

Hollow roof sheet Use Proposal

PVC中空隔热瓦 使用建议书



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Product Advantages of PVC Hollow Insulating Roof Tiles



- PVC hollow thermal insulation tiles are manufactured using modified PVC resin as the primary base material and weather-resistant ASA resin for the surface layer, produced via an in-mold composite molding process; they boast a service life of 25 years or more.
- The PVC hollow thermal insulation tile features an internal hollow structure with an "I-beam" lattice of reinforcing ribs positioned between the top and bottom layers. This design not only enhances the structural rigidity of the tile but also creates a natural air barrier, thereby improving the product's sound and thermal insulation capabilities.
- The unique interlocking structure of the left and right side waves in the PVC hollow thermal insulation tiles ensures a regular and uniform waveform, while simultaneously providing protection against rainwater siphoning and leakage.
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- PVC hollow thermal insulation tiles can be utilized independently as roofing tiles; alternatively, when paired with the trapezoidal aluminum alloy clamps developed by our company, they are fully compatible with the installation of solar photovoltaic panels. By incorporating guide rails, the roof surface can be completely covered with PV panels, allowing for the installation of approximately 1.5 megawatts of capacity per 10,000 square meters of roofing—thereby ensuring a high rate of effective space utilization.



Application Scenarios

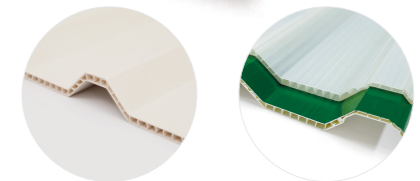


01

Construction of New Corrosive and Non-corrosive Industrial Plants

PVC insulated roofing sheet

The heat insulation effect can reach 10°C to 15°C.



This product features a hollow design, offering superior performance in anti-aging, anti-corrosion, and heat insulation compared to ordinary composite tiles. Therefore, it has a longer service life, is less prone to fading, and provides better heat insulation. The heat insulation effect can differ by 10-15°C, resulting in a longer lifespan than ordinary anti-corrosion tiles. It also boasts a smoother surface, making it more aesthetically pleasing, high-end, acid and alkali resistant, and providing quiet insulation.

02

Replacing the colored steel roofing panels on the old factory building.

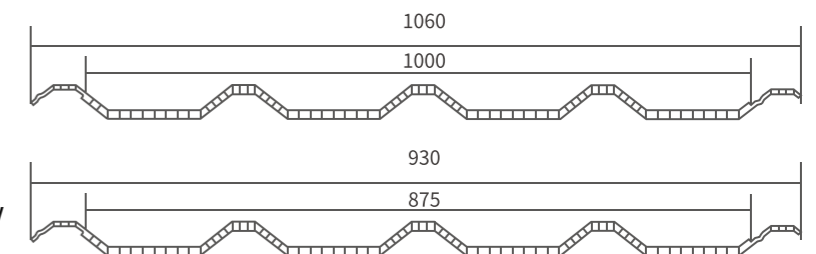
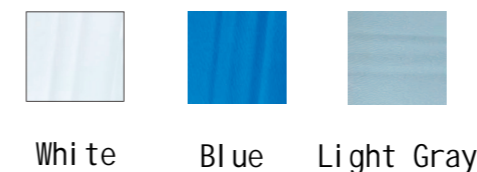
Because hollow tiles are more rigid than single-layer anti-corrosion tiles, the spacing between installation markers can be 1200mm, saving on marker purchase costs and directly reducing construction costs.

03

Replacing the colored steel roofing panels on the old factory building.

Product Parameters

Length:	customize	Crest Height:	40mm
Width:	930mm、1060mm	Effective Width:	875mm、1000mm
Thickness:	10mm	Crest Distance:	217.5mm
Application:	High-end factory buildings, steel structure factory buildings, warehouses, farmers' markets, market passages, carports, etc.		



Installation of solar photovoltaic panels

1 When designing the roof structure, the appropriate purlin spacing is designed in advance based on the wave pitch of the PVC hollow heat insulation tile, the size and specifications of the photovoltaic panel, and the installation direction of the photovoltaic panel. With the addition of guide rails and accessories, the photovoltaic panel can be directly installed on the PVC hollow heat insulation tile.



