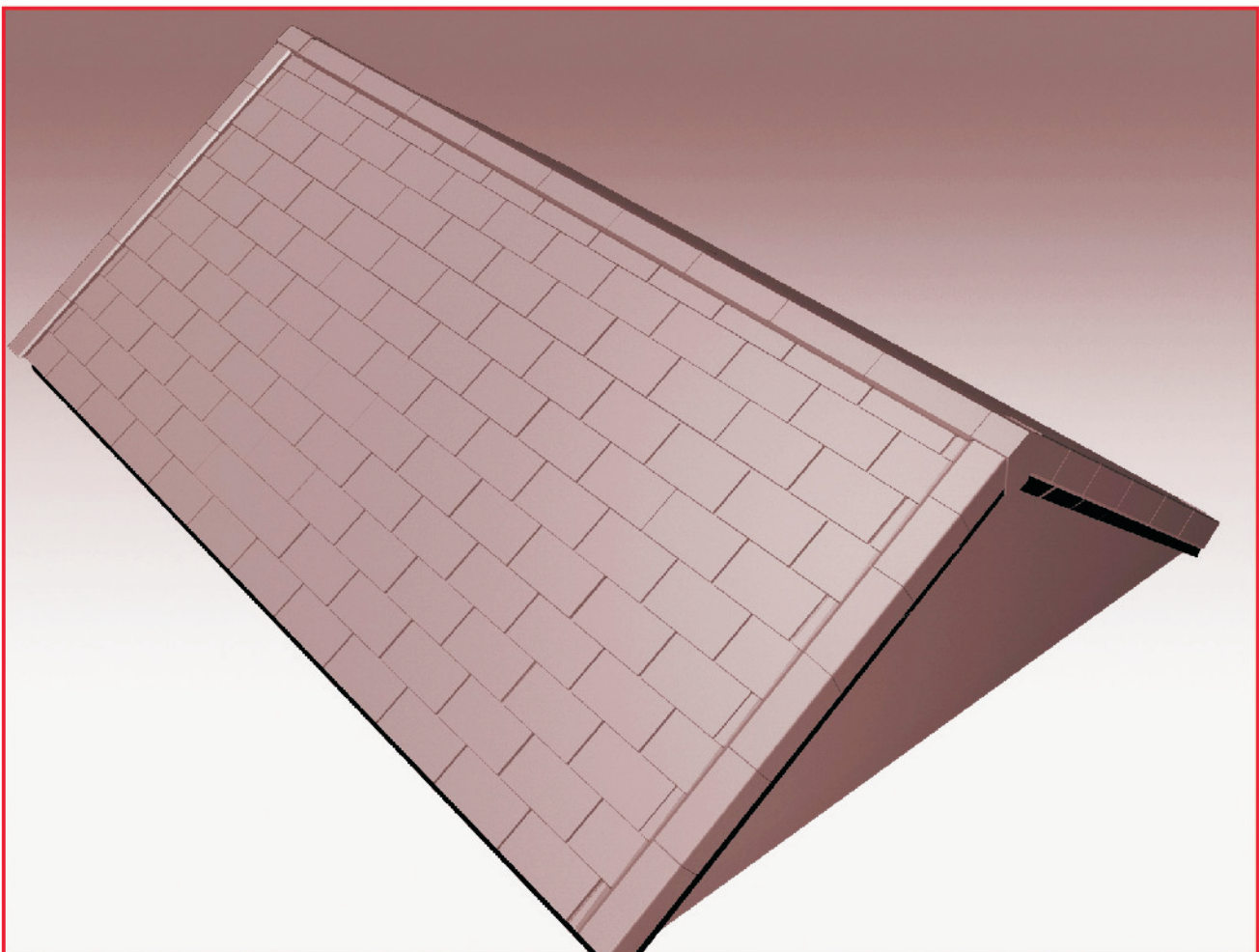
## 9. Installation of SCG Ayara Ridge



Install next ridge, by measuring from cover edge at about 12 cm, make advanced drill by drilling machine and fixed by 1 of cover fixing screw (contained in SCG Dry Ridge System Set for Ayara Roof) for 1 of ridge cover.



Make furnishing of the un-matched ridge cover (as shown in figure), and decorate cutting area by using SCG Roofing Paint for Ayara, and furnish some marks of cover fixing screw for better aesthetic appearance.



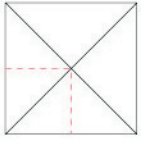
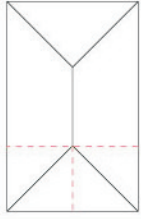
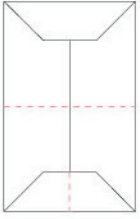
**Remark :** After cutting of SCG Ayara Roof tile (such as in the area of hip ridge, roof ridge, and gable end), always clean the dust occurred from cutting, and furnish the painting color in the area of cutting by using **SCG Roofing Paint** for better aesthetic appearance.



9.

Roofing of SCG Ayara roof for hip form roof, and installation of hip ridge cover

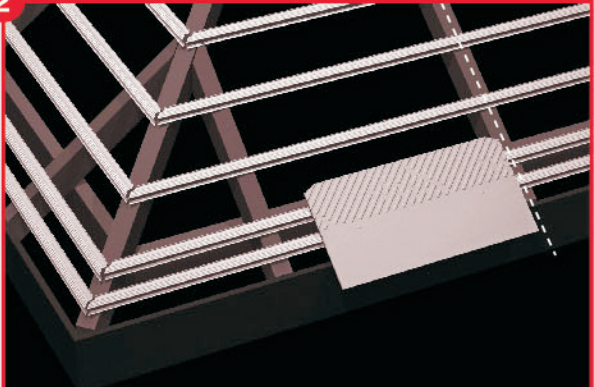
**1 Hip Form Roof**

4-Ways	3-Ways	Manila
		

Divide roof into half by measure the length of eave in 2 parts, and make on the 1st row of batten at **measured point**

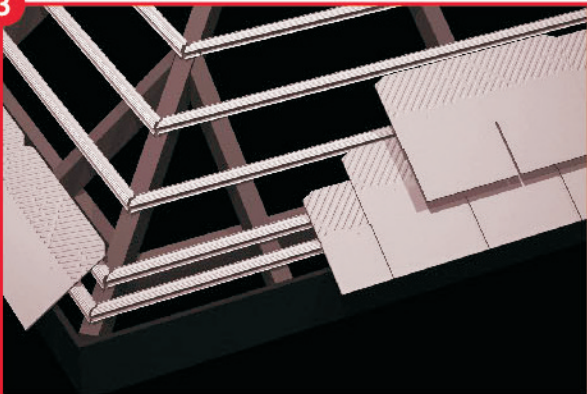
- **3-Ways and 4-Ways Hip Form** will be divided the eave in two equal part at 1st side by tensing the tendon from the corner where 3-Ways or 4-Ways are installed. Tendon shall be tensed in perpendicular to horizontal direction. After that, tense another tendon perpendicular with 2nd side.
- **Manila Form** tense two tendons perpendicular each other from center of roof ridge and center of two eaves precisely.

**2**



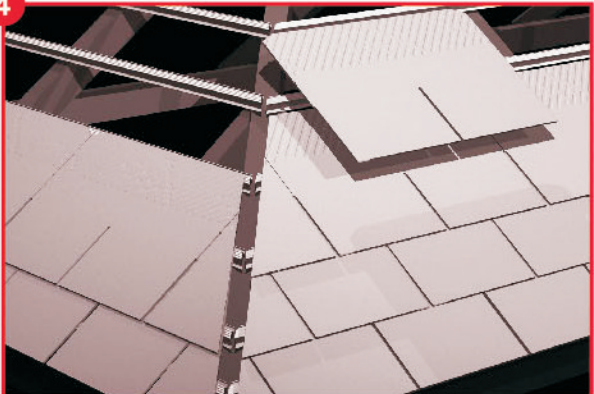
Start installation of SCG Ayara Roof starter tile from designated line. Note that installation can be performed together from both left and right sides.

