Shinson®
Technology Beyond Limits

Installation Guide of Flexible PV Module

Version No.： A01

This guide is for reference only. The installation method depends on the actual situation.

Shinson Technology Co.,Ltd

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1 Application scenarios survey

2 Industrial and commercial roof

3 Residential houses roof

4 Methods for some problem

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Application scenarios survey

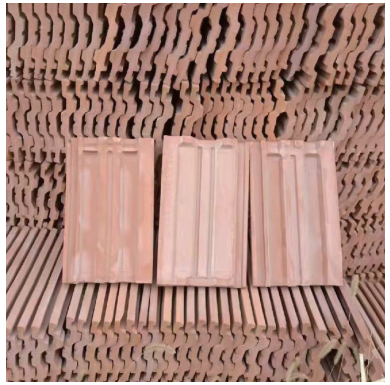
1.1 Roof materials

1 Color steel tile

Colour steel tiles are also called color pressed coated steels, which becomes the wave mode contour plates with rollings and cold bend.

2 Stoneware tile

A compound of sand, clay, etc. Formed through preforming, kneading, drying and baking.



3 Color stone metal tile

Al-Zn alloy coated steel sheet as base, formed with colored sand and acrylic ester.

4 Glazed tile

Fine mineral as source, formed after crashing, high pressure preforming and high temperature baking.

1.2 Installation circumstances

1. **Temperature:** DO NOT excercise intallation when installation temperature is below -15℃ or above 45℃.

2. **Weather:** DO NOT excercise installation during extreme wearher like heavy foggy, windy and rainy condition.

3. **Area:** DO NOT install PV modules under shadowed area.

4. **Roof condition:** DO NOT install module if the roof is heavily rusted, stain or oil contaminated, grass covered, locally sunken or swollen and tile lost.

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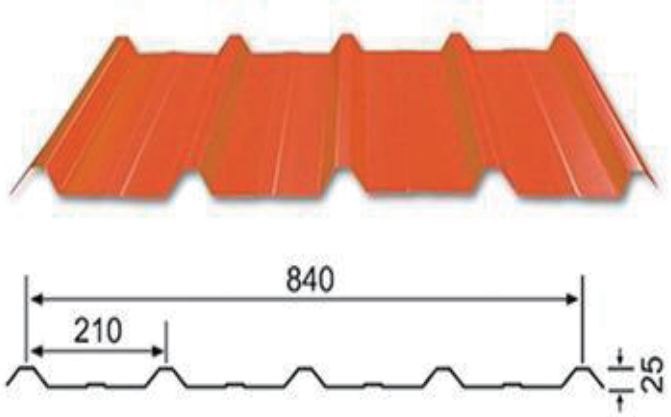
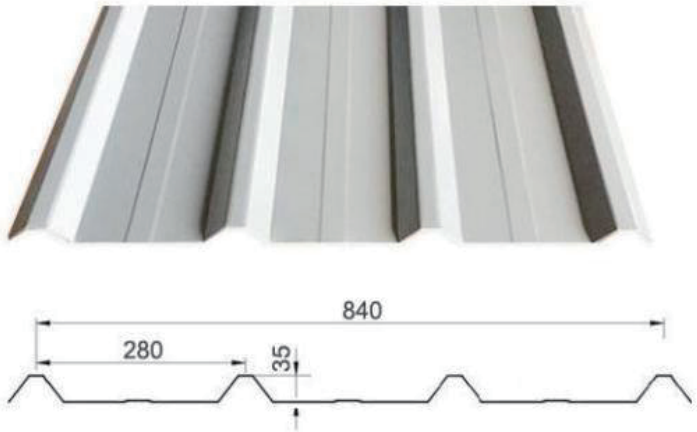
Industrial and commercial roof

2.1 Trapezoidal color steel tile

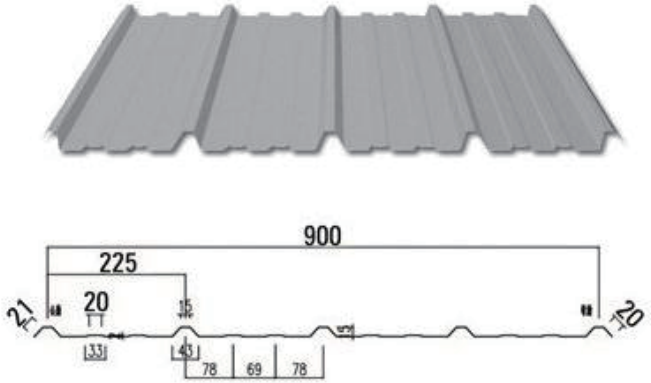
2.1.1 Introduction of partial type



type	YX25-210-840
crest height	25mm
crest distance	210mm
effective width	840mm
developed width	1000mm



type	YX35-280-840
crest height	35mm
crest distance	280mm
effective width	840mm
developed width	1000mm

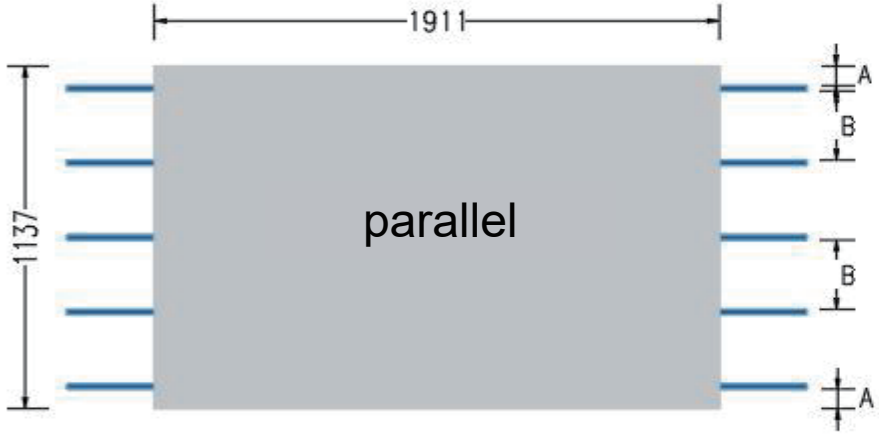


type	YX15-225-900
crest height	15mm
crest distance	225mm
effective width	900mm
developed width	1000mm

