



鸥帆钢结构装配式房屋

Ohfun Light-steel Prefab Housing Technology

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产品优势介绍

Product Advantages Introduction



Product Advantages Introduction



Wind resistance:

Can withstand strong winds of 36m/s, and the wind resistance level can reach level 12

Fire resistance:

Depending on the design, the fire resistance limit can reach 1 to 4 hours.

Thermal insulation:

The thermal resistance of a 200mm thick composite wall can reach 3.2m²K/W, which is 4.1 times that of a 240mm thick wall.

Energy saving:

By using thermal insulation materials and technology, the energy required for heating and cooling is saved 65%.

Construction Period:

The prefab house is easy and fast to be installed, saving 2/3 construction time compared with traditional one.

Seismic Rate:

The seismic fortification intensity can reach Level 10.

Durability:

The life of the main structure can reach more than 75 years.

Sound insulation:

The insulation volume of the exterior wall can reach 65dB, and the interior wall can reach 45dB.

Environment protection

Steel structure materials can be 100% recycled, and most of other materials can be reused as well.

Room Rate:

Prefabricated houses have 5% to 15% more practical area than traditional buildings, and the room rate is $\geq 92\%$.



Lightweight and Convenient

Usually the overall steel consumption of single storey building is within 30Kg/m², and the steel consumption of multi-story building is within 40Kg/m², so weight of the house is light about 20% of concrete ones. It has low foundation requirements and is especially suitable for harsh areas with complex terrain such as mountains, river beaches, sandy areas, and islands.

Safe and Durable

The wall, roof, internal and external wall panels form a solid rib structure, which greatly improves its ability to bear horizontal and vertical loads, so it has better earthquake resistance and wind resistance. All structural parts used are made of G550-AZ150 galvanized cold-formed steel. No welding technology is used to ensure the integrity of the galvanized layer, so the anti-corrosion is excellent. In addition, all structural parts are enclosed within the composite wall which keeps materials from corrosion, mildew, or be eaten by insects guaranteeing house structure last for long service life.



Product Advantages Introduction



Energy Saving and Environment Friendly

The prefab steel structure can be 100% recycled and is green and environment friendly. The thermal insulation wall and roof combination solution reduce energy consumption by 65% compared with traditional brick-concrete buildings.

Highly Prefabricated Saving Installation Time

All construction materials of the prefabricated house can be factory-based mass production with a high degree of mechanization and no concrete work on site, truly realizing the industrialization of housing.



Product Advantages Introduction



High Quality and Comfortable

Due to the use of excellent thermal insulation and energy-saving structure and materials, the indoor living comfort is greatly improved. Built-in pipes and thinner walls effectively increase the usable area of the house (10% higher room rate more than conventional brick-concrete). Coupled with the plasticity characteristics of steel structures, the shape of the house can be complex, diverse, and attractive.

Mature Technology and Complete Facilities

The application of advanced technology and years of experience have enabled our company to have a mature technology, construction, quality control, and after-sales service system, forming a stable and comprehensive supply chain of excellent construction materials.



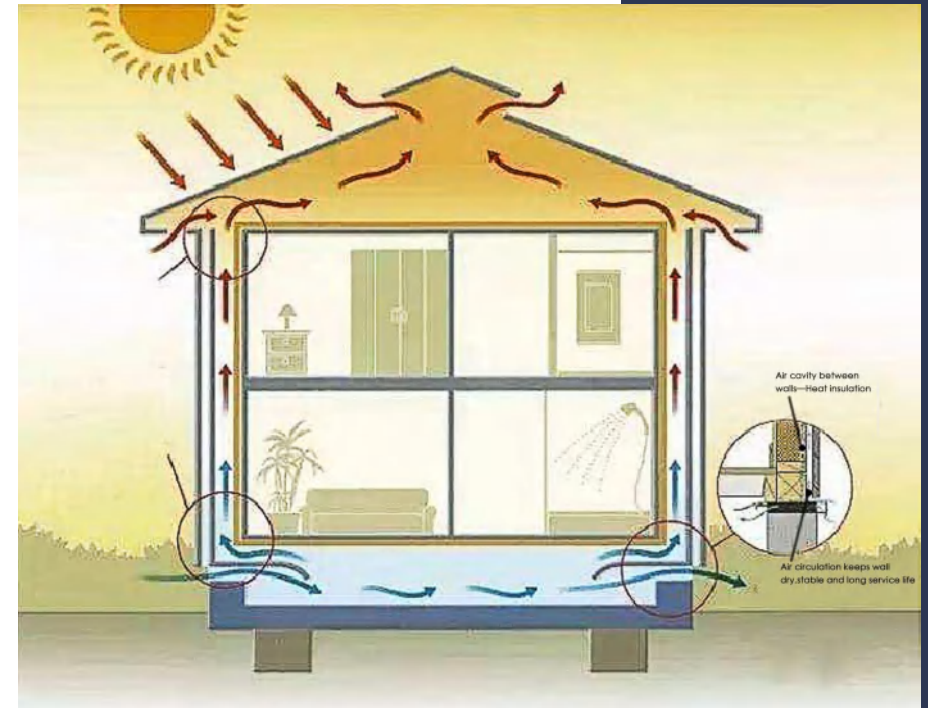
产品特点介绍

Product Features



1. Adopting advanced ventilation system, a house that can truly breathe

- ◆ a. Ventilation wall is to make the exterior wall a hollow sandwich wall with an air layer, and have air inlets and air outlets in the lower part and the upper part respectively. The air in the interlayer rises after being heated, forming a pressure difference inside, driving the internal air flow, which can take away the internal heat and moisture. After adding a ventilated interlayer to the exterior wall, the inner surface temperature can be greatly reduced, and the greater the solar radiation, the more significant the heat insulation effect of the ventilated air interlayer, so it is more obvious for east-west walls. In summer, the indoor temperature difference from that of ordinary houses is more than 5 degrees.
- ◆ b. The movement of air flow in the exterior wall ventilation wall takes away the internal heat and moisture, always keeping the exterior wall surface ventilated and dry, and the wall structure is stable and non-deforming, ensuring a long service life.





2. Unique Reinforced Structure: X-Bracing or K-Bracing Systems

CFS Steel X-Bracing Systems 轻钢X型支撑系统

- 使用特定螺丝和钢缀条加强框架
Frames strengthened using steel strap fixed with framing specialist screws
- 节点加强 Joints reinforced to protect the building structure



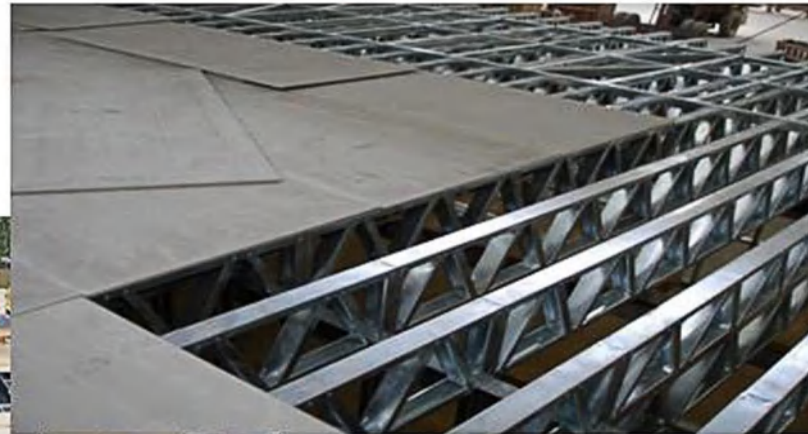


3. CFS Diaphragm System

CFS Diaphragm System 轻钢刚性楼板系统

Floor and roof slabs transfer lateral loads to the bracing system.