**3**



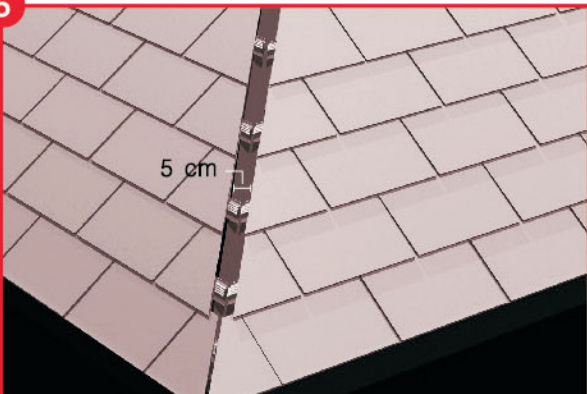
Install SCG Ayara Roof tile by similar method for Gable Form Roof until complete whole roof panel (also refer page 13).

**4**



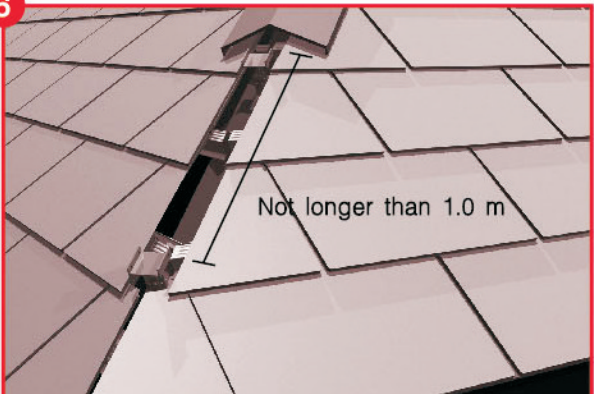
At hip ridge area, must be fully filled by SCG Ayara roof tile which can be cut and tiled as required. If the screws cannot be used for fixing of Ayara tile, use **SCG Epoxy Adhesive for Ayara Roof** instead.

**5**



At hip ridge area, leave 5 cm gap between the SCG Ayara Roof tiles for installation of U-Shape steel leg.

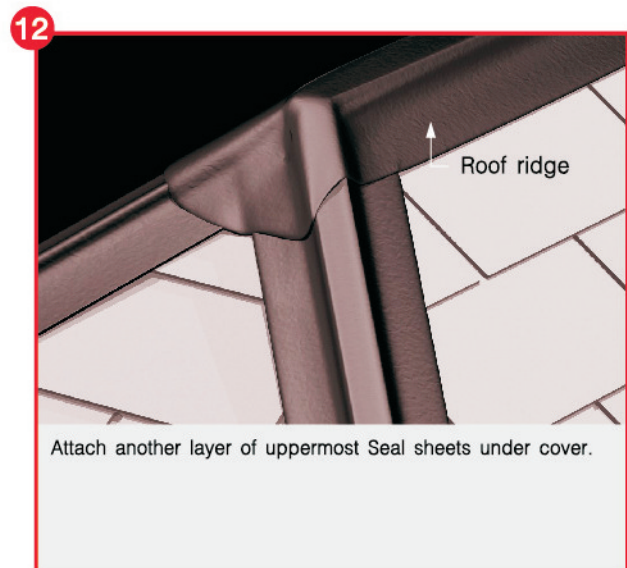
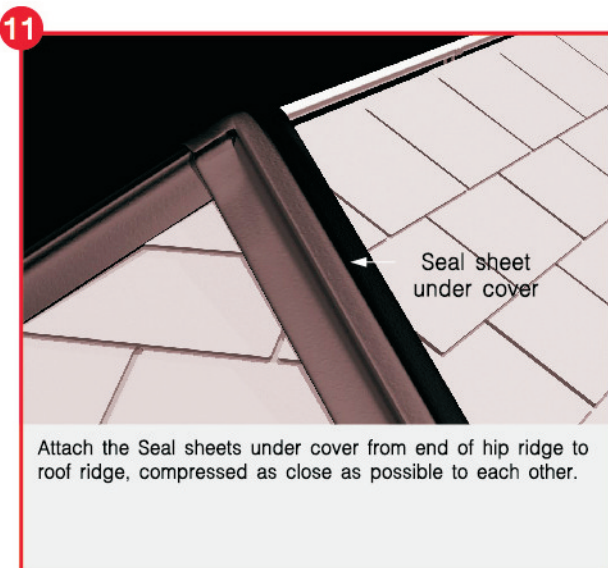
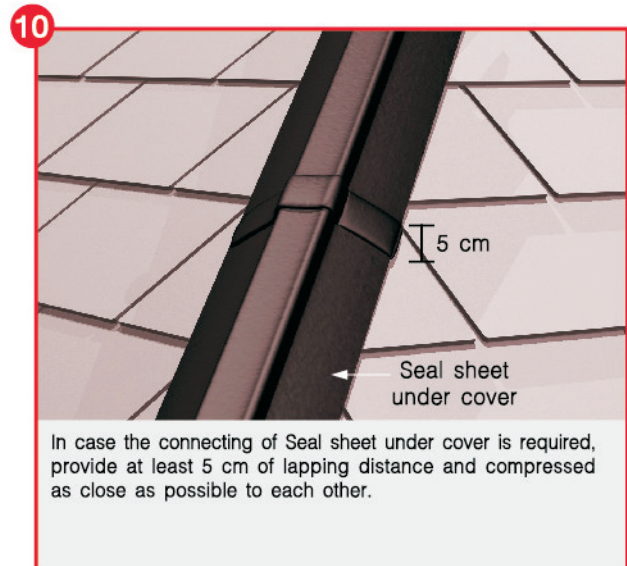
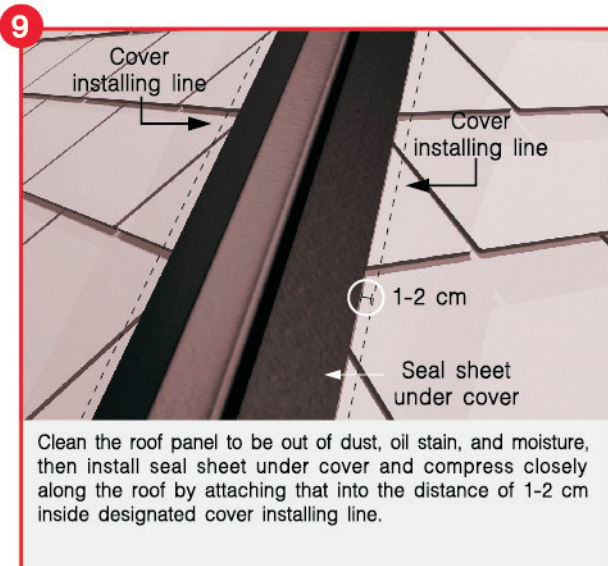
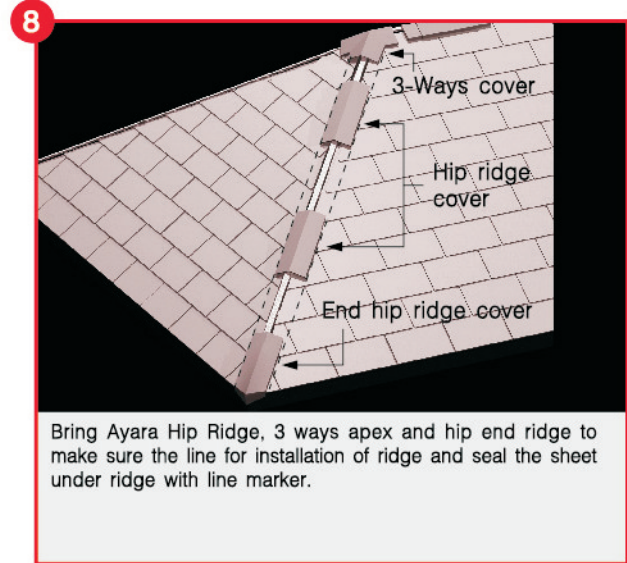
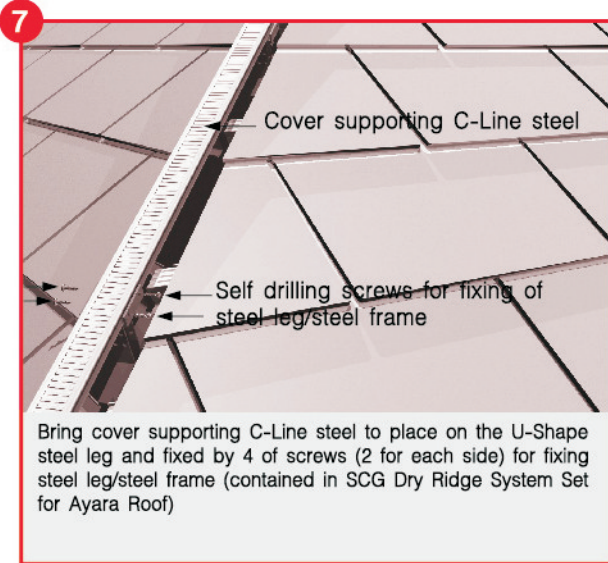
**6**