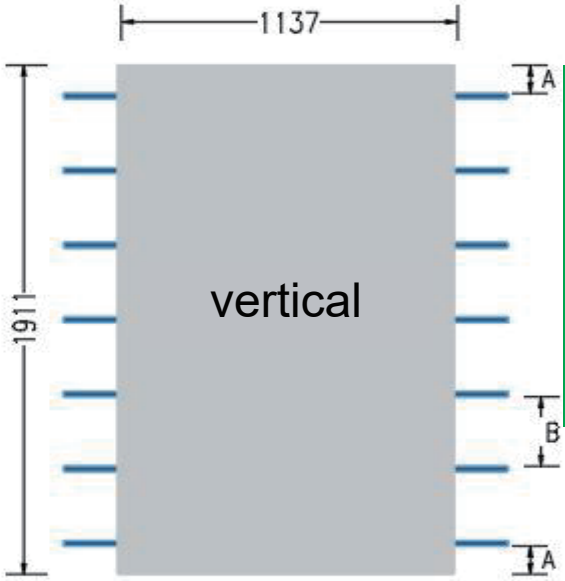
2.1 Trapezoidal color steel tile

2.1.2 Installation method

installation method	number of wave crest	glue length(mm)	glue width(mm)	exceeding length A(mm)	crest distance B(mm)
parallel	5	1911	≥10	≤50	≤280
vertical（recommended）	7	1137	≥10	≤50	≤280
notes	/	/	/	add square tube as support if > 50	distribute evenly



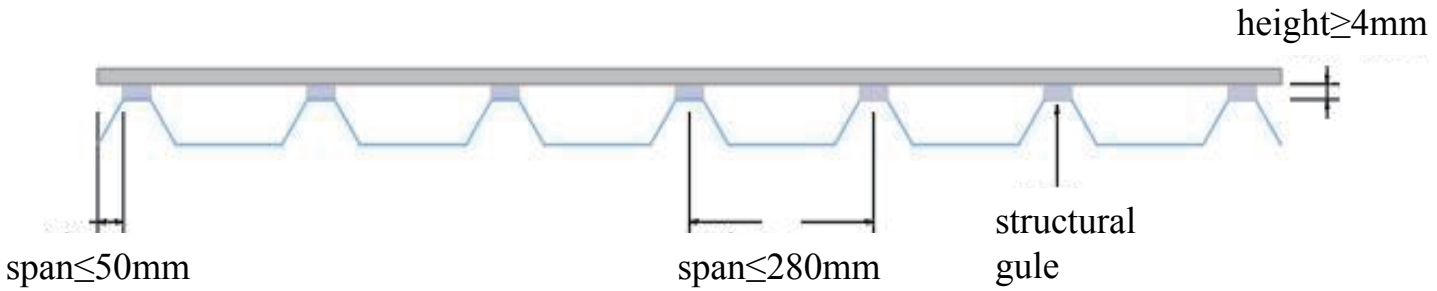
Note:
the exceeding part of module at its two sides should be evenly arranged.

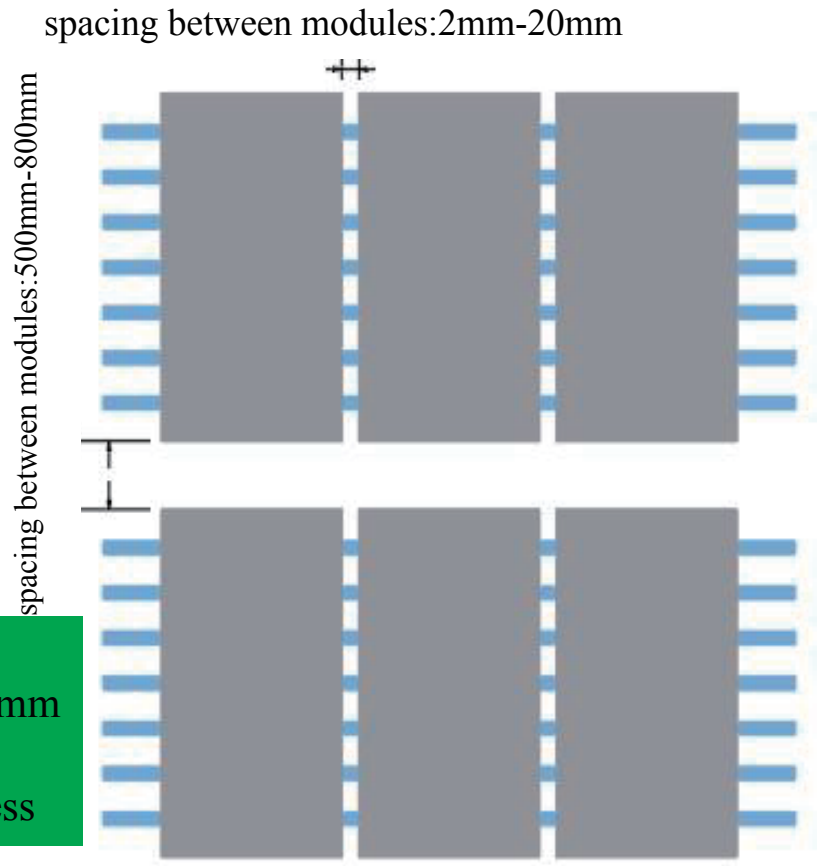


Note:
the exceeding part of module at its two sides should be evenly arranged.