- Floor Panel
- Concrete and steel composite floor slab
- Steel cross brace





施工流程介绍

Introduction to Construction Process



1. Foundation Installation Process

Function: Transfer the load of the wall or column to the foundation, so that it can meet the requirements of bearing capacity and deformation.

Features: Light weight only $1/5$ of brick-concrete buildings and $1/8$ of concrete buildings, so it can reduce costs, simple construction, and fast construction.

Classification: Strip foundation, Plate foundation, Raft foundation, etc., selected the type according to specific geological conditions, generally strip foundation is used.

Construction process: foundation pit laying out — foundation pit trenching and trench inspection — laying out — cushion pouring and maintenance — positioning and laying out — red brick construction — steel bar construction — installation of formwork and embedded parts — concrete pouring and formwork removal — pre-installed water and electricity pipes — indoor floor concrete pouring (PP/PE film as moisture-proof layer) 15 cm of concrete.



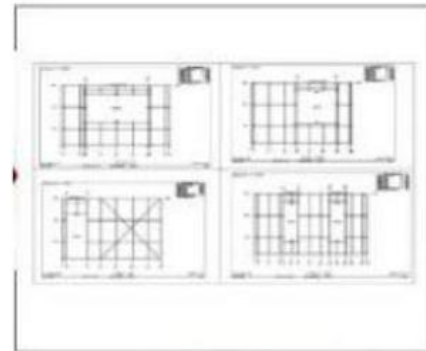
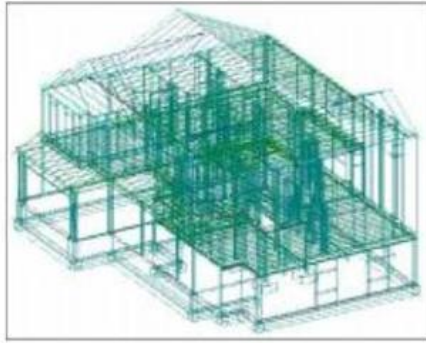
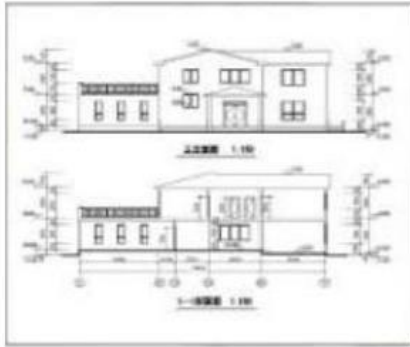
Introduction to Construction Process



Construction process: foundation pit laying out — foundation pit trenching and trench inspection — laying out — cushion pouring and maintenance — positioning and laying out — red brick construction — steel bar construction — installation of formwork and embedded parts — concrete pouring and formwork removal — pre-installed water and electricity pipes — indoor floor concrete pouring (PP/PE film as moisture-proof layer) 15 cm of concrete.



Manufacturing Process of Prefab Houses





Introduction to Construction Process



Engineering, Manufacturing and Installation Process of Prefab House





装配式建筑各系统介绍

Introduction to Prefabricated Systems



Introduction to Prefabricated Systems

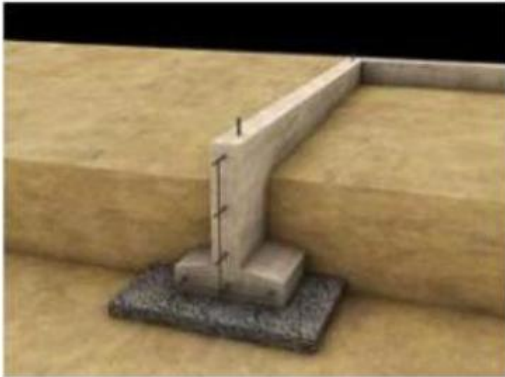


- a. The prefabricated structure is light in weight and can significantly reduce the cost of basic engineering.
- b. Moisture-proof design for the foundation effectively prevents the intrusion of moisture and harmful air.
- c. Scientific anchoring methods ensure reliable connection between the foundation and the building.





Foundation Types



Strip Foundation

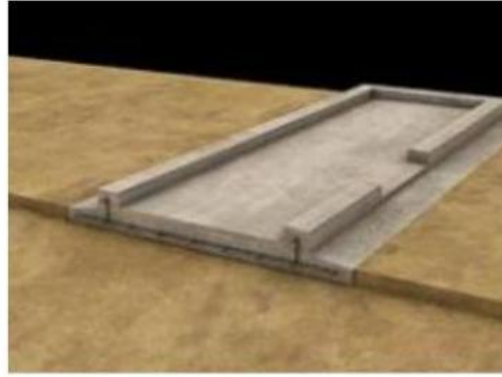
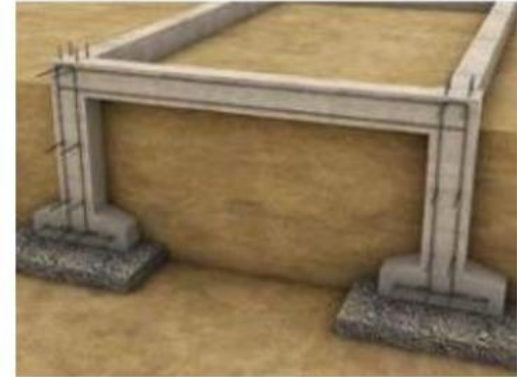