Common 580-type solar photovoltaic panel specifications

组件品牌	580 组件尺寸
联塑班皓	2278x1134x30/35mm
晶澳	2279x1134x35mm
航天机电	2279x1134x35mm
隆基	2256x1133x35mm
中利腾辉	2279x1134x35mm
阿特斯	2261x1134x35mm

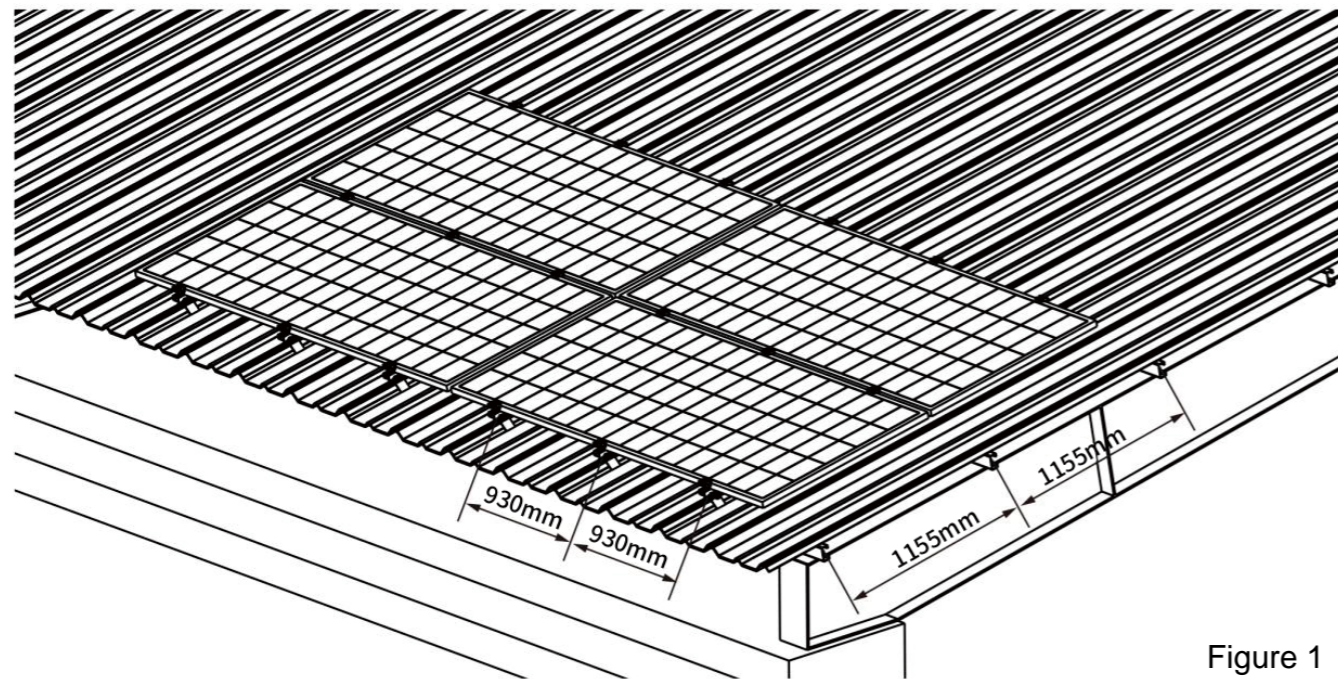


Figure 1

2 For horizontal mounting of the 580-type solar photovoltaic panel, the recommended purlin spacing is 1155mm, and the trapezoidal clamp spacing is 930mm (Figure 1).