2.1 Trapezoidal color steel tile

2.1.3 Schematic diagram of installation arrangement

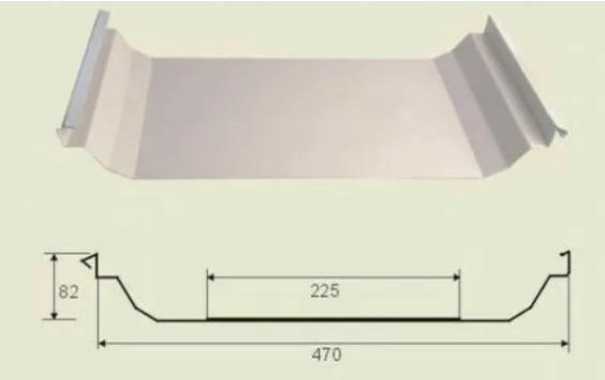


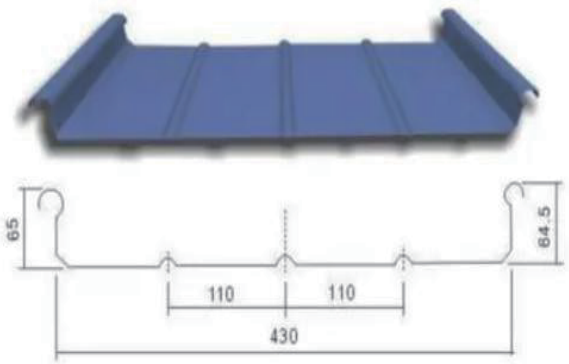


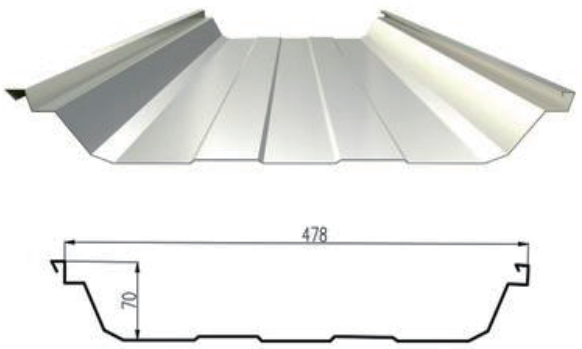
note:
save 500mm-800mm of spacing as maintainance access

2.2 Upright edge-locked color steel tile

2.2.1 Introduction of partial type







type	HV82-470
crest height	82mm
effective width	470mm
developed width	600mm

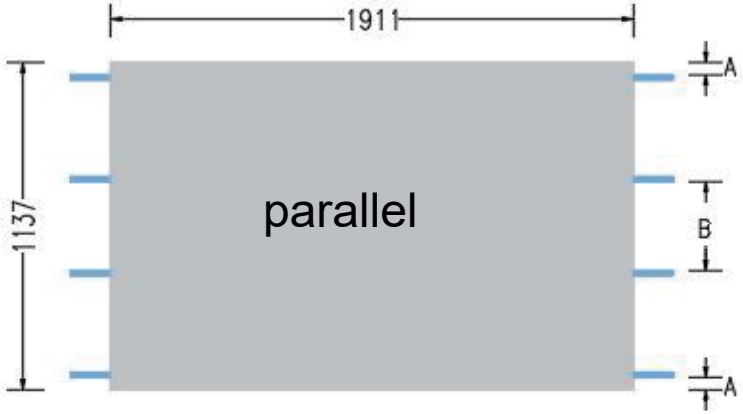
type	TD65-430
crest height	65mm
effective width	430mm
developed width	600mm

type	TDYX70-478
crest height	70mm
effective width	478mm
developed width	600mm

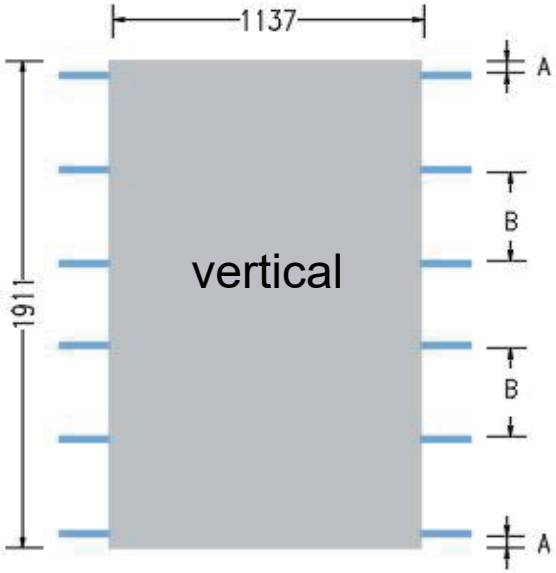
2.2 Upright edge-locked color steel tile

2.2.2 Installation method

installation method	number of wave crest	gule length(mm)	glue width(mm)	exceeding length A(mm)	crest distance B(mm)
parallel	4	1911	≥10	≤50	≤430
vertical(recommended)	6	1137	≥10	≤50	≤430
notes	/	/	/	add square as support tube if >50	distribute evenly



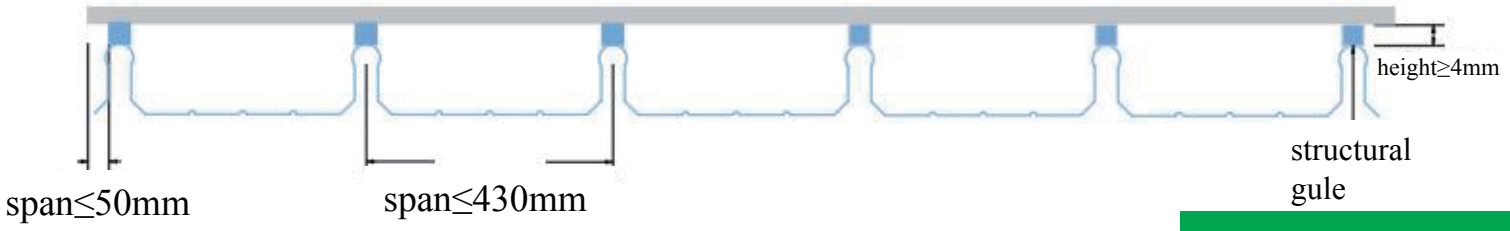
Note:
the exceeding part of module at its two sides should be evenly arranged.



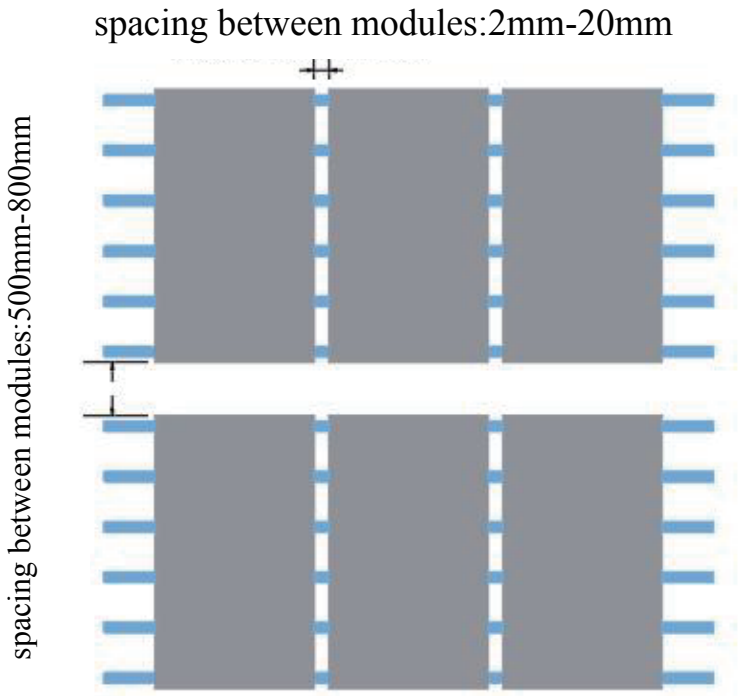
Note:
the exceeding part of module at its two sides should be evenly arranged.