Plate Foundation



Independent Foundation



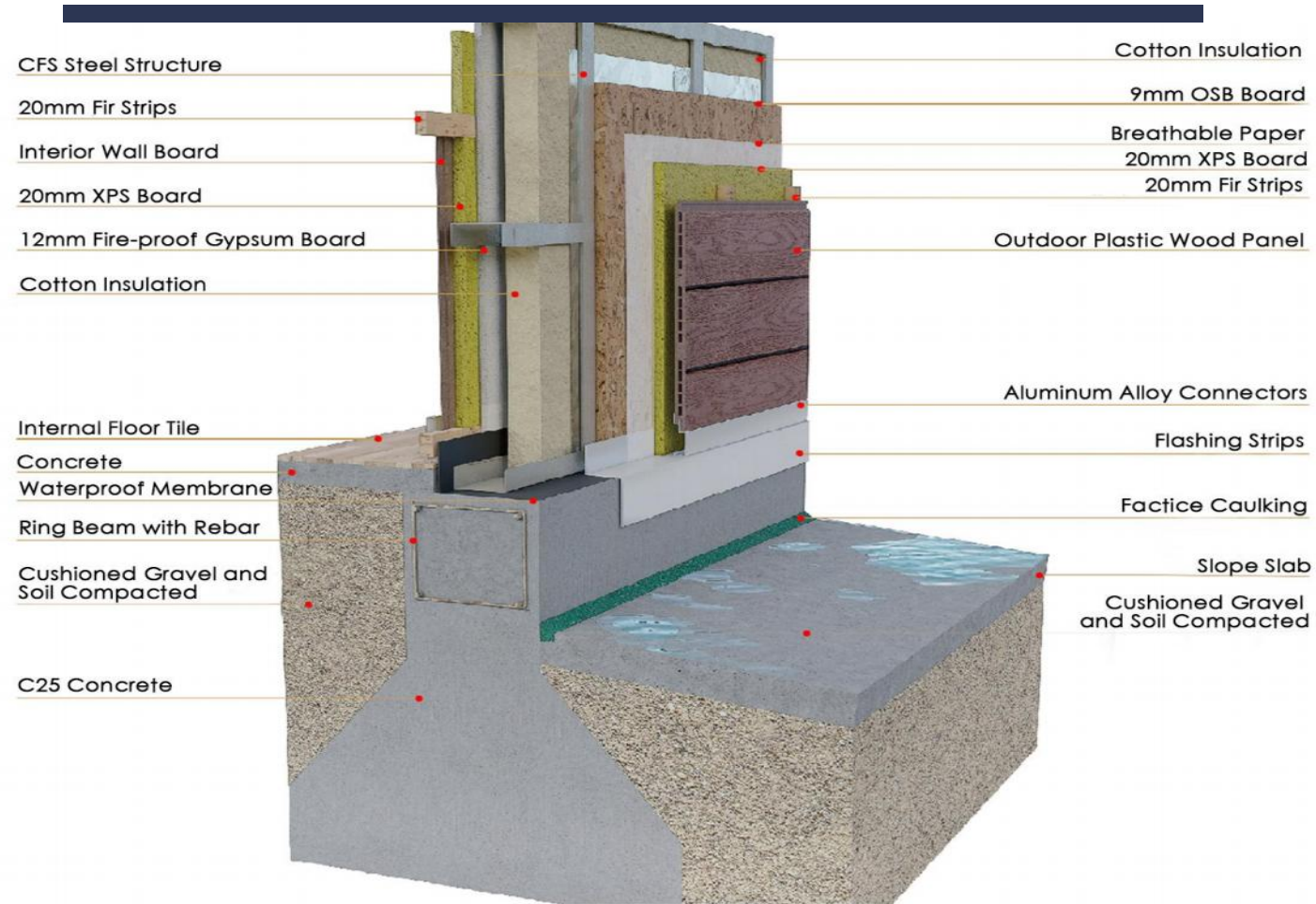
Raft Foundation



Introduction to Prefabricated Systems



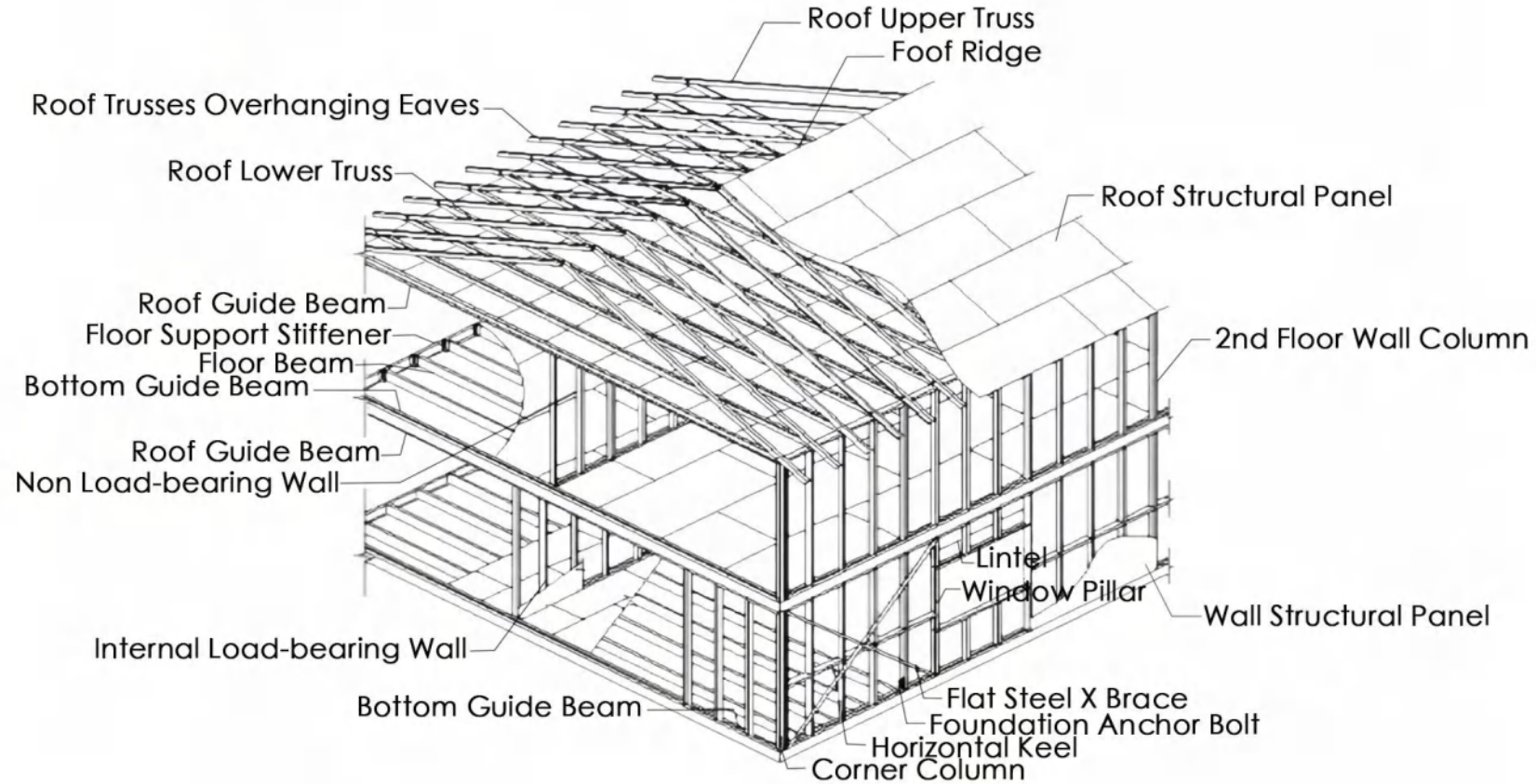
Strip Foundation System as Example



Foundation Diagram



1. Prefab House Structure System-Structure





2. Prefab House Structure System-Hardwares

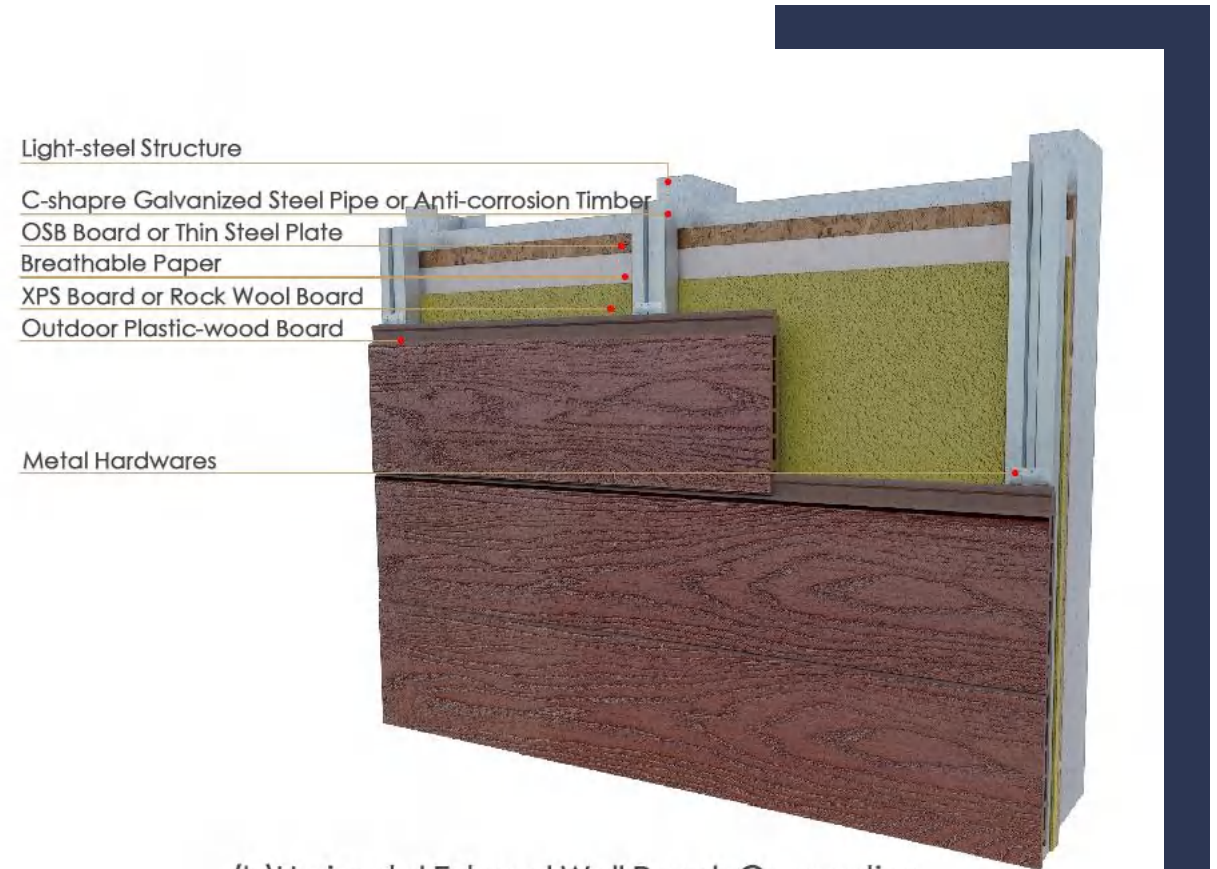
The connectors are all designed with mature computer software to achieve standardized production and convenient on-site installation. All are riveted, which effectively protects the zinc layer of the light steel structure and ensures the product's long service life.

蝶型连接件 Butterfly Connector	屋架角钢 Girden Truss Bracket	三向角钢 Triple Grip	抗拔加强件 HD8 Holddown HD8