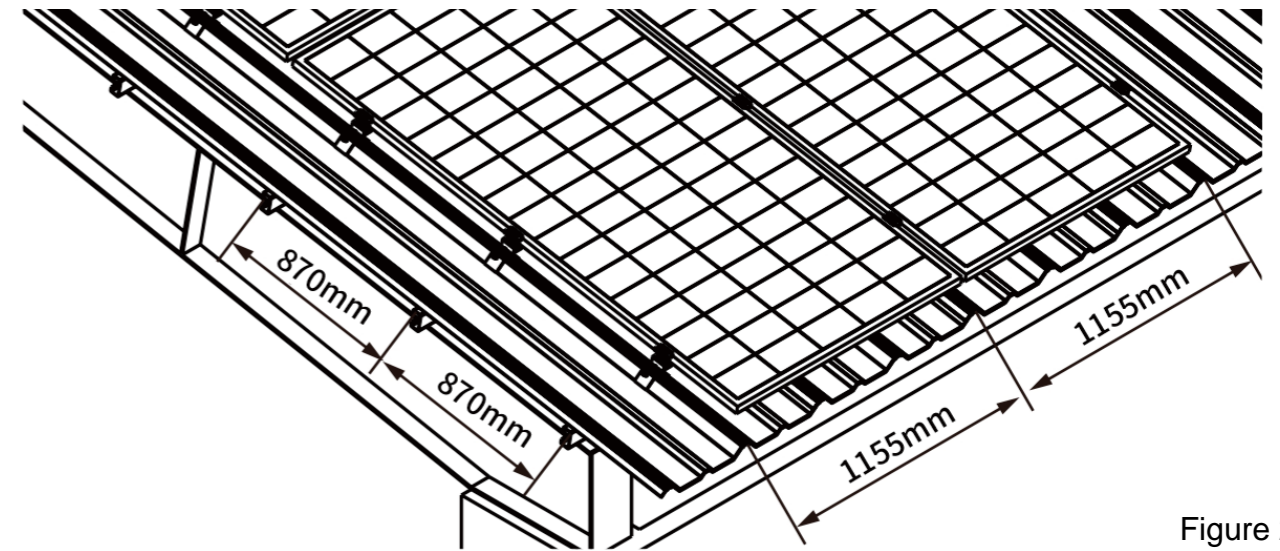
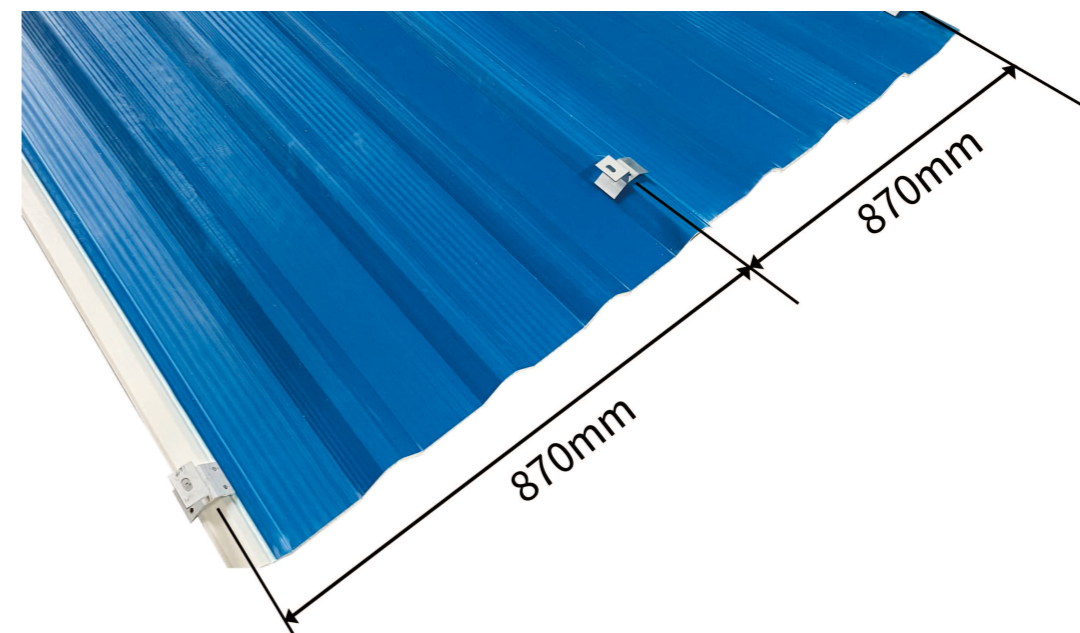


Figure 2



3 For vertical installation of the 580-type solar photovoltaic panel, the recommended purlin installation distance is 870mm. After installing the solar panel, the distance between the two trapezoidal clamps is 1155mm (Figure 2). The distance between the three trapezoidal clamps is 870mm, with the middle clamp serving a fixing function.