2.2 Upright edge-locked color steel tile

2.2.3 Schematic diagram of installation arrangement

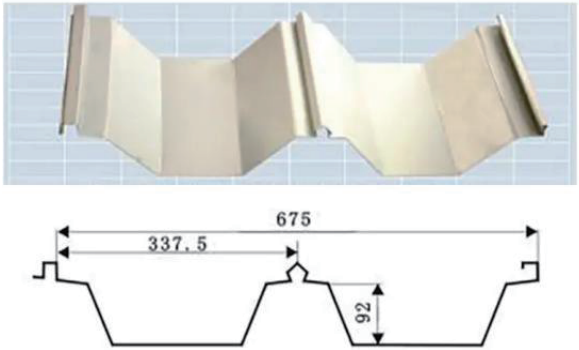


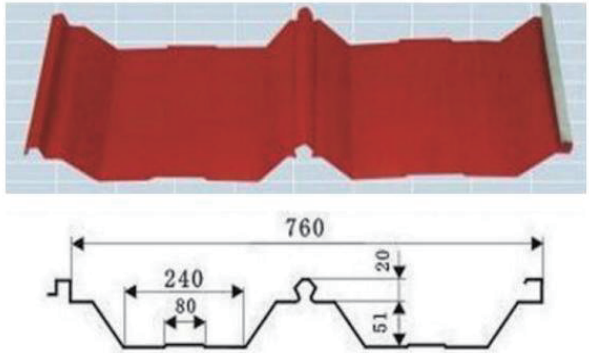
note:
save 500mm-800mm of spacing as maintainance access

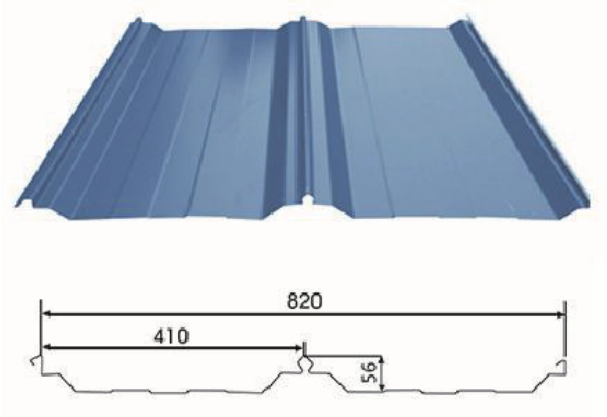


2.3 Angle-tiled color steel tile

2.3.1 Introduction of partial type







type	YX92-337.5-675
crest height	92mm
crest distance	337.5mm
effective width	675mm
rib width	10mm

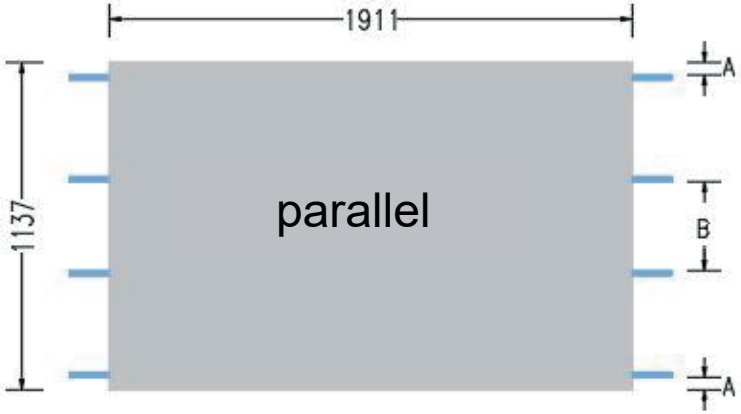
type	YX71-380-760
crest height	71mm
crest distance	380mm
effective width	760mm
rib width	10mm

type	YX56-410-820
crest height	56mm
crest distance	410mm
effective width	820mm
rib width	10mm

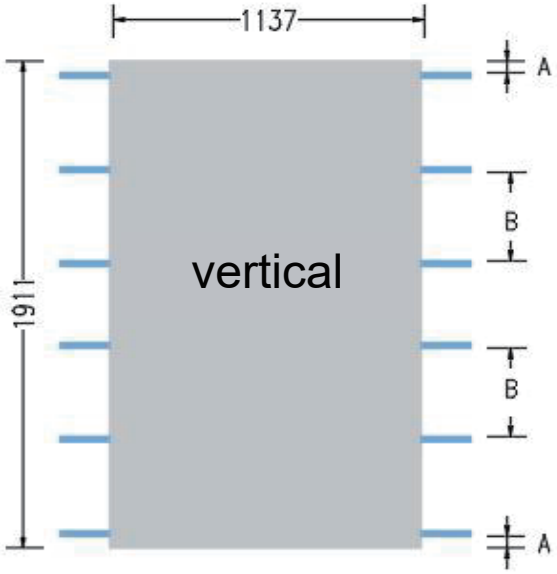
2.3 Angle-tiled color steel tile

2.3.2 Installation method

installation method	numer of wave crest	glue length(mm)	glue width(mm)	exceeding length A(mm)	crest distance B(mm)
parallel	4	1911	≥10	≤50	≤430
vertical(recommended)	6	1137	≥10	≤50	≤430
notes	/	/	/	add square tube as support if>50	distribute evenly