材质 厚度 镀锌层 GR340 1.2mm Z275	材质 厚度 镀锌层 GR340 1.5mm Z275	材质 厚度 镀锌层 GR340 1.2mm Z275	材质 厚度 镀锌层 GR340 2.0mm Z275
楼层梁托 Floor Joist Support	拉带紧固件 Brace Tensioner	内墙连接角钢 Wall Connection Bracket	转向拉带 Two Way Strip
材质 厚度 镀锌层 GR340 1.5mm Z275	材质 厚度 镀锌层 GR340 1.5mm Z275	材质 厚度 镀锌层 GR340 1.5mm Z275	材质 厚度 镀锌层 GR340 1.2mm Z275



1. Wall Systems

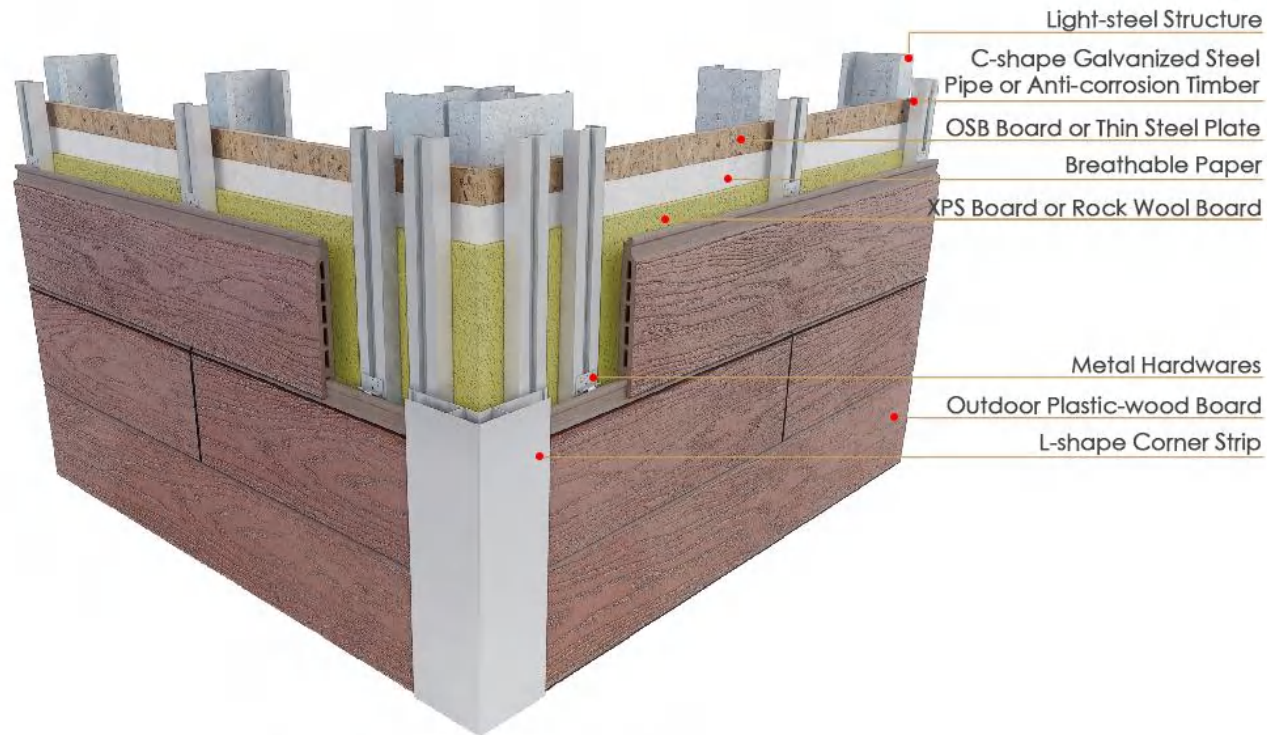
- a. The wall is filled with formaldehyde-free single-sided aluminum foil and 16K glass wool, and the exterior wall is covered with insulation board, which has good thermal and sound insulation functions.
- b. Breathable paper is waterproof, effectively regulates indoor air humidity, effectively prevents the growth of mold in the wall, making the house comfortable to stay.
- c. The pipelines are pre-installed in the wall panel and do not occupy indoor space.