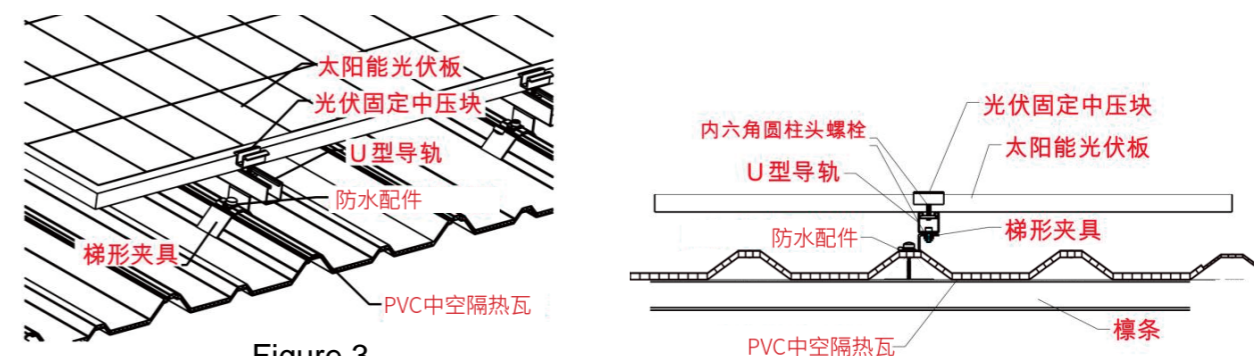


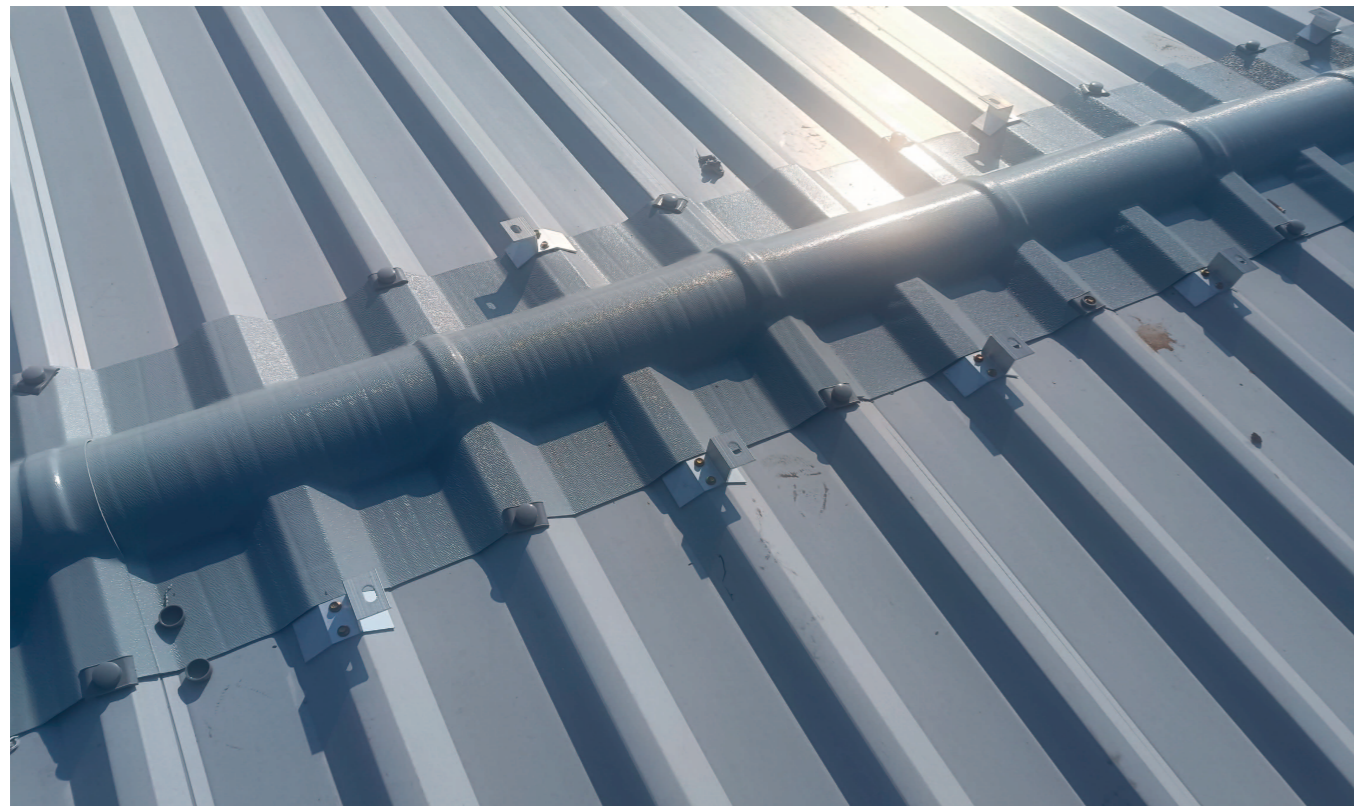
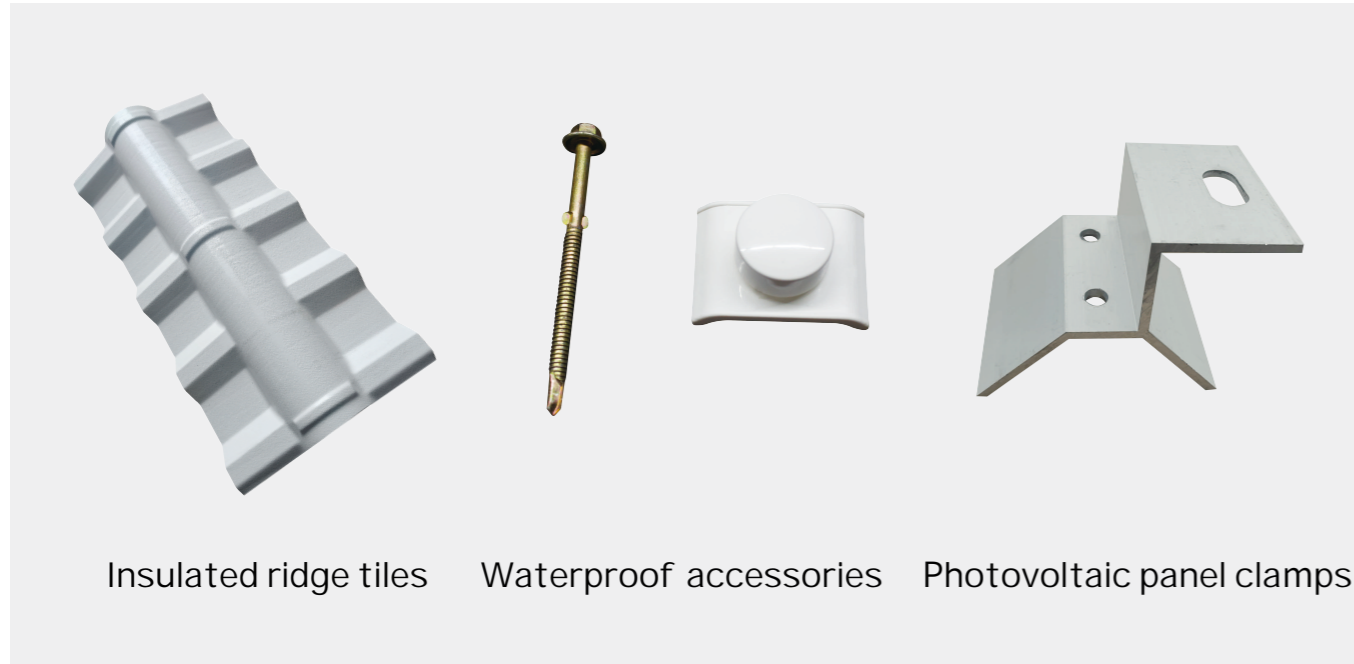
Figure 3