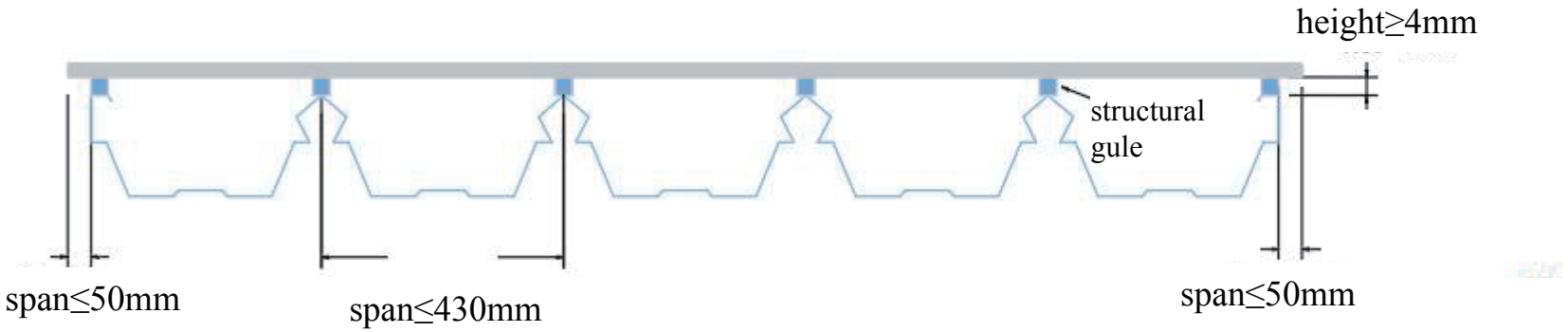
Note:
the exceeding part of module at its two sides should be evenly arranged.



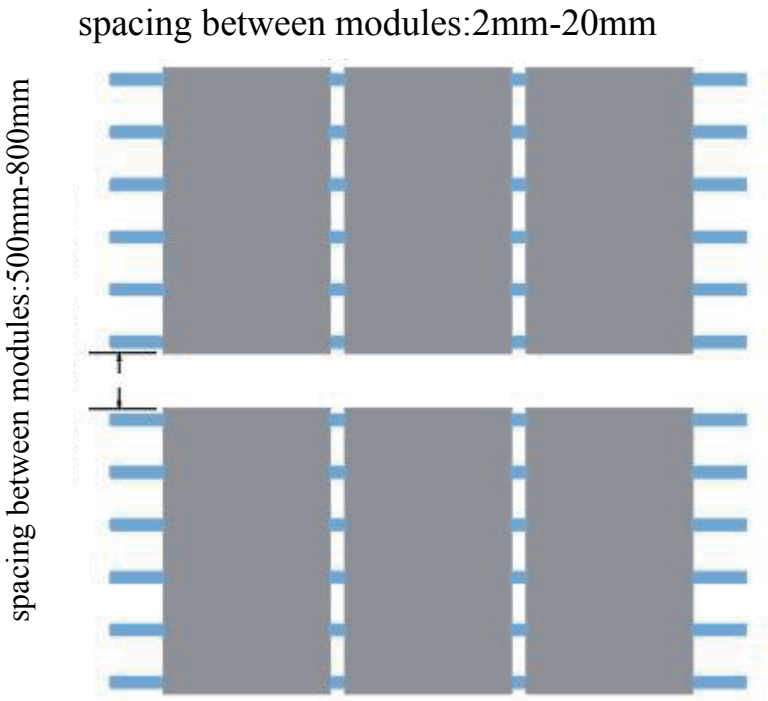
Note:
the exceeding part of module at its two sides should be evenly arranged.

2.3 Angle-tiled color steel tile

2.3.3 Schematic diagram of installation arrangement



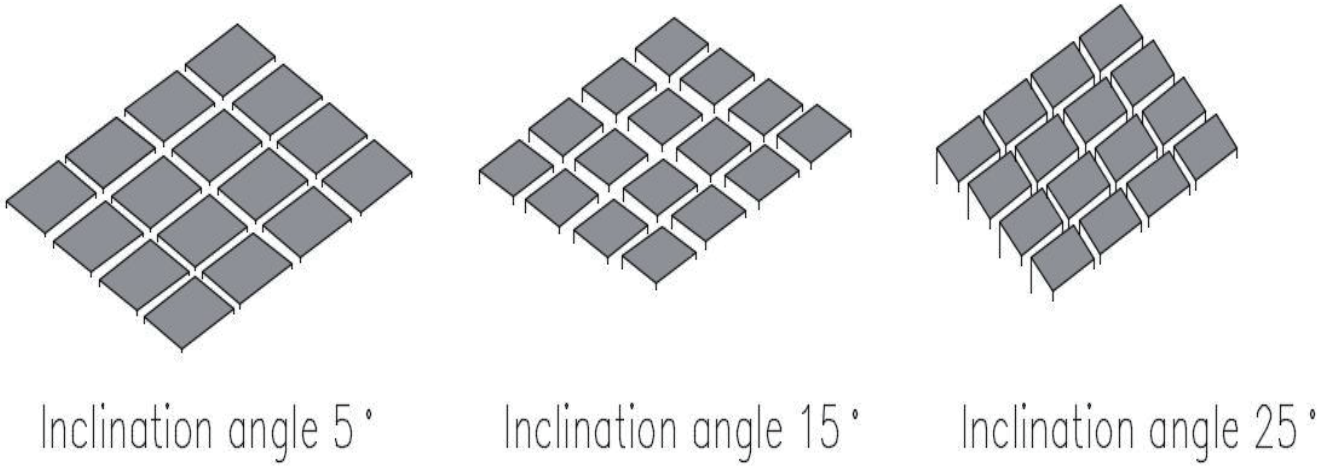
note:
save 500mm-800mm of spacing as maintainance access



2.4 Concrete roof

2.4.1 Schematic diagram of installation

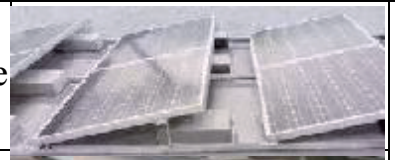
Concrete roof



Flexible module+aluminium square tube support. Inclination angle 5° to25° .