(b)Horizontal External Wall Panels Connection



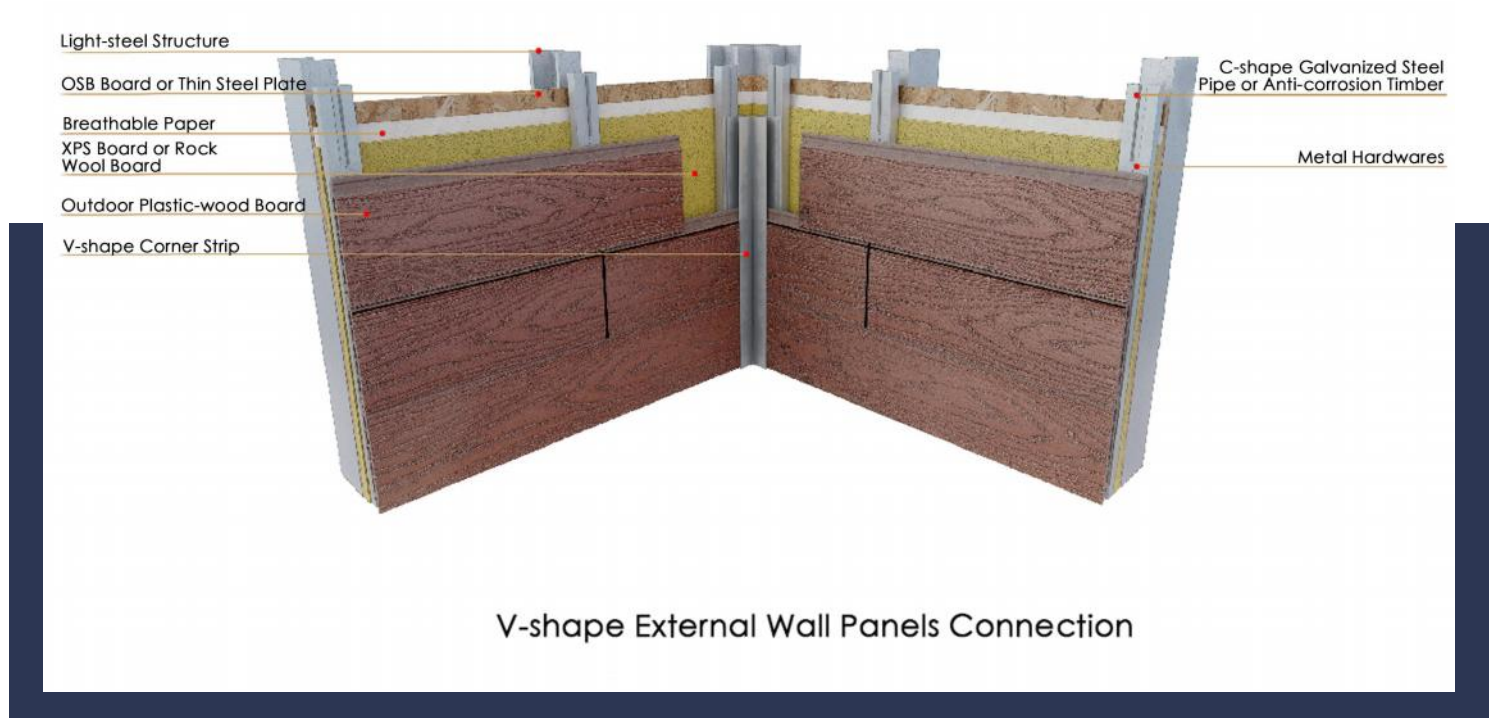
2. Wall Systems



(a)L-shape External Wall Panels Connection



3. Wall Systems



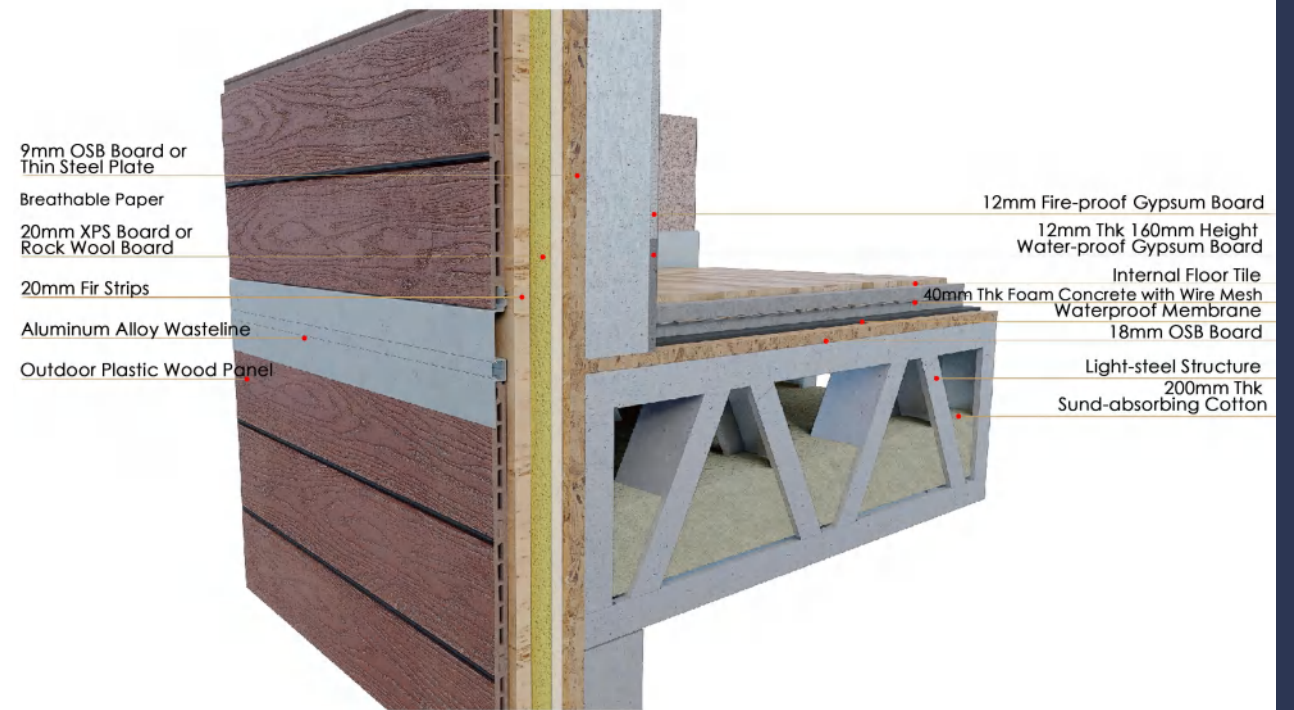


Introduction to Prefabricated Systems-Floors



1. Floor System

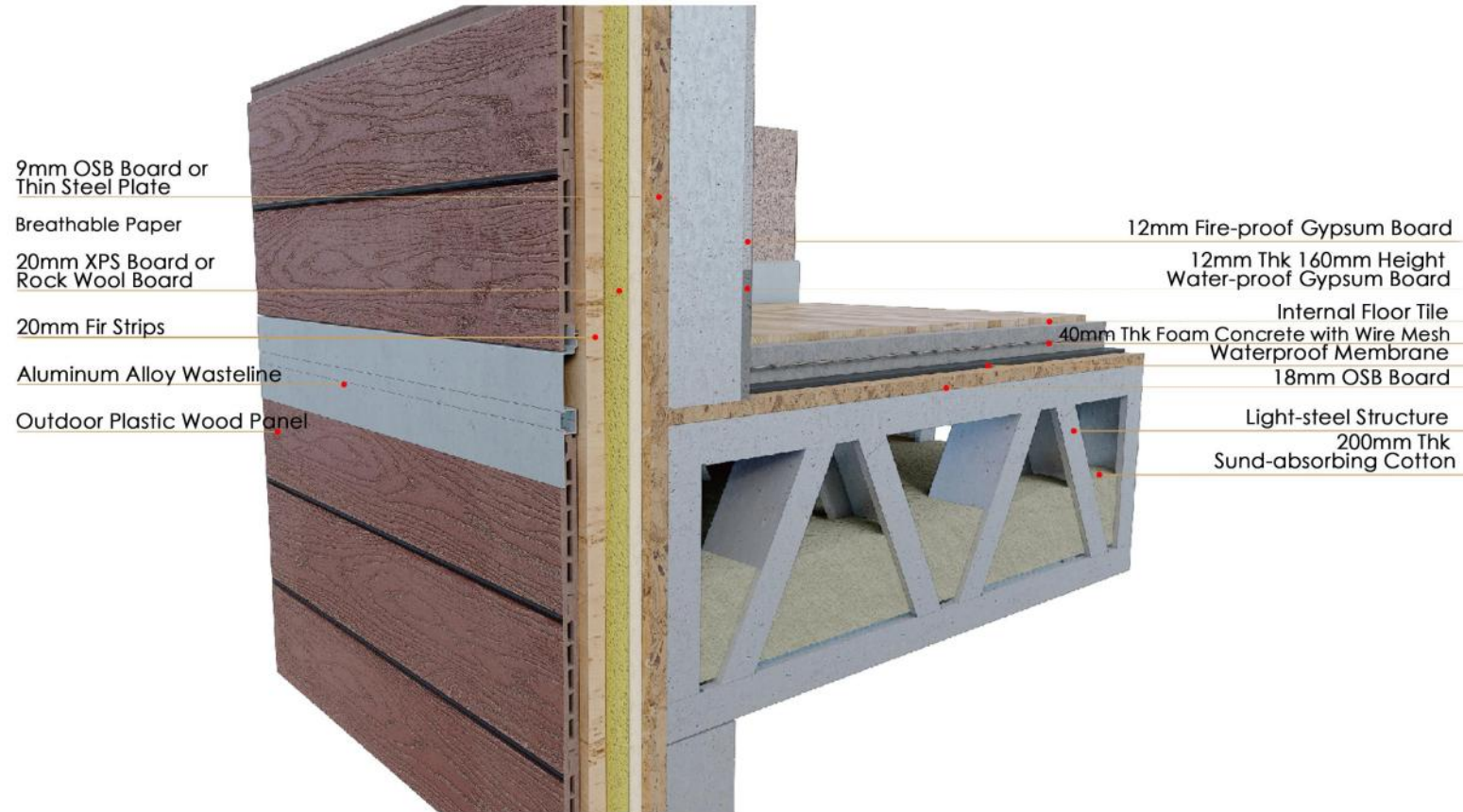
- a. The overall structure composes of structural panels and floor steel beams is strong and stable.
- b. Various water and electricity pipelines are hidden in the floor structure and do not occupy extra space which makes house mor spacious.
- c. The interlayer is filled with formaldehyde-free single-sided aluminum foil and 16K glass wool, which has remarkable thermal insulation and sound insulation effects.