Bridge U-Shape steel leg to install on hip ridge with maximum spacing of 1.0 m. Height of this U-Shape steel leg will be about 5-6 cm (up to the degree of roof, tested by place the hip ridge cover over this leg). Then, fix this U-leg by Self drilling screws for fixing of steel leg/steel frame (contained in SCG Dry Ridge System Set for Ayara Roof).

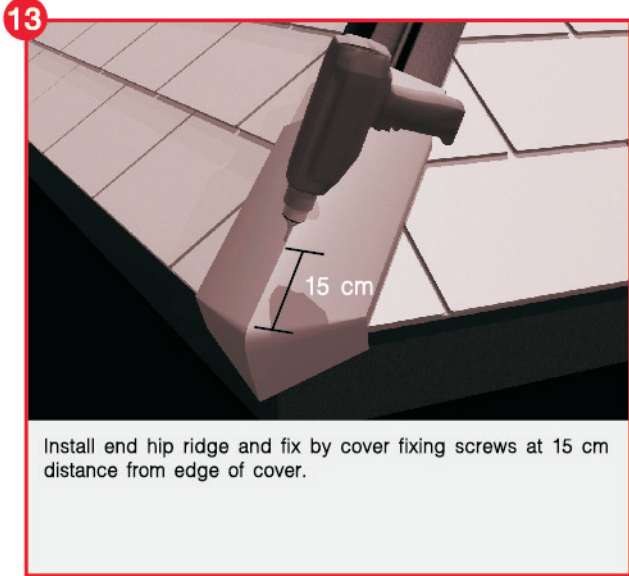


## 9. Roofing of SCG Ayara roof for hip form roof, and installation of hip ridge

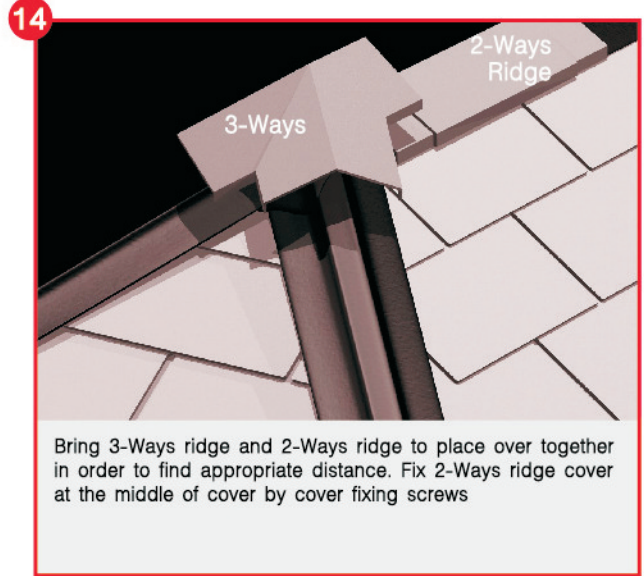




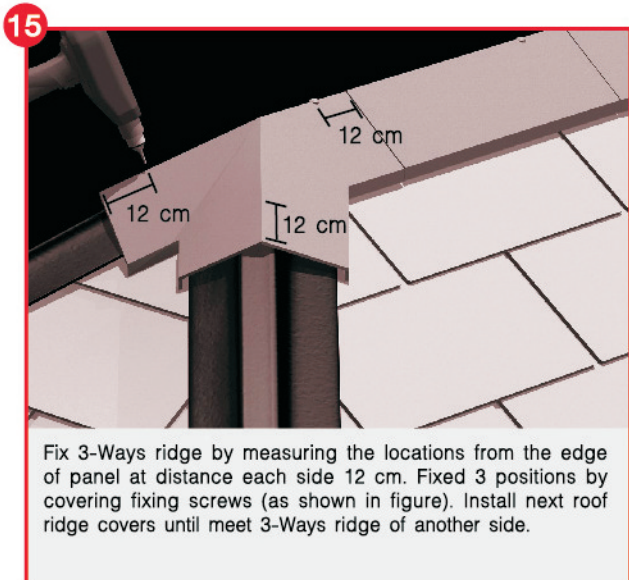
**9. Roofing of SCG Ayara roof for hip form roof, and installation of hip ridge cover**



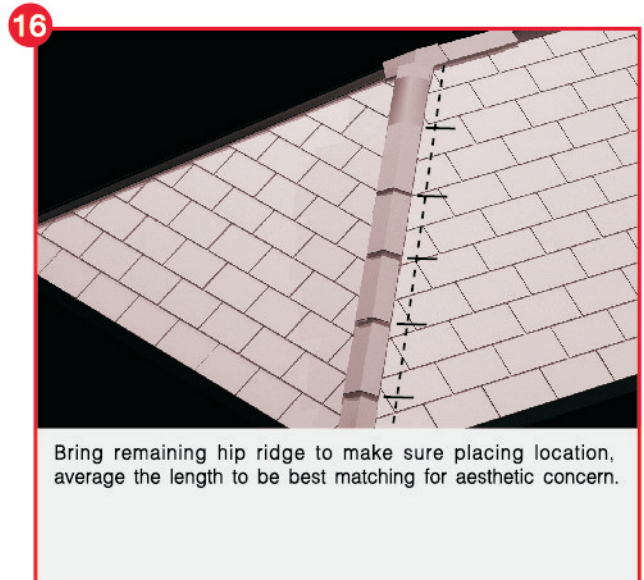
Install end hip ridge and fix by cover fixing screws at 15 cm distance from edge of cover.



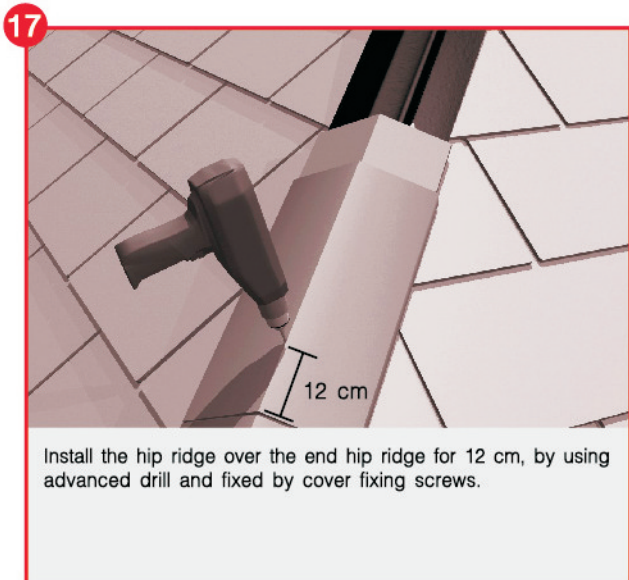
Bring 3-Ways ridge and 2-Ways ridge to place over together in order to find appropriate distance. Fix 2-Ways ridge cover at the middle of cover by cover fixing screws