2.4 Concrete roof

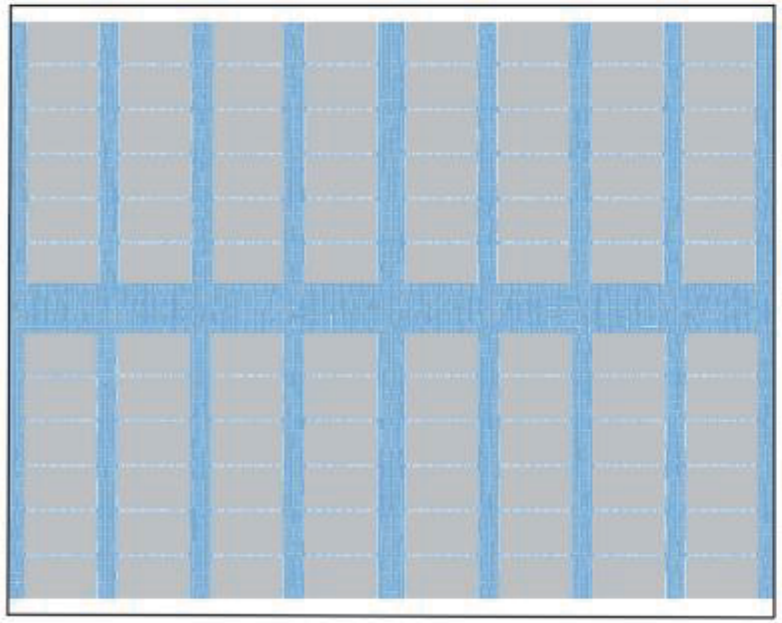
2.4.2 Schematic diagram of installation

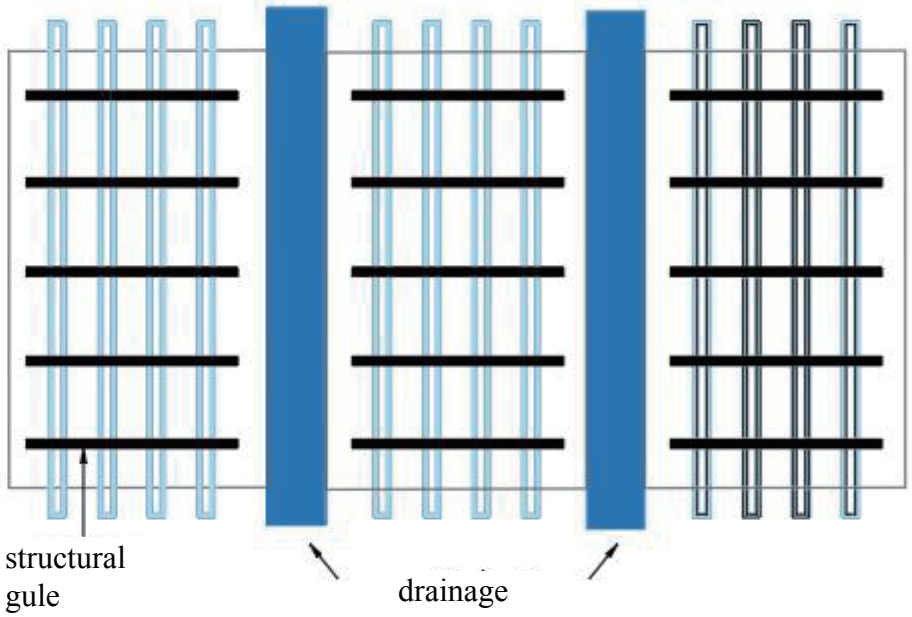
installation method	description	picture	advantage	disadvantege
concrete counterweight	The support is pressed directly into the concrete groove		Strong bearing capacity, good wind resistance, no damage to cement roof, high precision, simple and convenient construction, no need for large construction equipment.	More load of the roof, a large amount of reinforced concrete is needed, the construction period is long, the cost is high, and cannot be applied to roof with weak load-bearing capacity
	Place the counterweight in the area delivered with the support			
	The support is connected to the cement base with screws			
	The support is poured with the cement foundation			
paste mounting	The support is bonded to the roof by gule		The roof with weak load-bearing capacity can also be used, and the construction period is short and the cost is low.	There are some differences in wind resistance, reliability and firmness compared with concrete weight.

2.5 Lightweight BIPV

2.5.1 Installation concept

Using the "stack" design idea, the modules are lapped and installed, and the lapped interface faces down the slope, and the waterproof and wind resistance is stronger, which is suitable for various types of industrial and commercial roofs. The water channel is installed in the blank place of the roof as a maintenance channel and drainage, which greatly improves the waterproof effect of the roof.

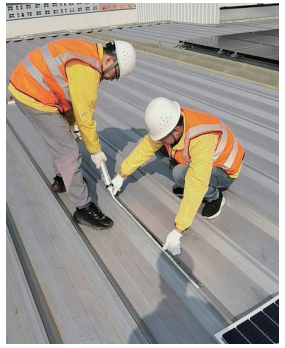




2.6 Installation steps on industrial and commercial roof

①Clean: Clean the surface of the color steel tile to ensure that the surface is free of dust and foreign matters.

②Measure: Ensure that the distance between modules is between 2mm and 20mm (save a 500-800mm maintenance channel between modules arrays).

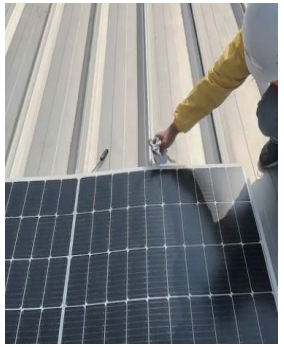


③Glue: At least 4 pieces of structural glue with a length of 950mm and a width of not less than 10mm at the crest of color steel tile.

④Lay: Laying the modules within 5 mins after finishing the structural glue, otherwise it will affect the bonding strength.

⑤Press: After laying, use the roller to press slightly along the gluing position to make the module firmly bonded with the color steel tile.

⑥Clean: Remove excess glue after pressing.