Floor Diagram



1. Floor System



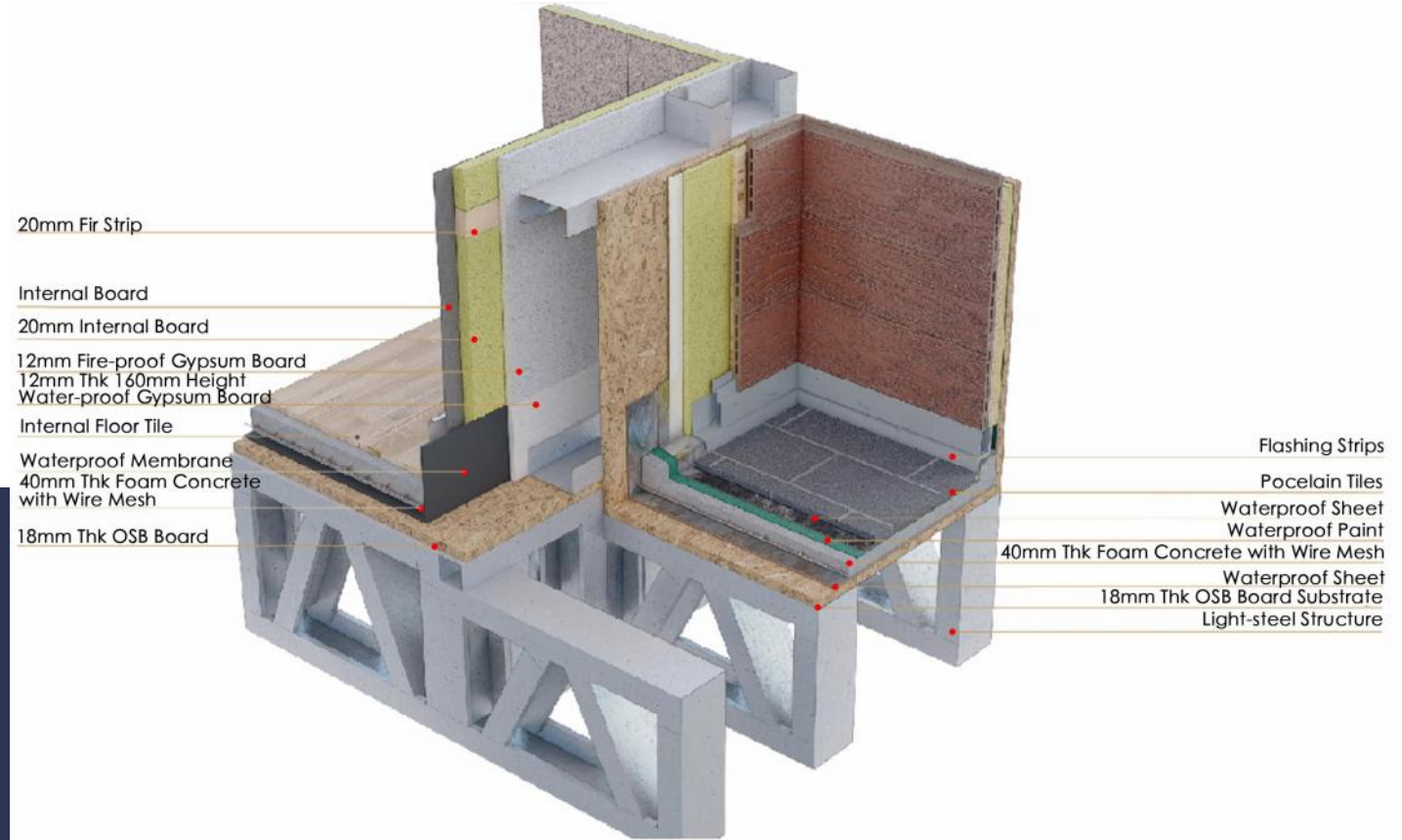
Floor Diagram



Introduction to Prefabricated Systems-Floors



2.Floor System



Terraze Diagram A

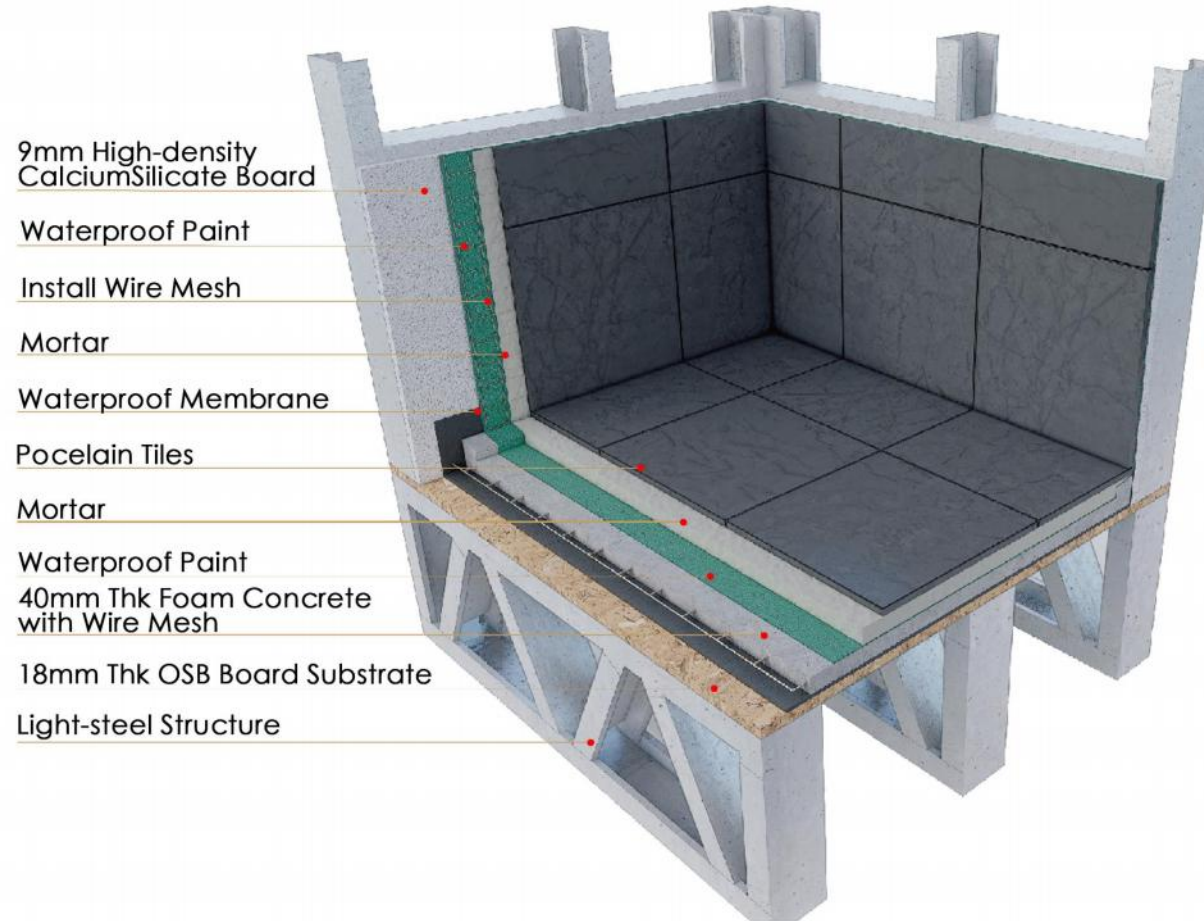


Introduction to Prefabricated Systems-Floors



3. Floor System

For Kitchen and Bathroom Floors



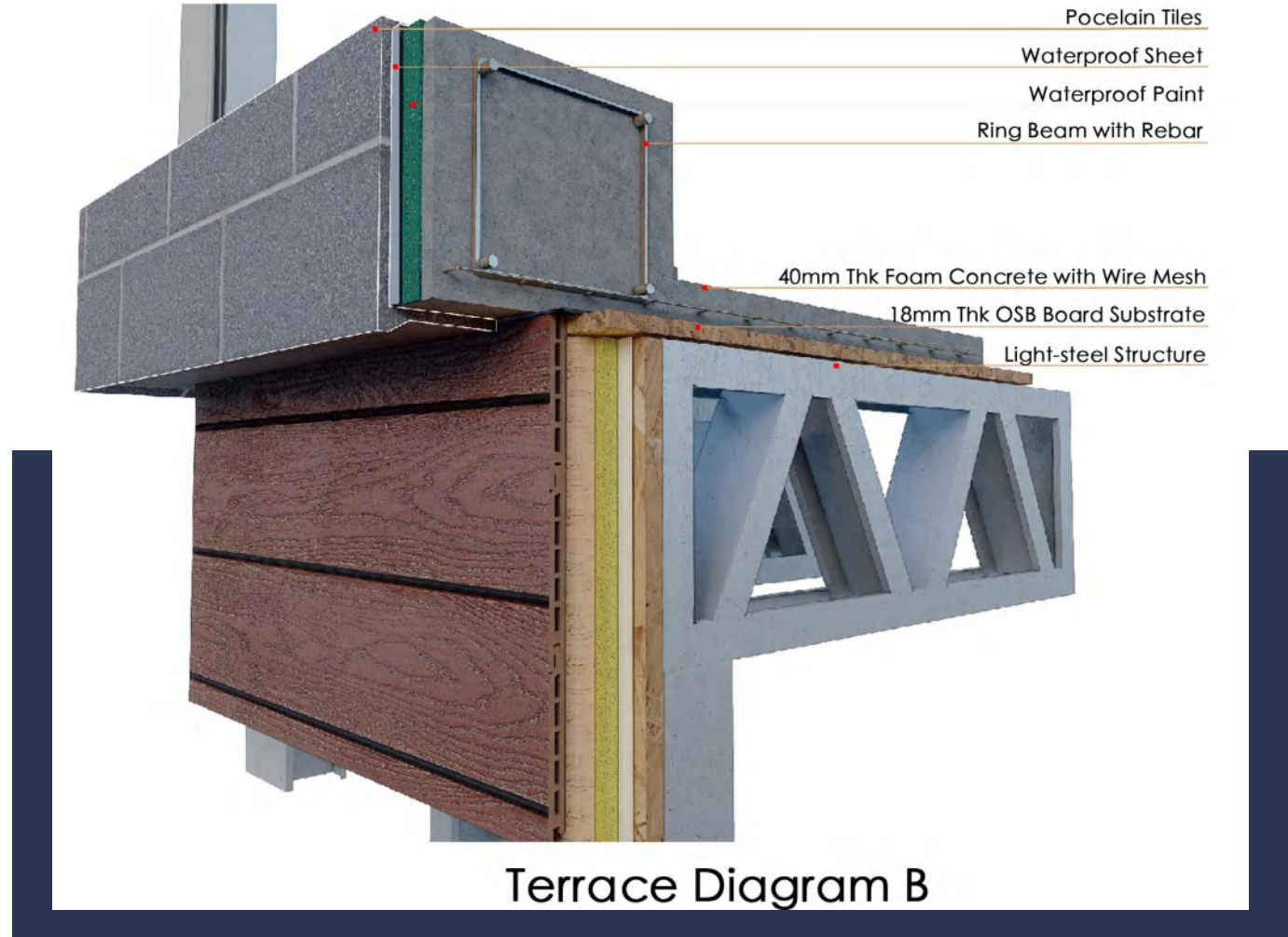
Bathroom Diagram



Introduction to Prefabricated Systems-Floors



4. Floor System





1. Roof System

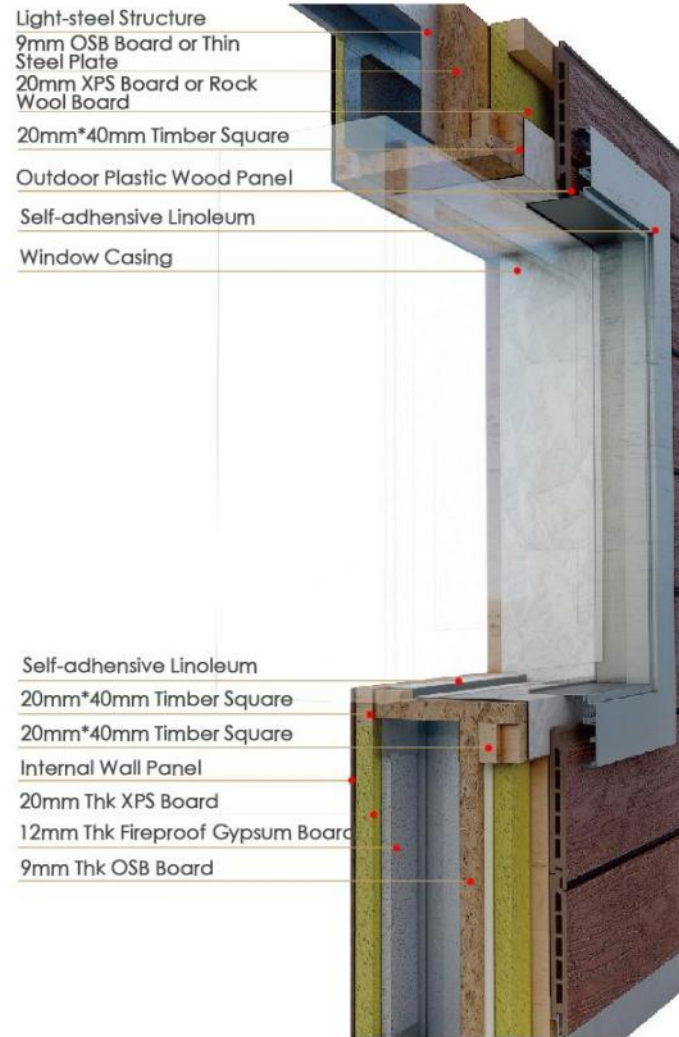
a. This composite roofing has functions such as rainproof, weather resistance, and heat insulation. And its shape can be diversified according to customer needs.