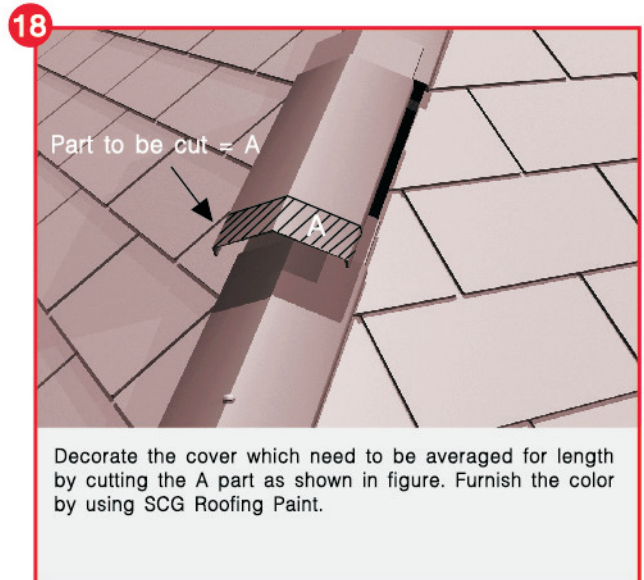
Fix 3-Ways ridge by measuring the locations from the edge of panel at distance each side 12 cm. Fixed 3 positions by covering fixing screws (as shown in figure). Install next roof ridge covers until meet 3-Ways ridge of another side.



Bring remaining hip ridge to make sure placing location, average the length to be best matching for aesthetic concern.



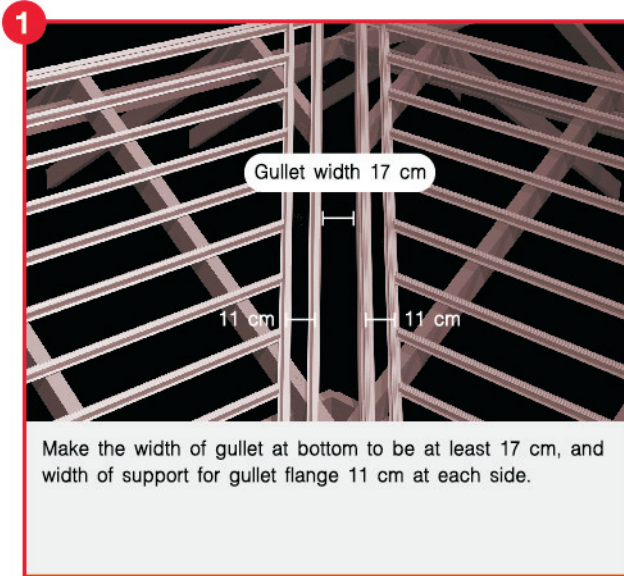
Install the hip ridge over the end hip ridge for 12 cm, by using advanced drill and fixed by cover fixing screws.



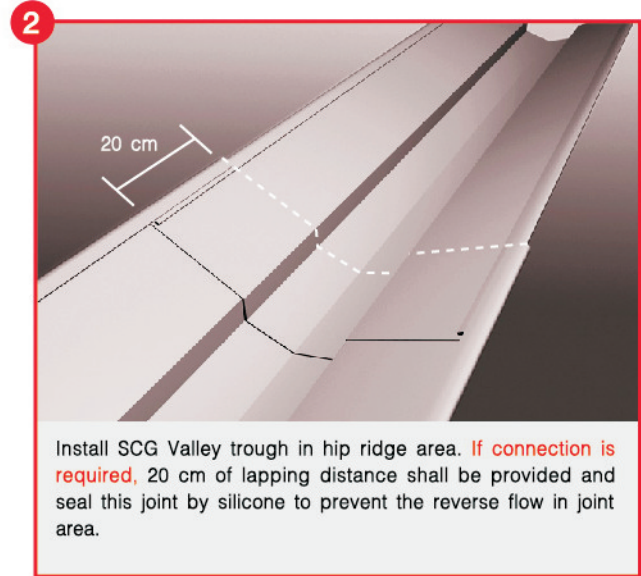
Decorate the cover which need to be averaged for length by cutting the A part as shown in figure. Furnish the color by using SCG Roofing Paint.



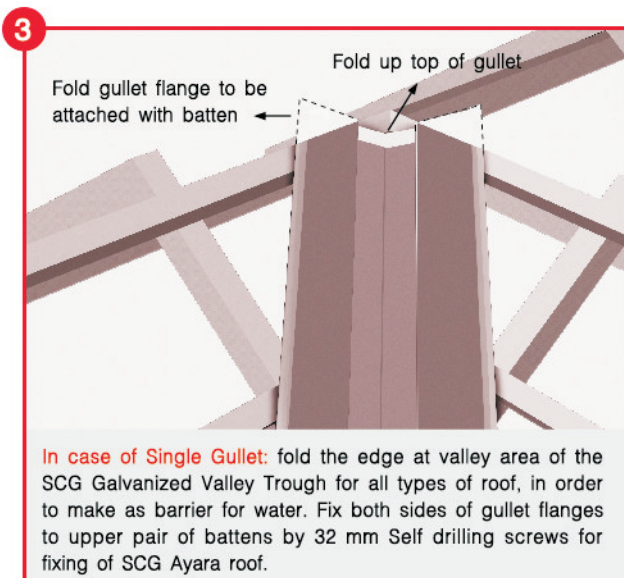
## 10. Installation of SCG Ayara Roof, and SCG Valley Trough in Hip Ridge Area



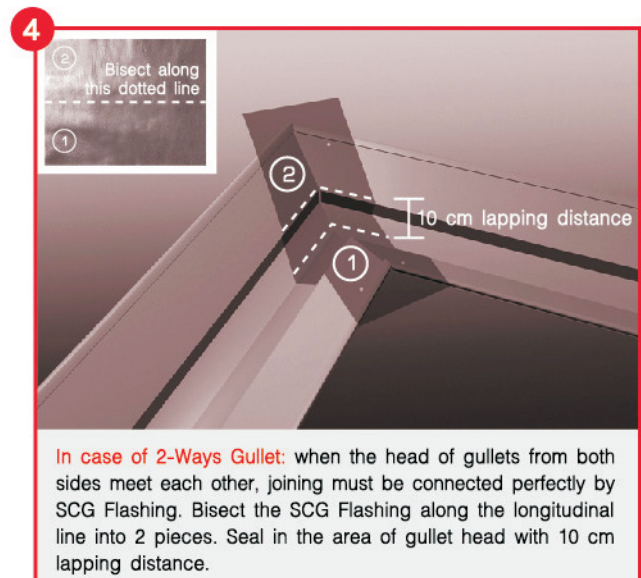
Make the width of gullet at bottom to be at least 17 cm, and width of support for gullet flange 11 cm at each side.



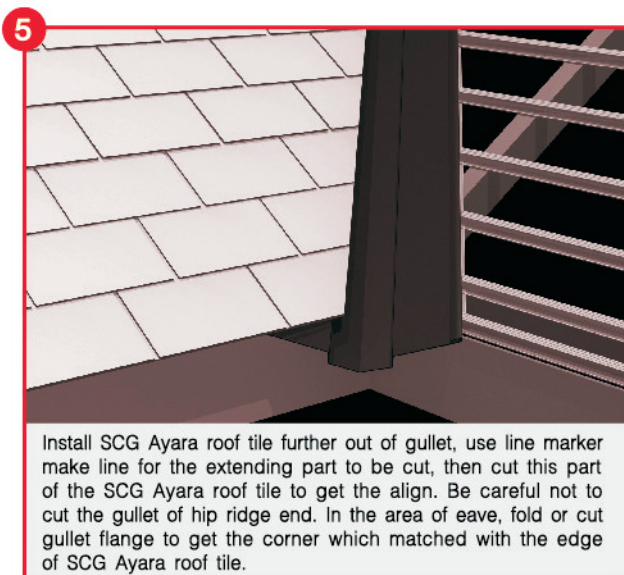
Install SCG Valley trough in hip ridge area. If connection is required, 20 cm of lapping distance shall be provided and seal this joint by silicone to prevent the reverse flow in joint area.



