

colored stone coated metal roofing tiles

Installation Guide

Product Division

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1, General Rules of Installation

1.1 Security Requirements

- Before the construction of roof tile, construction safety, environmental protection special program and safety emergency plan should be prepared.
- > Safety education and training must be conducted for the operating personnel.
- The new operators must go through three levels of safety education. When changing the type of work, the operator should first operate the skills and knowledge of safe operation training, without safety education and training of qualified operators are not allowed to work.
- Must provide operators with qualified labor protection supplies that meet the requirements of the current national standards or industry standards, and train and supervise the correct use of operators.
- When the safety measures for work at height are checked and failed, work at height is strictly prohibited. The erection of scaffolding should be in line with the provisions of the current industry standards; when using other aerial measures, safety calculations should be made.

1.2 Environmental Protection Measures

- During construction, noise should be controlled and construction time should be reasonably arranged to reduce the impact on the surrounding environment.
- > The construction area should be kept clean.
- Construction lights should be directed to the site at night to reduce the impact on residents.
- Night construction should do a good job of reporting procedures and construction in accordance with the requirements approved by the relevant government departments.
- Roof tile installation construction leftover waste and residual materials should be properly classified and collected, unified processing and recycling, prohibit arbitrary shelving, stacking.

1.3 General construction requirements for roofing

- ➤ The construction environment should be 5°C~35°C, and protective measures should be taken when the ambient temperature is lower than 5°C.
- Construction personnel should wear rubber-soled soft shoes, and try to avoid or reduce stepping on the paved color stone tile roof, for easy to be stepped on parts,

such as around the tiger window, should be lined with soft materials as temporary protection, so as not to damage the product.

- Through the roof of the waterproof layer pipes, equipment or pre-buried parts, etc. must be installed before the construction of color stone tile laying.
- It is very important to ensure that the installation process does not damage the surface of the colored stone, paying attention to the following points:
 - a. Site handling roof tiles must wear gloves, lifting steel tiles must be tied firmly, should be gently lift and not drag; site cutting process, the bottom of the cutting machinery should not be in direct contact with the surface of the colored stone coated metal roofing tiles, require the pad of wood or rubber sheet.
 - b. When the construction personnel walk on the roof tile, they need to step on the combination of tile groove and battens, it is strictly forbidden to jump on the tile surface, step on or knock at will, etc.
 - c. Tools, etc. carried by the construction personnel should be placed in the tool bag, and if placed on the roof, they should be placed on a special cloth or other sheet material.
 - d. Board surface iron chips and edge cleaning, board surface in the cutting and drilling iron chips, these iron chips and edge material must be removed in a timely manner, not overnight.

1.4 Roofing Construction - Substrate Requirements

- The roof structure layer is: wood roof structure, steel roof structure, concrete roof structure, brand new structure or construction on the original tile structure are available.
- > Roofing base should be smooth and solid to meet workers' installation requirements.
- The scaffolding required for construction (scaffolding should be kept at a certain distance from the eaves) and vertical transportation tools are erected, and temporary electricity is connected to the roof.
- > The slope of the construction is from 15° to 89° .

2. Construction Preparation

2.1 Tools

NO.	Tools	Pictures	Size specification	quality	Weight
1	Cisaille guillotine			1	30kg
2	Combination folder			1	60kg
3	Handheld cutter		125*0.8mm	1	
4	Manual shears type Pelikan left	Contrast all and	300mm		
5	Straight tuck-in pliers 100 mm		270*100mm		
6	Special nail puller				
7	Tape Measure				
8	Marker	MODIT MARKER			

9	Slippery Rock Pen			
10	Inkwell poppers		25m	
11	Hand Hammer			
12	Nails	XTT.	2.5*50mm	
13	SPIT PASLODE IM90ci gas nailer			3.7kg
14	SPIT PASLODE Nails		2.5*50mm; 2500pcs, cover 220 m²	
15	Repair material		Glue, colored sand	