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3

Residential houses roof

3.1 Color stone metal tile

3.1.1 Introduction of partial type

type	seven-wave tiles
dimension	1340mm×420mm
effective area	1290mm×375mm

type	square tile
dimension	1340mm×420mm
effective area	1290mm×375mm

type	bamboo joint tile
dimension	1340mm×420mm
effective area	1290mm×375mm

type	roman tile
dimension	1300mm×420mm
effective area	1220mm×375mm

type	bevelled tile
dimension	1340mm×420mm
effective area	1290mm×375mm

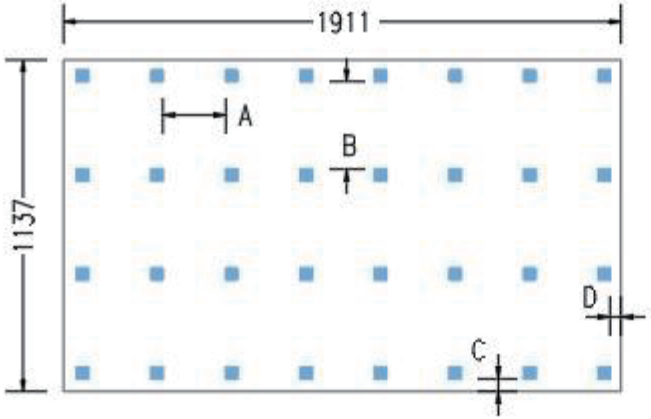
type	wood grain tile
dimension	1340mm×420mm
effective area	1290mm×375mm

3.1 Color stone metal tile

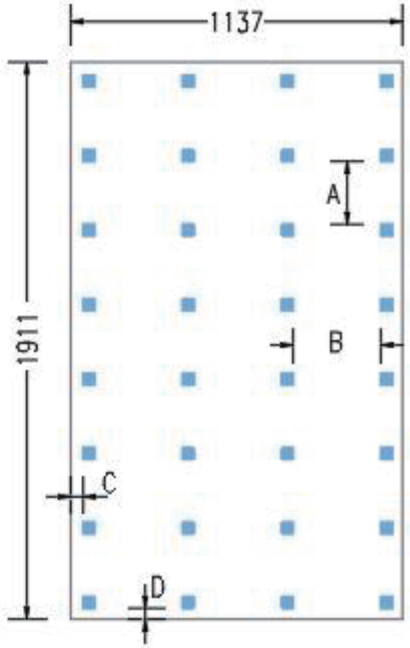
3.1.2 Installation method

Installation method	crest distance A(mm)	glue point	glue length(mm)	glue point distance A(mm)	glue point distance B(mm)	distance to the long side C(mm)	distance to the short side D(mm)
parallel	≤260	32	≥10	≤260	≤350	≤43	≤45.5
vertical	≤260	32	≥10	≤260	≤350	≤43	≤45.5

parallel

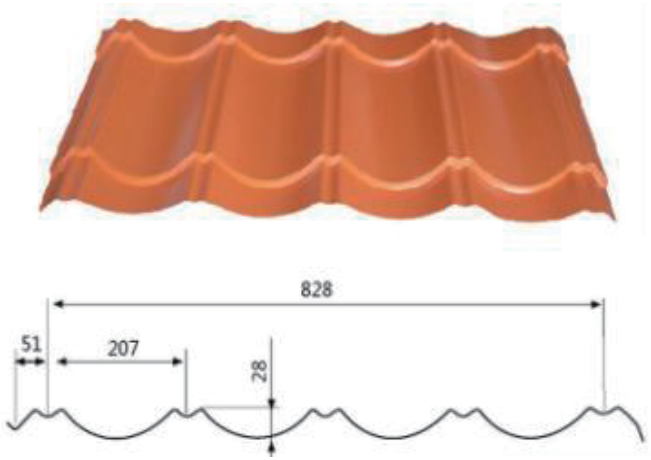


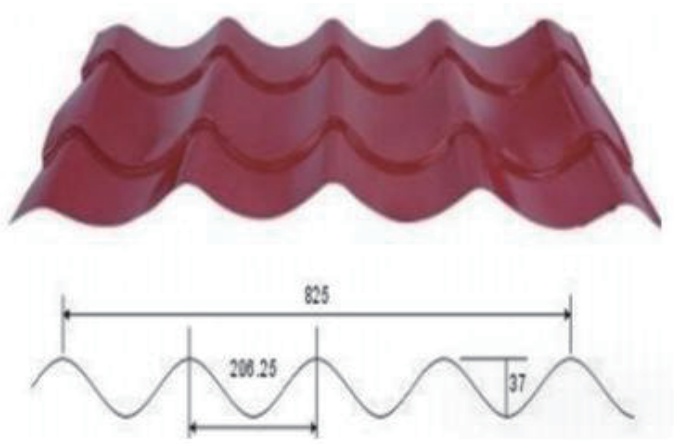
vertical



3.2 Glazed tile

3.2.1 Introduction of partial type





type	YX70-240-720
crest height	70mm
crest distance	240mm
effective width	720mm
developed width	1000mm

type	YX37-206.25-825
crest height	37mm
crest distance	206.25mm
effective width	825mm
developed width	1000mm

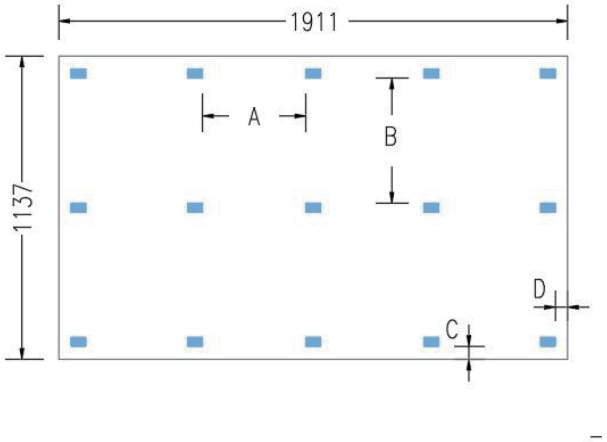
type	YX28-207-828
crest height	28mm
crest distance	207mm
effective width	828mm
developed width	1000mm

3.2 Glazed tile

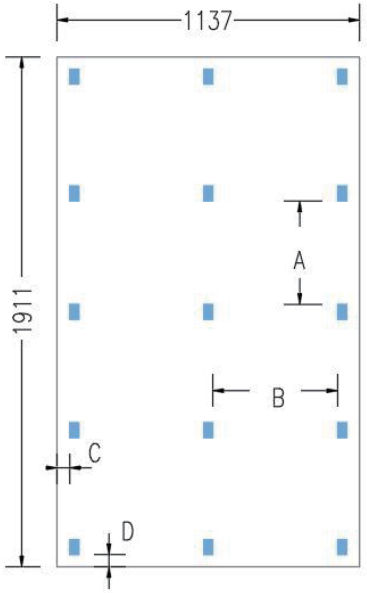
3.2.2 Installation method

installation method	crest distance A(mm)	glue point	glue length(mm)	glue point distance A(mm)	glue point distance B(mm)	distance to the long side C(mm)	distance to the short side D(mm)
parallel	≤455	15	≥10	≤455	≤520	≤48.5	≤45.5
vertical	≤455	15	≥10	≤455	≤520	≤48.5	≤45.5