In case of Single Gullet: fold the edge at valley area of the SCG Galvanized Valley Trough for all types of roof, in order to make as barrier for water. Fix both sides of gullet flanges to upper pair of battens by 32 mm Self drilling screws for fixing of SCG Ayara roof.



In case of 2-Ways Gullet: when the head of gullets from both sides meet each other, joining must be connected perfectly by SCG Flashing. Bisect the SCG Flashing along the longitudinal line into 2 pieces. Seal in the area of gullet head with 10 cm lapping distance.



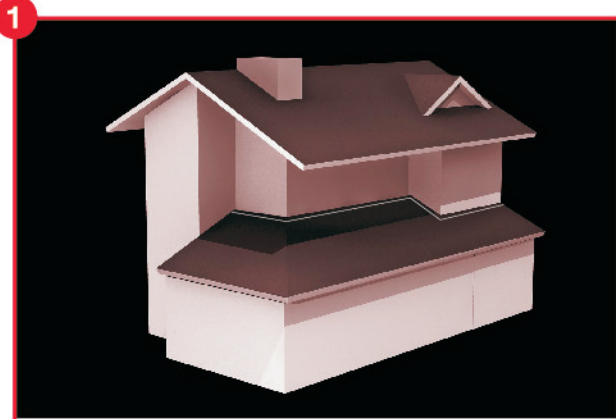
Install SCG Ayara roof tile further out of gullet, use line marker make line for the extending part to be cut, then cut this part of the SCG Ayara roof tile to get the align. Be careful not to cut the gullet of hip ridge end. In the area of eave, fold or cut gullet flange to get the corner which matched with the edge of SCG Ayara roof tile.



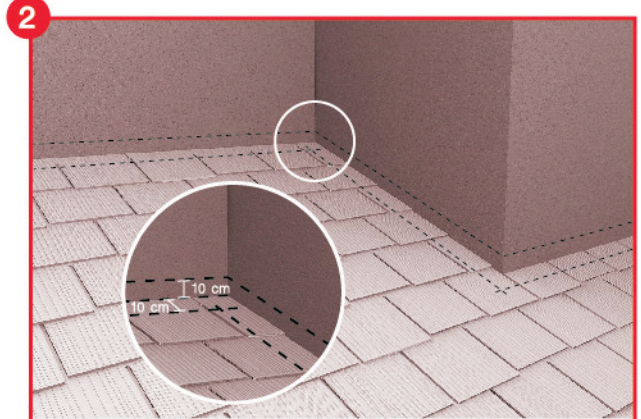
For the gullet end which is on roof panel, leave the gullet to cover the SCG Ayara roof tile in lower row. Bend the edge of gullet to be flat. Make paint furnishing in the area of SCG Ayara roof tile that is cut for better appearance by using SCG Roofing Paint for Ayara.



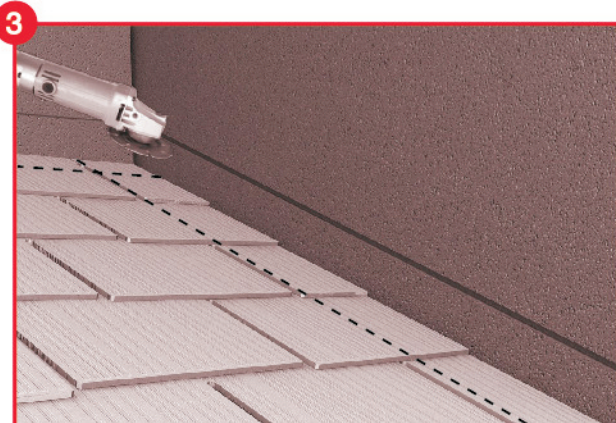
## 11. Roofing of SCG Ayara Roof in the Area Close to Building Wall



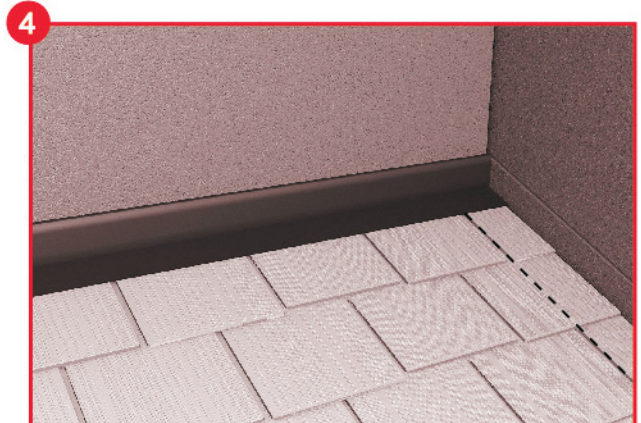
For some houses, roofing may be performed until the tile will hit to the wall (as shown in figure). In the prevention of leakage, it is necessary to use **SCG Wall Flashing** for installation.



Determine the lines which are located from the joint between roof and wall about 10 cm in up-direction, and 10 cm in down-direction along the tile (as shown in figure).



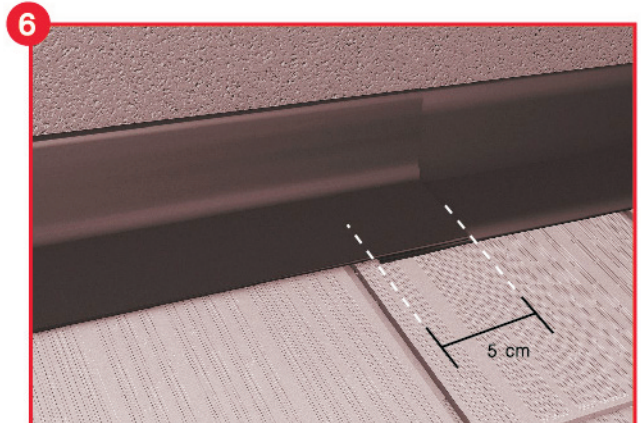
Use electric grinder to slit the wall to provide 1-2 cm depth groove along the line measured in No.2, and clean neatly.



Lay the SCG Wall Flashing for Ayara Roof on the roof. Make the upper edge to be tightly inserted in the groove made previously for about 10 cm. Compress lower edge to be closely attached with the roof.



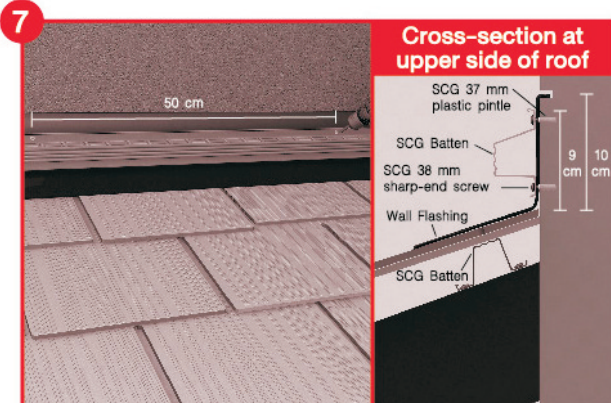
Compress the SCG Wall Flashing for Ayara Roof to be closely attached with the roof as much as possible especially at the area of tile's edge.



In the area where requires jointing of SCG Wall Flashing for Ayara Roof, 5 cm lapping distance will be necessary.