2.2 Parts Description

2.2.1 Parts location diagram



2.3 Accessories diagram

2.3.1 ①Ridge Cap





2.3.2 **②Valley tray**



2.3.3 ③Eaves Flashing



2.3.4 **(4)**Barge board cover



2.3.5 **Scolored stone coated metal roofing tiles**



2.3.6 **Other components**



2.4 Various tile size specifications

		F	Roman			
		л О.	Thickness 4/0.35mm	Length*width 1330*428mm	Cover length 1220*368mm	Weight 2.0kg
Bond Thickness 0.4/0.35mm	Length*width 1340*425mm	Cover length 1260*368mm	Weight 2.1kg			
			Shing Thicknes 0.4/0.35	le s Length*widt 1340*420	h Cover lengt 1290*370m	h We m 2.4
Classica Thickness 0.4/0.35mm	l Length*width 1330*418mm	Cover length 1265*368mm	Weight 2.1kg			
		-	Milana			
			Thickness 0.4/0.35mm	Length+widt 1340+420mm	h Cover lengt n 1290*370m	h We m 2.
Shake			Thickness 0.4/0.35mm	Length*widt n 1340*420mm 	h Cover lengt n 1290+370m	h Wa m 2.

3 Installation Process

3.1 Roofing tile construction preparation

Measuring the size of the construction object and survey the environment of the construction site on site, design the most reasonable construction plan according to the effect and purpose required by the customer, and design and calculate the material for the construction object.

3.2 Installation of Battens

The order of installation of Battens

Valley tray battens installation ——Eaves Flashing battens installation —— first row battens installation —— middle battens installation —— top ridge battens installation —— sloping ridge battens installation —— Barge board cover battens installation



Fig.1 General overview of battens installation

3.2.1 Valley tray battens installation

The Valley tray of roofing tile needs to be installed on both sides of the position of battens as a support., the bottom of the battens is flush with the eaves, with 50 - 70mm long hexagonal self-drilling screws, the wooden battens is installed on the roof frame. After installing the first batten, you can use the Valley tray to measure the position and install the second batten.

3.2.2 Eaves Flashing battens installation

The Eaves Flashing of roofing tile needs to be installed in the direction of parallel ground in the eaves position as a support. In order to ensure that the Eaves Flashing and the valley tray are on the same level in the eaves position, the installation of the Eaves Flashing battens needs to be slightly raised on the original eaves base according to the height of the valley tray battens, and use 50--70mm long hexagonal self-drilling screws to fix the wooden battens on the eaves.

C-beam battens.

Use the right-angle portion of the battens as a support for the Eaves Flashing. If there is no valley tray, the battens can be installed completely flush with the eaves, with the open part of the C-shaped battens facing outward to facilitate installation.



Fig.2 Tile battens for valley tray and eaves flashing

3.2.3 First Row Battens Installation

Immediately above the Eaves Flashing battens in the horizontal direction, the angle of the slope to install battens as an aid. Cut the battens at the point where they meet the valley tray battens so that they do not interfere with the installation of the valley tray. Use 50 to 70 mm long hexagonal self-drilling screws to secure the woodeen battens to the roof frame.

Use a roofing tile to measure the exact position of the first row battens. It is recommended that the tiles be 20 to 30 mm away from the Eaves Flashing, and use a marker to mark the position of the first row battens. Use a marking pen to mark the position of the first row of tiles. Use a inkwell poppers to confirm the exact position of the tiles on the horizontal installation. Use 50 to 70mm long hexagonal self-drilling screws to temporarily attach the shingles to the roof frame, and 30 to 50mm long flat-

top hexagonal self-drilling screws to attach the U-shaped shingles to the roof frame. Again, use a tape measure to make sure that the shingles are installed on parallel lines. Use 50 to 70mm long hexagonal self-drilling screws to fully secure the battens to the roof frame.

3.2.4 Middle battens installation

In the first row battens parallel line up, according to the different tile type specified battens distance along the slope of the parallel installation of other battens. For example, in the construction of bond tile battens spacing of 380mm.