4 If the purlin spacing is not suitable, a combination of trapezoidal clamps and U-shaped guide rails can be used for installation. During installation, the U-shaped guide rails must be installed perpendicular to the purlins, and the trapezoidal clamps must be installed on the purlins (Figure 3).

Common accessories for PVC hollow heat insulation sheet



Key points for installing PVC hollow heat insulation tiles



Tools



Electric drill



Angle grinder



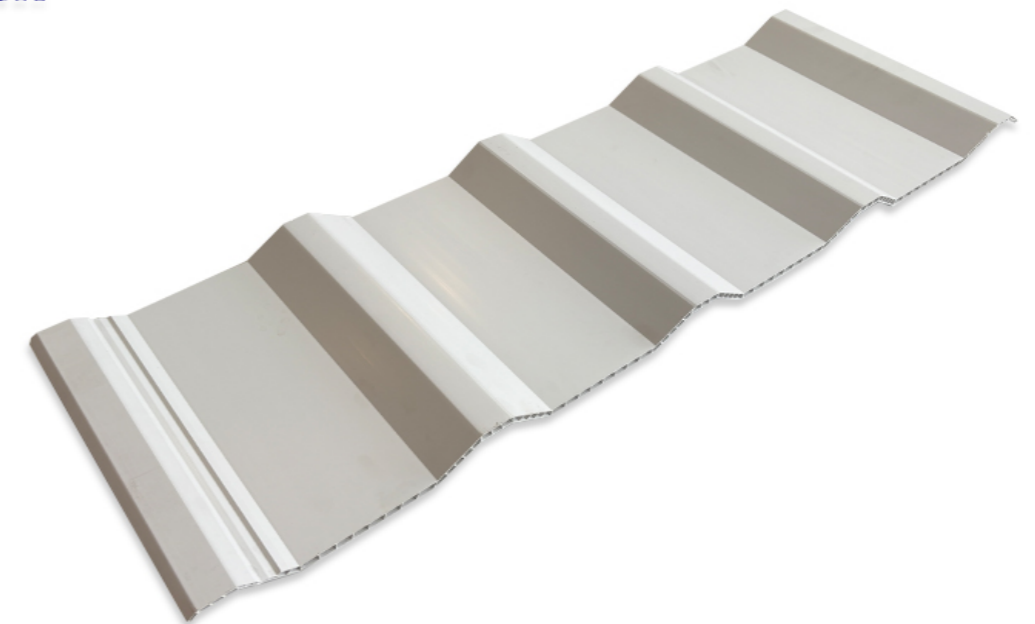
Wire box



Measuring Ruler



Gloves



Roof Slope

- PVC hollow heat insulation tiles are suitable for pitched roofs with a slope of 5° to 20° (Figure 4).