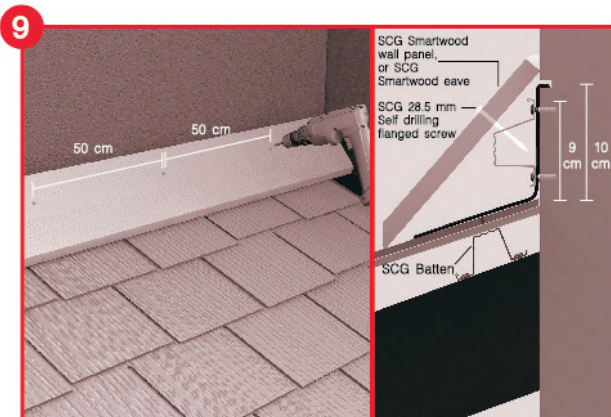
# 11. Roofing of SCG Ayara Roof in the Area Close to Building Wall



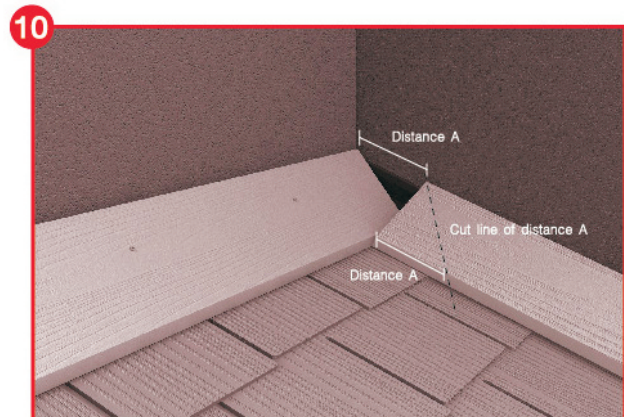
**Part that hit the wall at upper side of roof:** Install SCG Batten for Ayara roof on the SCG Wall Flashing. Fix the batten with SCG plastic pindle for fixing bracket to SCG Smartwood C-Line frame, and the SCG 38 mm sharp-end screw for fixing of SCG Smartboard wall panel. Fix by the screws at every 50 cm spacing.



**Part that hit the wall at lateral side of roof:** Install SCG Batten for Ayara roof on the SCG Wall Flashing. Fix the batten with SCG plastic pindle for fixing bracket to SCG Smartwood C-Line frame, and the SCG 38 mm sharp-end screw for fixing of SCG Smartboard wall panel. Fix by the screws at every 50 cm spacing.



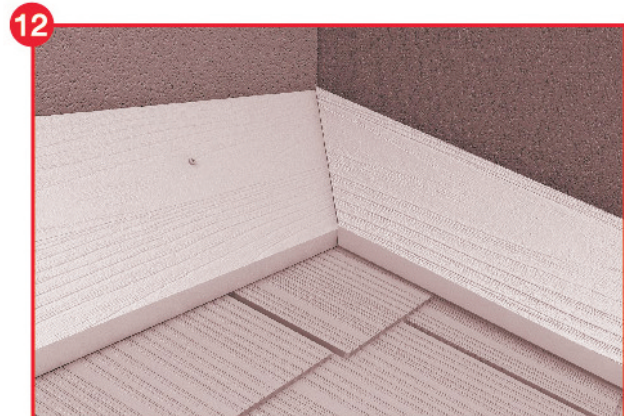
Install SCG Smartwood wood plank or fascia board 8" width to the purlin by using SCG Self drilling wing screws 28.5 mm. with 50 cm. Spacing.



Bring SCG Smartwood wood plank or fascia board to measure distance to put in corner. After that mark the spot to install on the corner.



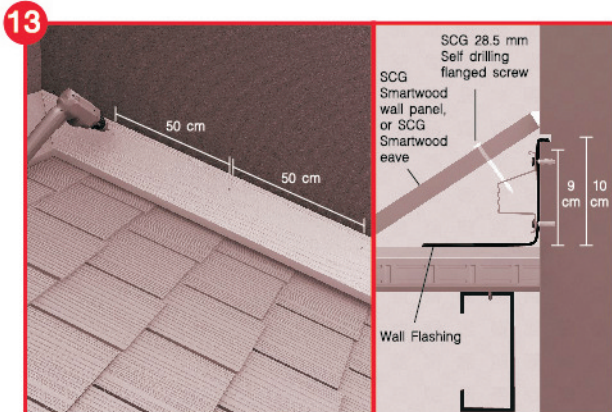
Cut SCG Smartwood wood plank or fascia board from the designed mark.



Make into corner and furnish for better appearance.



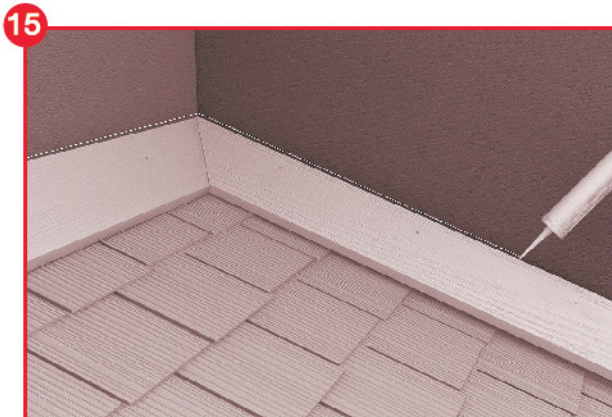
# 11. Roofing of SCG Ayara Roof in the Area Close to Building Wall



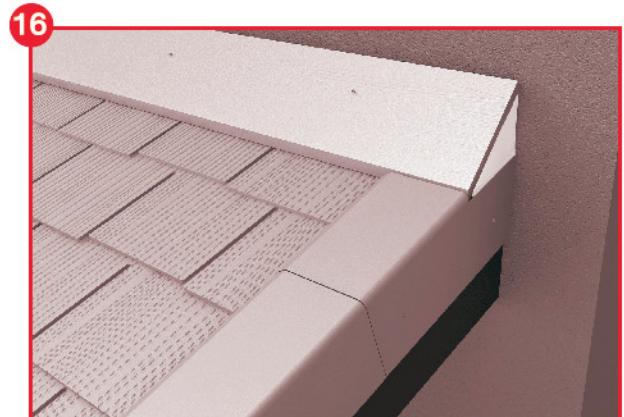
Fix the SCG Smartwood wood plank or fascia board with SCG Self drilling wing screw 28.5 mm. at 50 cm spacing.



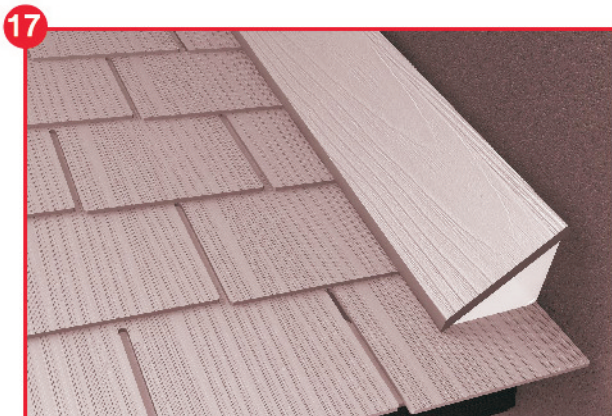
Jointing area shall be chip off 45 degree (as shown in the figure).



Seal the upper edge by silicone or SCG Smartwood Acrylic Sealant at the joints of Smartwood



Make furnishing the area of outer edge by using mortar (be aware of cement water stain which will dirt the tiles or covers). Paint the wall flashing by using SCG Roofing paint for Araya roof in the same color shade with the tile for elegance.