Fig.3 first row battens and middle battens

3.2.5 Top ridge battens

The Top ridge battens needs to be installed in parallel with the other middle tile strip in the direction of the top ridge. Another battens is installed on top of this one. Therefore, the top ridge tile will be one tile higher than the middle tile.

When installing with C-shaped battens, the open part of the C-shaped battens is up and the solid side is down. Use 30 to 50 mm long flat-top hexagonal self-drilling screws to fix the C-shape tiles to the ridge.



Fig.4 Top ridge battens

3.2.6 Sloping ridge battens installation

In the sloping ridge position, you need to install the battens above the original horizontal battens in the direction of the sloping ridge. Therefore, the sloping ridge battens will be one battens higher than the middle horizontal battens.

When using C-type battens installation, in the sloping ridge position need to follow the direction of the sloping ridge to install battens, the elevation is higher than the horizontal battens, battens installed directly on the slopinging ridge frame, Sloping ridge battens opening outward.



Fig.5 Sloping ridge battens

3.2.7 Barge board cover battens installation

At the location of the barge board cover, you need to follow the direction of the barge board cover, above the original horizontal battens, and install the battens in the vertical direction. It is recommended that the shingles extend beyond the eave level. The barge board cover wooden battens will be one shingle higher than the middle horizontal shingle.

When using C-type battens installation, in the barge board cover position need to follow the direction of the barge board cover to install battens, the elevation is higher than the horizontal battens. The cutout is made at the intersection with the horizontal battens, and the C-type battens is pressed against the frame with the opening facing outward.



Fig.6 Barge board cover battens

3.3 Accessories and tile installation

Installation sequence:

Eaves flashing installation - Valley tray installation - Tile installation - Barge board cover installation - Ridge cap installation - Repair



Fig.7 General overview of tile paving

3.3.1 Eaves flashing installation

(1) Lapping and fixing of Eaves flashing

The laps between the two eaves flashing should cover each other by about 5cm.Wooden battens can be fixed vertically from above with a nail gun. Steel battens be fixed vertically from above using flat roof self-drilling screws.



Fig. 8 Eaves flashing fixing

(2) Overlap of eaves flashing and valley tray

Place the eaves flashing and valley tray in order to determine the construction position. According to the height of the valley tray battens and the eave level, confirm the part of the eaves flashing to be cut and mark it with a marker. Cut the eaves flashing with hand-held scissors, and place the eaves flashing and valley tray for inspection after cutting, so as not to miss the roof frame structure.



Fig.9 Details of lap joint between eaves flashing and valley tray (3) The lap of the eaves flashing and the barge board cover battens

Measure and mark the position of the eaves flashing blocked by the outward extension of the barge board cover battens, cut the marked position, and place the eaves flashing for inspection after finishing the cutting.



Fig.10 Detail of the lap joint between the eaves flashing and the barge board cover battens

(4) Treatment of eaves flashing at the positive corner

Use the same eave board fitting at the eave's sunny corner and bend it about 25cm to keep the system of eave board. Cut small triangles at the top and bottom of the eaves flashing for bending. After bending, it is placed and installed at the eave corner. If it is not convenient to place the eaves flashing at the sunny corner due to the outward extension of the sloping ridge. You can also cut out the blocking part of the sloping ridge and install it.



Fig. 11 Detail of eaves board positive corner

3.3.2 Valley tray installation

Place the valley tray in actual use and measure out the part to be cut and mark it with a marker. Cut the excess with hand-held scissors. Place the valley tray and use the tool to fix it vertically on the battens.



Fig.12 Valley tray installation details

3.3.3 Tile installation

Tile paving needs to be aligned with the lap position to ensure that the lap line in the same line, tile lap using the " \pm " lap type buckle paving, to increase the wind resistance of the tile, in the tile back eaves vertical tight fixed tile position, in the tile lap position in the horizontal direction tightly form a mutual lap relationship.