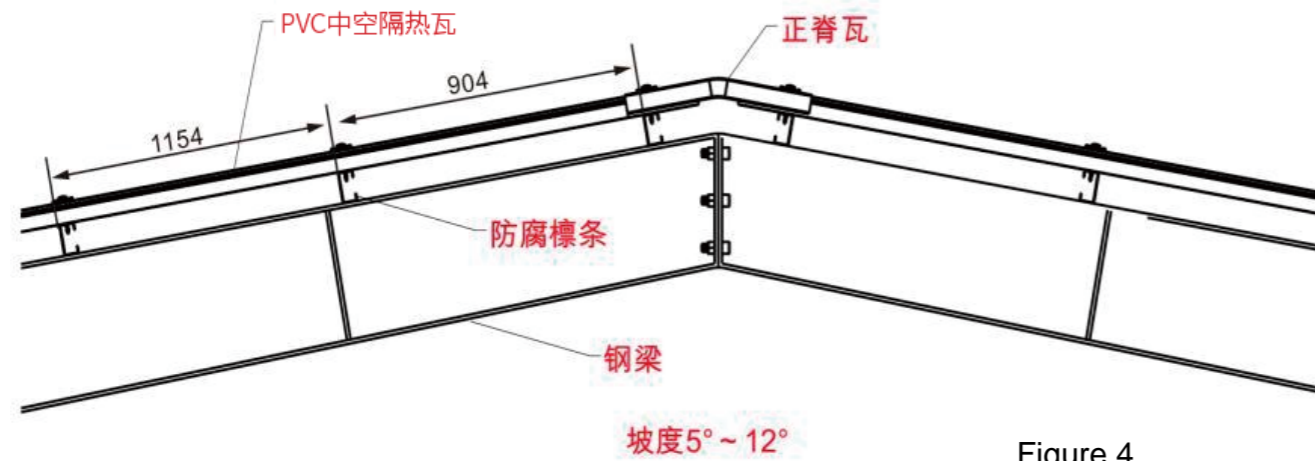
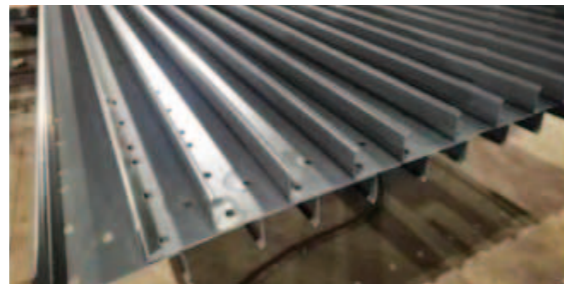
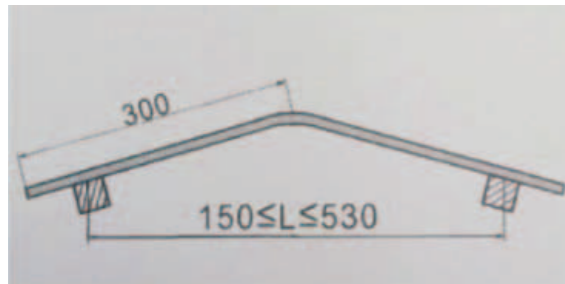


Figure 4



Purlins

- C-shaped PVC anti-corrosion purlins are recommended. If other purlins are used, their surfaces must be treated with anti-corrosion coating.
- Leveling: Before installing the main roof tiles, the purlin supports must be inspected and leveled. The flatness of each purlin should be checked individually, and the height difference between the installed purlins should be controlled within ±5mm.
- Layout: Before installation, the roof surface should be laid out according to the actual conditions. This helps to ensure that the tiles are installed horizontally and vertically, guaranteeing installation quality and achieving an aesthetically pleasing result.

Install Main Roof Tiles

- Regardless of the roof structure or shape, the bottom edge of the main tile should be flush with the construction line when installing the roof tiles, and installation should begin from one side. The installation of the first tile is particularly important; ensure that the bottom edge of the tile is perpendicular to the construction line and not tilted. After positioning, fix the tile at the center (crown) of the lower purlin.