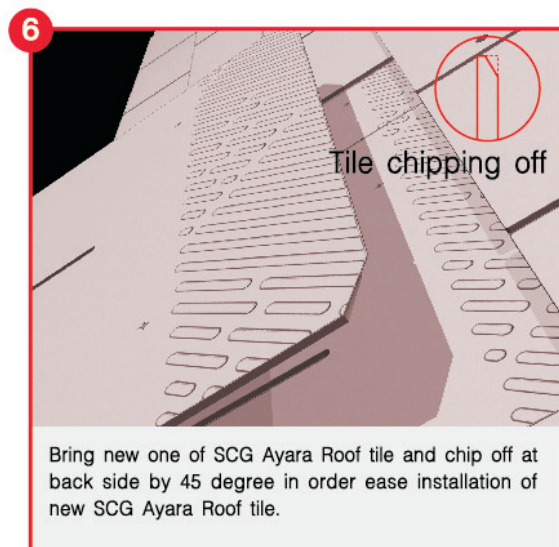
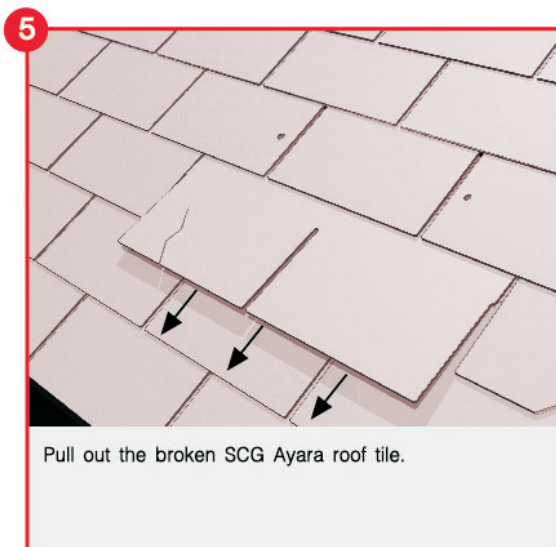
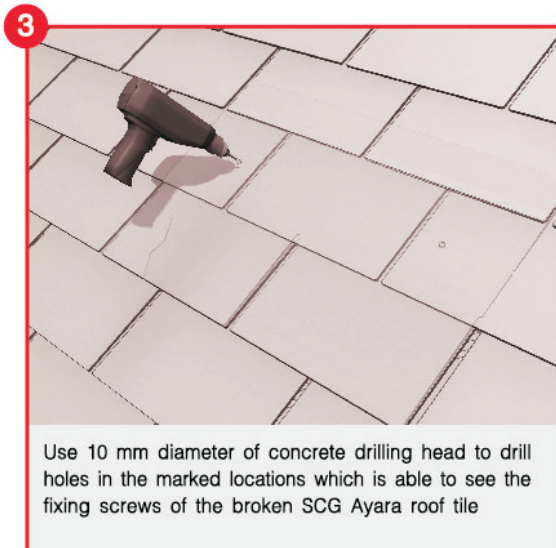
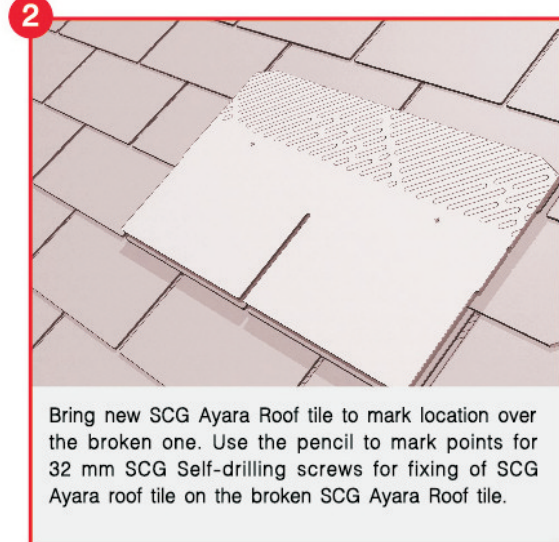
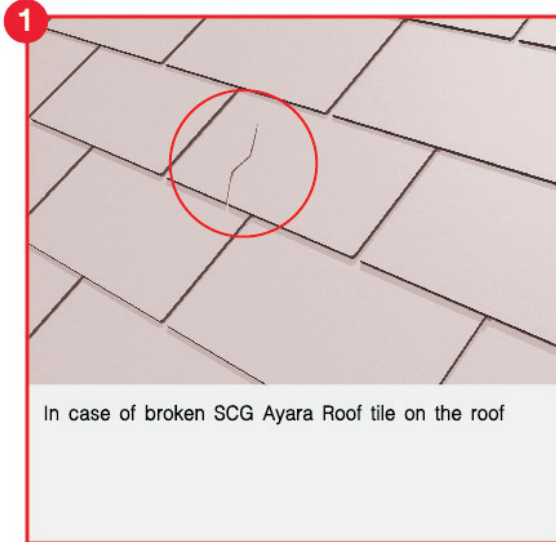
Make furnishing the area of lower edge by using mortar (be aware of cement water stain which will dirt the tiles or covers). Paint the wall flashing by using SCG Roofing paint for Araya roof in the same color shade with the tile.



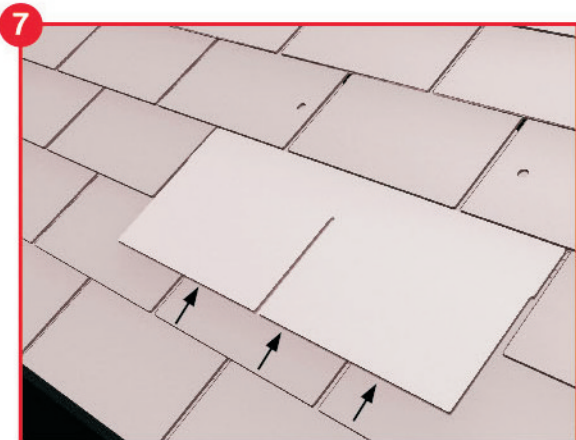
## 12. Repair and replacement of SCG Ayara roof tiles

### Necessary Equipments

- Drilling machine, and 10 mm diameter of concrete drilling head
- SCG Roofing paint for Araya roof
- Electrical grinder and 4" diameter of concrete cutting blade
- Pencil



## 12. Repair and replacement of SCG Ayara roof tiles



Install new SCG Ayara Roof tile to replace the previous one in the same position.



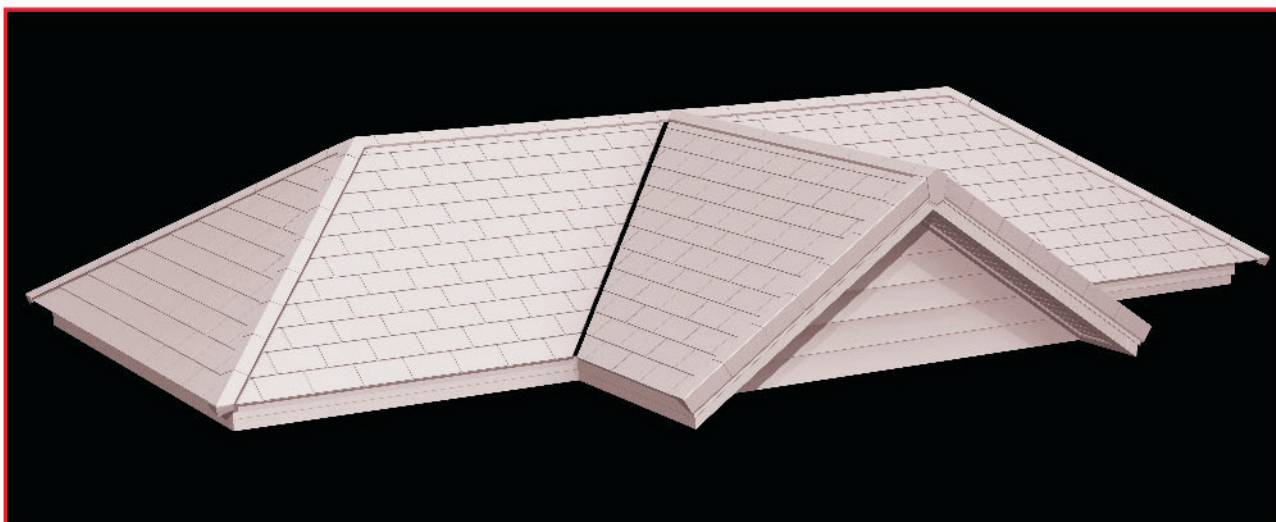
Fix at both 2 points, by SCG 32 mm Self-drilling screws for fixing of SCG Ayara roof tile.



Seal the trail of drilled hole on SCG Ayara roof tile using Gumcrete.