Fig. 13 The main tile tiling principle - "I" type

(1) Tile and barge board cover intersection node processing

Installation of tiles can choose to install from the barge board cover part, colored stone coated metal roofing tiles and barge board cover part of the intersection need to do bending treatment to improve the waterproof function of the roofing system, bending part need to exceed 40mm to ensure the effectiveness of waterproof. Use Combination folder to bend, place the tiles to ensure that the bending part and the barge board cover battens meet, wood structure use air nail gun to fix the tiles. The steel structure uses the same construction standards as the wood structure to bend and place the tiles. Use flattop self-drilling screws to fix the shingle, including the bending part and the barge board cover battens tight, pay attention to the location of the installation nail should be close

to the lower side of the barge board cover edge, in order to ensure that the edge and the barge board cover battens solid.



Fig.14 Detail of lap joint between tile and barge board cover battens(2) Tile and valley tray intersection node processing

Tile and valley tray intersection part, tile need to bend down and valley tray to meet and fixed to achieve the effect of wind and water resistance. Cut out the excess part and mark the part to be bent downward, the bent part is 40mm, use the combination folder to bend the tile, place and install the tile, fix the bent part and the valley tray intersection part in the horizontal direction, pay attention to the location of the installation nail should be close to the lower side of the edge to ensure both are solid.



Fig.15 Detail of lap joint between tile and Valley tray battens

(3) Tile and top ridge intersection node processing

When the tile and the top ridge want to intersect should bend the tile more than 40mm and the top ridge battens intersection and be tight, mark the cutting line, about

flush with the top of the top ridge battens, cut the excess part. At the same time with the barge board and the top ridge intersection of the tile can be bent and the barge board intersection part, cut while bending the repeated position, along the top ridge hanging tile bottom along the horizontal line bending tile. Tighten the bending part and the top ridge battens intersection part, fix the tile.



Fig.16 Detail of lap joint between tile and top ridge battens

(4) Tile and sloping ridge intersection node processing

Tile and sloping ridge intersection should be based on the sloping ridge line bending tile more than 40mm and sloping ridge battens intersection and be tight, tight bending part and learn sloping ridge battens intersection part, and fixed tile, steel structure using the same principle of installing tile and sloping ridge hanging tile intersection.



Fig.16 The effect of lap joint between tile and sloping ridge battens

3.3.4 Barge board cover installation

The position of the pre-positioned barge board cover, if you need to lap, the lap distance between the barge board cover is 5mm or more, take the eave position as the position within the benchmark for placement, the part intersecting with the top ridge battens also needs to be cut for placement (Figure 17), the height is based on the point where the both barge board cover want to intersect, place the other barge board cover, mark the part to be cut and cut (Figure 18), place the cut barge board cover. Tight fixing with the top of the barge board cover, the steel structure is installed with flat top self-drilling screws.









Fig.19 Circular ridge cap and barge board cover intersection nod

3.3.5 Ridge cap installation

Ridge cap is lap type installation, need to identify the ridge cap lap position, and placed to check. Need to ensure that the placement of the ridge cap in the same horizontal line, lap need to be fastened. Sloping ridge using the same way lap, need to fix the eave end cover position before laying upward. The ridge tile's view tightness needs to be fixed on both sides of the lap position, wood structure using nail gun fixed. Steel structure use flat roof self-drilling screws to fix.



Fig.20 Top ridge cap installation - fixed Fig.20 Sloping ridge cap installation parts

fixed parts

3.5.3 Tee position handling

If the owner does not buy tee fittings, he can make his own tee through the processing of ridge cap. Depending on the height of the top ridge and the overlap between the sloping ridge and the top ridge, the top ridge can be cut and placed. At the end of the sloping ridge, you can make your own small accessories to close the extended ridge cap.



Fig.22 Cutting ridge tiles to make tee

3.6 Final Repair

The construction of colored stone coated metal roofing tiles finally requires the use of repair materials to close the exposed nail holes, screw holes, and the exposed tin part after cutting, using professional glue to coat the location to be treated and sprinkled with color sand.





Fig.22 nail hole repair





Fig. 24 Splice repair

3.7 Final effect



Fig.25 Steel keel paving strip effect



Fig.26 Wooden structure paving effect