parallel

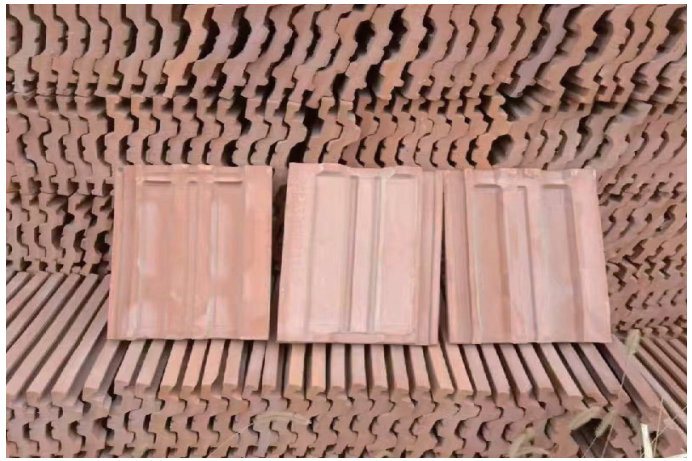


vertical



3.3 Stoneware tile

3.3.1 Introduction of partial type



type	stoneware tile
dimension(mm)	360×210
weight(Kg)	1.92
compressive strength (Mpa)	1400
material	clay
function	fireproofing

type	stoneware tile
dimension(mm)	380×250
weight(Kg)	2.75
compressive strength (Mpa)	1600
material	clay
function	fireproofing

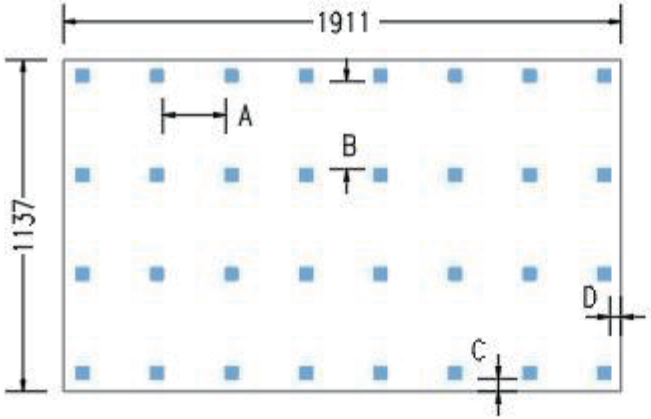
type	stoneware tile
dimension(mm)	400×300
weight(Kg)	3.2
compressive strength (Mpa)	1900
material	clay
function	fireproofing

3.3 Stoneware tile

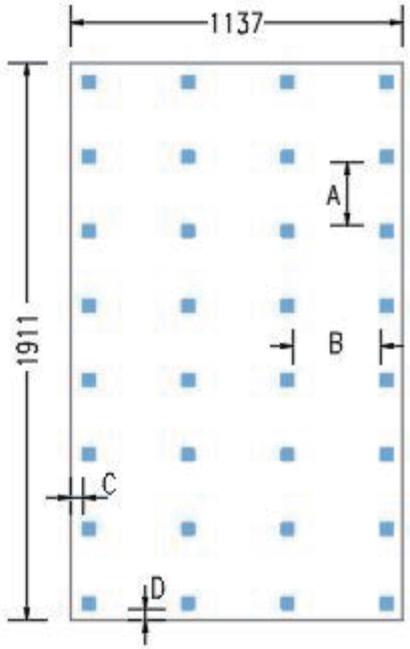
3.3.2 Installation method

installation method	crest distance A(mm)	glue point	glue length(mm)	glue point distance A(mm)	glue point distance B(mm)	distance to the long side C(mm)	distance to the short side D(mm)
parallel	≤260	32	≥10	≤260	≤350	≤43	≤45.5
vertical	≤260	32	≥10	≤260	≤350	≤43	≤45.5

parallel



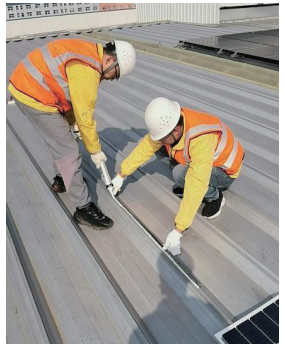
vertical



3.4 Installation steps on residential houses roof

①Clean: Clean the surface of the color steel tile to ensure that the surface is free of dust and foreign matters.

②Measure: Ensure that the distance between modules is between 2mm and 20mm (save a 500-800mm maintenance channel between modules arrays).

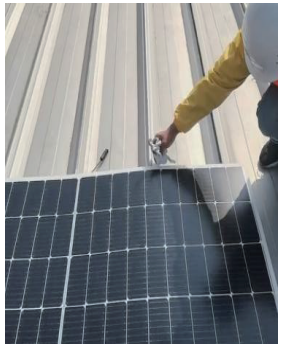


③Glue: At least 4 pieces of structural glue with a length of 950mm and a width of not less than 10mm at the bonding place between roof and module.

④Lay: Laying the modules within 5 mins after finishing the structural glue, otherwise it will affect the bonding strength.

⑤Press: After laying, use the roller to press slightly along the gluing position to make the module firmly bonded with the color steel tile.

⑥Clean: Remove excess glue after pressing.



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Methods for some problem

No.	description	method	picture
1	rust stain on the crest	use rust cleaning solution to remove rust and spray with anti-rust paint.	
2	prominent tightening screw on the crest	1. screw ≤5mm, protection treatment by structural glue	
		2. screw＞5mm, Use protective guide rail protection, diagonal fastening on the side of color steel tile;	
		3. It is recommended that the roof color steel tile screws use flat top screws or side or trough fastening methods.	

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No.	description	method	picture
3	shingle surface rubble and dust floating layer	use a broom to clean rubble and dust floating layer, mop with water to clean.	
4	local dip or absence of tile surface	quick drying cement, local leveling repair, cleaning.	

No.	description	method	picture
5	the slope of the roof > 25°	use foam tape to assist in positioning for anti-slip shift and to assist in structural glue installation.	
6	weeds and trees	Weeding, woodplucking, sweeping, mending, leveling, cleaning.	

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THANKS