Furnish coloring by using SCG Roofing Paint for Ayara roof, and coated by SCG Roofing Shield for Ayara roof.





# Timber Look

**NEW**



Lumber

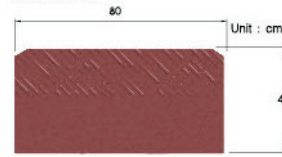


Grain

## Technical Information

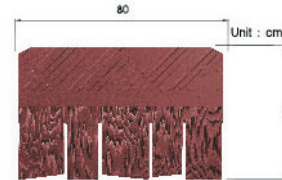
- Batten space : The first row is 9 cm, the next row is 20 cm
- Roof slope : 25-45 degree\*
- Weight 27.5 kg/sq.m

### Lumber



#### Starter Tile

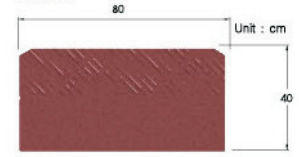
- width x length x thickness (cm) : 80 x 40 x 0.6
- Weight 3.5 kg/tile
- usage quantity 1.25 tile/m (eave)



#### Main Tile

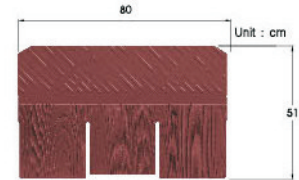
- width x length x thickness (cm) : 80 x 51 x 0.6
- Weight 4.4 kg/tile
- usage quantity 6.25 tile/sq.m

### Grain



#### Starter Tile

- width x length x thickness (cm) : 80 x 40 x 0.6
- Weight 3.5 kg/tile
- usage quantity 1.25 tile/m (eave)



#### Main Tile

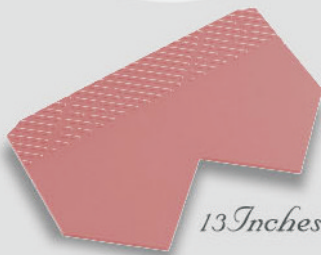
- width x length x thickness (cm) : 80 x 51 x 0.6
- Weight 4.4 kg/tile
- usage quantity 6.25 tile/sq.m

# Classic Look

**NEW**



9Inches



13Inches

## Technical Information

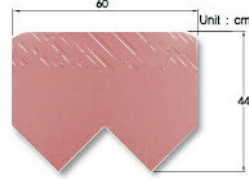
### 9 Inches size

- Batten Space : The first row is 5.5 cm, the next row is 15 cm
- Roof slope : 30-45 degree\*
- Weight 27.8 kg/sq.m



#### Starter Tile

- width x length x thickness (cm) : 60 x 29 x 0.6
- Weight 2.0 kg/tile
- usage quantity 1.67 tile/m (eave)



#### Main Tile

- width x length x thickness (cm) : 60 x 44 x 0.6
- Weight 2.5 kg/tile
- usage quantity 11.11 tile/sq.m

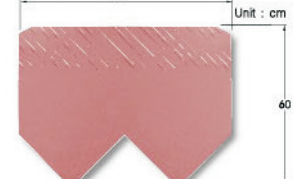
### 13 Inches size

- Batten Space : The first row is 11 cm, the next row is 20 cm
- Roof slope : 25-45 degree\*
- Weight 27.5 kg/sq.m



#### Starter Tile

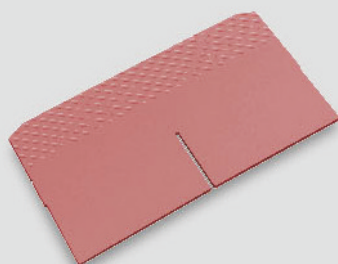
- width x length x thickness (cm) : 80 x 40 x 0.6
- Weight 3.5 kg/tile
- usage quantity 1.25 tile/m (eave)



#### Main Tile

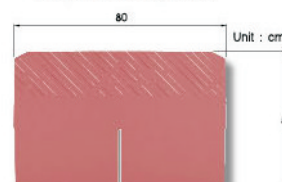
- width x length x thickness (cm) : 80 x 60 x 0.6
- Weight 4.4 kg/tile
- usage quantity 6.25 tile/sq.m

# MODERN LOOK



## Technical Information

- Batten Space : The first row is 11 cm, the next row is 20 cm.
- Roof slope : 25-45 degree\*
- Weight 27.5 kg/sq.m



#### Main Tile

- width x length x thickness (cm) : 80 x 51 x 0.6
- Weight 4.4 kg/tile
- usage quantity 6.25 tile/sq.m



#### Starter Tile

- width x length x thickness (cm) : 80 x 40 x 0.6
- Weight 3.5 kg/tile
- usage quantity 1.25 tile/m (eave)

\* For roof with slope less than the specified value, it is recommended to install subroof under the roof prior to installation of batten and tile.



# Specification for installation of SCG Araya Roof

## Caution

- Do not use as structural part of any building, or other purposes. Installation shall follow installation manual, and use only qualified standard equipments from manufacturer.



## Precaution to avoid danger

- SCG fiber cement roof product has been designed and specified for the operation method which suits the condition of application in Thailand only. Application outside Thailand shall be under direct responsibility of designer, construction supervisor and installer.

### For Designer

- Any qualification specified in this document is the average value derived from testing of product under specified standard by sampling from group of products during period prior distribution only.
- Specifications for any installation are the fundamental recommendations for residential house, or any building with height from ground to roof ridge less than 23 m. only. For any other buildings, or building with considerable risk shall consider the wind load effect in structural design and jointing method. If the design calculation is required while no certified document from any reliable institute, unit wind load following Item No. 17 of 6<sup>th</sup> Edition of the Ministry Regulation (1984) as designated by the Act of Building (1979).
- Application of the products other than those specified in this installation manual shall be under direct responsibility of designer, construction supervisor.

### For Installer and User

- Any installation specification are the fundamental recommendations for normal application only. For determination of the installation method, and applicable structure shall consider standard for Structural Steel EIT 1015-40, and Design Specification following the 6th Edition of the Ministry Regulation (1984) as designated by the Act of Building (1979).
- Products application other than those specified in this installation manual shall consult with design architecture or design engineer.

## Recommendation for safety operation

- Fiber cement SCG roof composes of cement material. Cutting, grinding, penetration, or polishing of products may cause blowing dust. If this dust is eaten, or inhaled to human body for considerable amount, and time, this may cause danger to respiratory system and body.
- Cutting, grinding, penetration, or polishing of products shall be carried out in area with good ventilation. Avoid using the machine for cutting, grinding, penetration, or polishing of products that can cause high amount of dust.
- Do not work during storm or heavy rain, or wetting roof.
- Wear qualified personal protection equipments, such as dust protection mask, safety goggle, clothes, gloves, shoes.
- Any personnel without qualified personal protection equipments or is not relate to operation, shall approach working area in order to avoid possible danger.
- Lifting or relocation of products shall be carried out with special attention. Do not bend one's back down for lifting, nor twist one's body or never change direction during lifting. In addition, avoid working in long period to prevent injury and fatigue.
- Whenever the lifting is required, one must lift by lowering knee down, and hold firmly. Then use strength from leg to lift up.
- Cleaning of working area after cutting, grinding, penetration, or polishing of products shall be carried out by vacuum machine. Dust container shall be seal tightly or cleaned by water. Do not clean by sweeping which will cause dust scattering.
- Separate and collect any debris occurred by installation, repair, dismantle of products with special attention. Eliminate those by appropriate and sanitarian method specified by government.
- Clean one's body by clean water after cutting, grinding, penetration, or polishing of products.

### First Aid

- If any dust or material debris enters one's eye, do not rub or scratch the eyes. Urgently, clean by water several times, and bring to the physician.

### Verify that installation manual of product is the latest one

- Installation manual of product is always improved. The designer, construction supervisor, and installer shall always verify that installation manual of product being used is the latest version. In case of uncertainty, verify or inspect at [www.siamfibrecement.com](http://www.siamfibrecement.com)