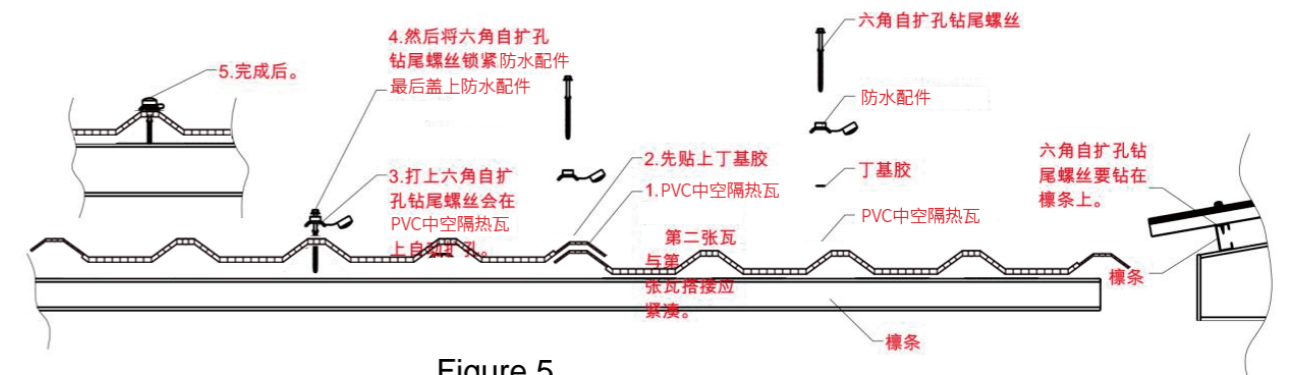


Figure 5

- When installing the second tile, ensure that it overlaps tightly with the first tile, and that the gaps are tightly sealed. Also, check that the bottom edges of both tiles are perpendicular to the construction line. After confirming this, secure the tile to the lower purlin and the main wave crest. Install the third and fourth tiles in the same way. After the fourth tile is installed, recheck the levelness, verticality, and tightness of the overlaps of all four tiles. Once confirmed, install all accessories and proceed with the installation in sequence (as shown in Figure 5).
- When installing the main tiles, both sides should be installed simultaneously to ensure that the peaks of the main tiles on both sides are completely aligned. This will speed up the construction process and prevent the ridge tiles from failing to be installed properly due to errors.
- Fixing method: Steel purlins are secured with self-drilling nails, and wooden purlins with self-tapping wood screws. The screws are used in conjunction with special waterproof fittings (ASA integrated fasteners) and driven into the corrugations.

- When installing a triangular sloping roof with four pitches, the first tile should be installed starting from the middle, and then proceeding outwards to both sides. After the main tiles are installed, any excess should be trimmed with an electric cutter to facilitate the installation of various ridge tiles.

- If solar photovoltaic panels are to be installed, a trapezoidal clamp can be added (as shown in Figure 6).

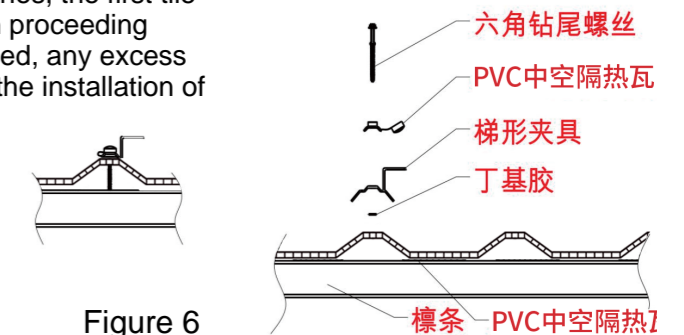


Figure 6

Ridge tile installation



- 1 Ridge tiles are installed on the roof ridge. Installation should begin from one side of the main tile area, with an overlap of one wavy line between two ridge tiles (see Figure 7).

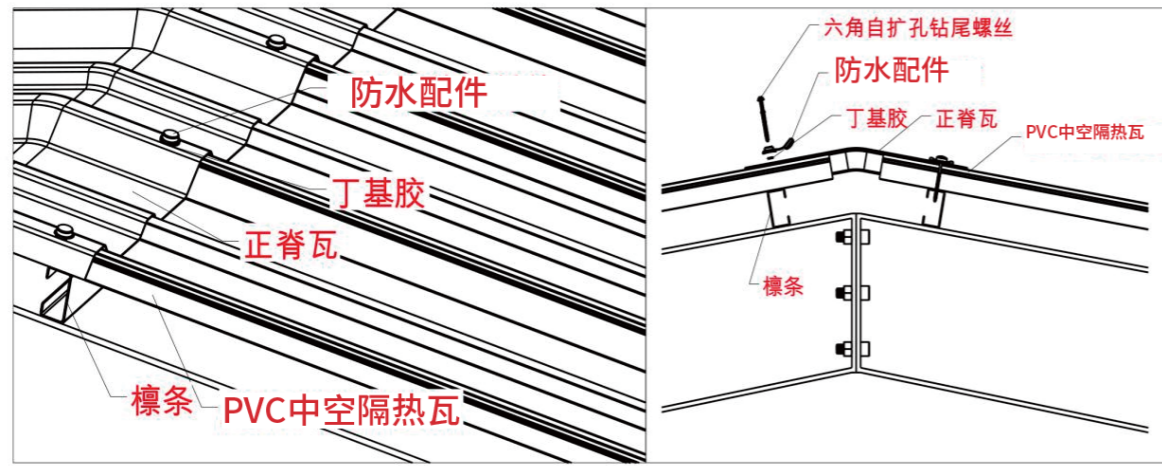


Figure 7)



Flashing at the junction of the roof and the short wall



- 1 Method 1: Custom-made flashing using metal or synthetic resin sheets according to site dimensions. Drill a hole approximately 50x50mm in the wall, insert the flashing into the hole, and fix one end to the hole with nails (or cement nails), and the other end to the corrugated tile (see Figure 8).
- 2 Method 2: Custom-made flashing and a cover plate using metal or synthetic resin sheets according to site dimensions. First, attach the flashing close to the wall, then place the cover plate over the flashing close to the wall; then drive in cement nails, fixing the other end to the corrugated tile (see Figure 9).

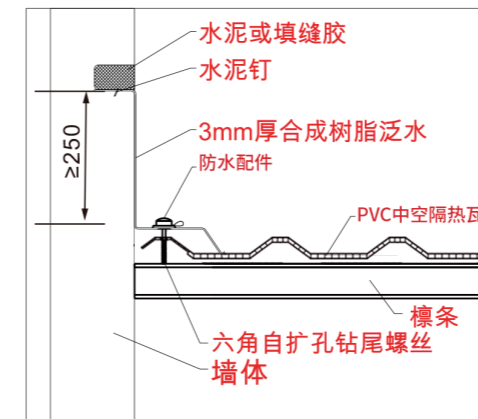


Figure 8

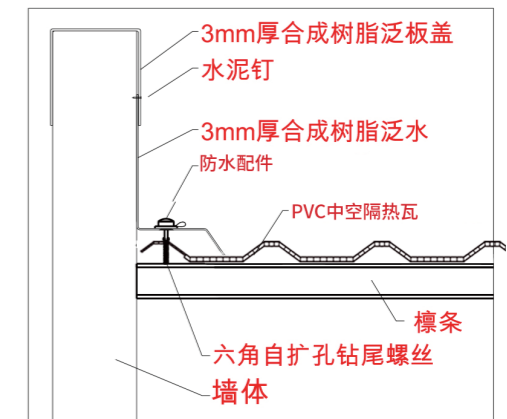


Figure 9



Applicability summary in corrosive environments

Long-term practical verification has shown that PVC hollow thermal insulation tiles perform exceptionally well in highly corrosive environments, fully meeting the following key indicators:

01 Corrosion Resistance Advantage

- 1 High-purity PVC substrate has inherent resistance to acids, alkalis, and salts, and its service life in corrosive environments is more than three times that of ordinary metal roof tiles.
- 2 Corrosion-resistant structural design: The hollow structure prevents liquid stagnation and effectively prevents penetrating corrosion, making it particularly suitable for chemical plants, electroplating workshops, coastal areas and other high-humidity and high-salt-spray areas.

2. 测试项目：耐液体试剂

样品描述：A-片材

测试方法：GB/T 11547-2008

测试条件：

浸泡条件 1：20% H_2SO_4 (m/m), 23 $^{\circ}C$, 24h→用流动的水清洗并擦干

浸泡条件 2：20% $NaOH$ (m/m), 23 $^{\circ}C$, 24h→用流动的水清洗并擦干

实验室环境条件：(23 ± 2) $^{\circ}C$, (50 ± 5) %RH

测试结果：

测试项目	测试结果		客户要求	结论
外观	条件 1	无明显颜色变化，无变形现象	无明显颜色变化，无变形现象	合格
	条件 2	无明显颜色变化，无变形现象		合格

02 Service life and warranty period of hollow tiles

Product Name	Warranty period
PVC hollow heat insulation sheet	10-15 Year
ASA PVC hollow heat insulation sheet	20-25 Year



In summary, the hollow structure of PVC hollow thermal insulation tiles offers superior performance compared to ordinary composite tiles in terms of aging resistance, corrosion resistance, and heat insulation. In harsh environments such as acid rain, chemical waste gas, and seawater vapor, PVC hollow thermal insulation tiles are the optimal solution, offering long-lasting corrosion resistance, maintenance-free operation, and low cost.