b. The roof adopts ventilation circulation design to keep indoor air fresh all the time.



Roof Cornice Diagram

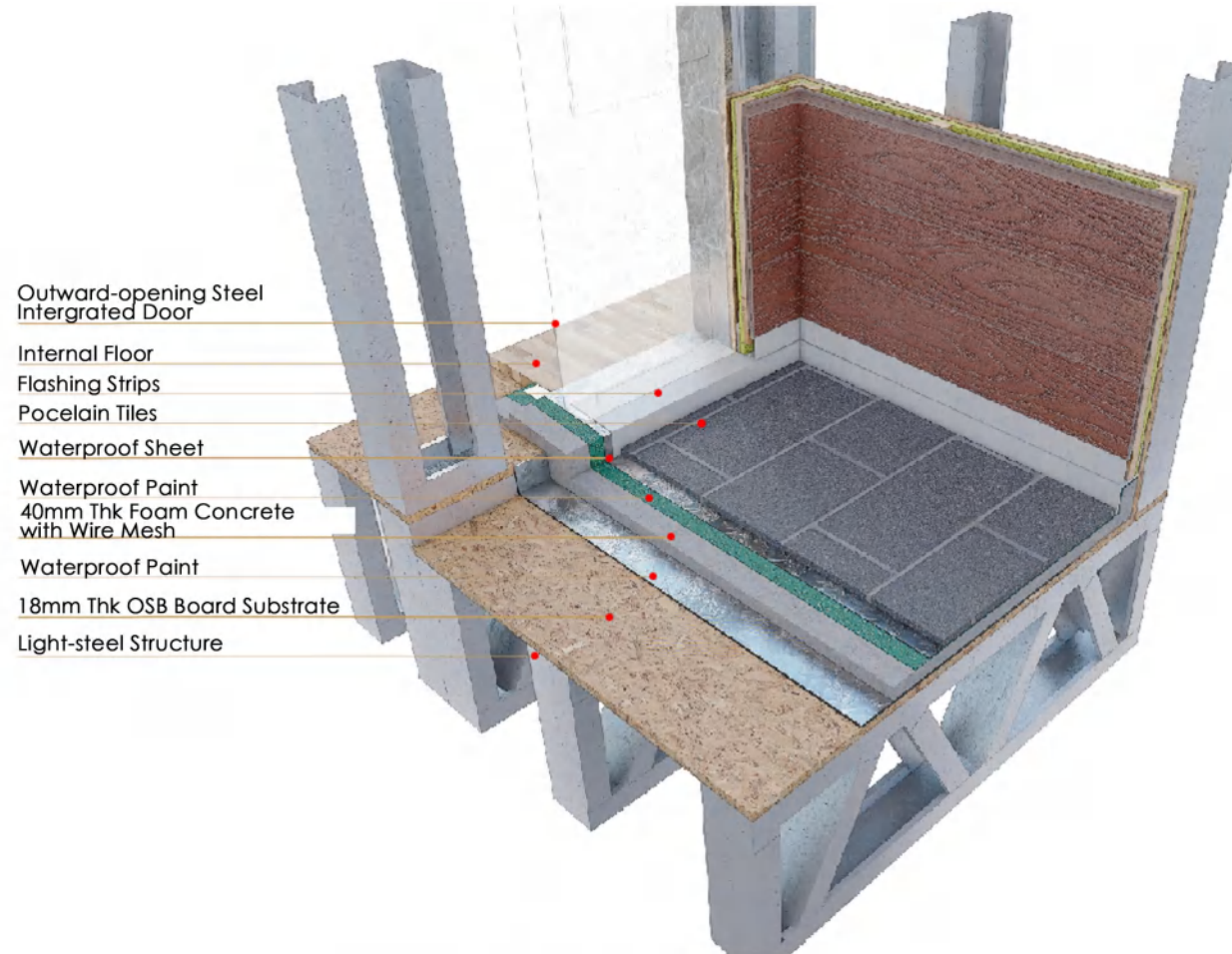
1. Window System



Window Structure Diagram



1. Terrace Door System



Terrace Door Diagram



其他材料展示

Display of other materials



Display of other materials



Structural Board——Fireproof & Waterproof Gypsum Board

It is a building board that uses gypsum as the main raw material, mixed with appropriate amounts of light aggregates, fiber reinforcements and admixtures to form the core material, and is firmly bonded with the protective paper. Its advantages are:

- a. More comfortable because its breathable function can adjust indoor humidity;
- b. More beautiful, the surface of the gypsum board is smooth, the boards can be firmly bonded to form a seamless structure, and the architectural decoration effect is good;
- c. More thermal insulation, thermal conductivity coefficient 0.3, better than brick (0.43) and cement (1.63);
- d. More fireproof, gypsum board releases combined water when heated, and the fire resistance limit can reach more than 2 hours.



Display of other materials



Thermal and Sound Insulation Fireproof Material —Formaldehyde-free Glass Wool

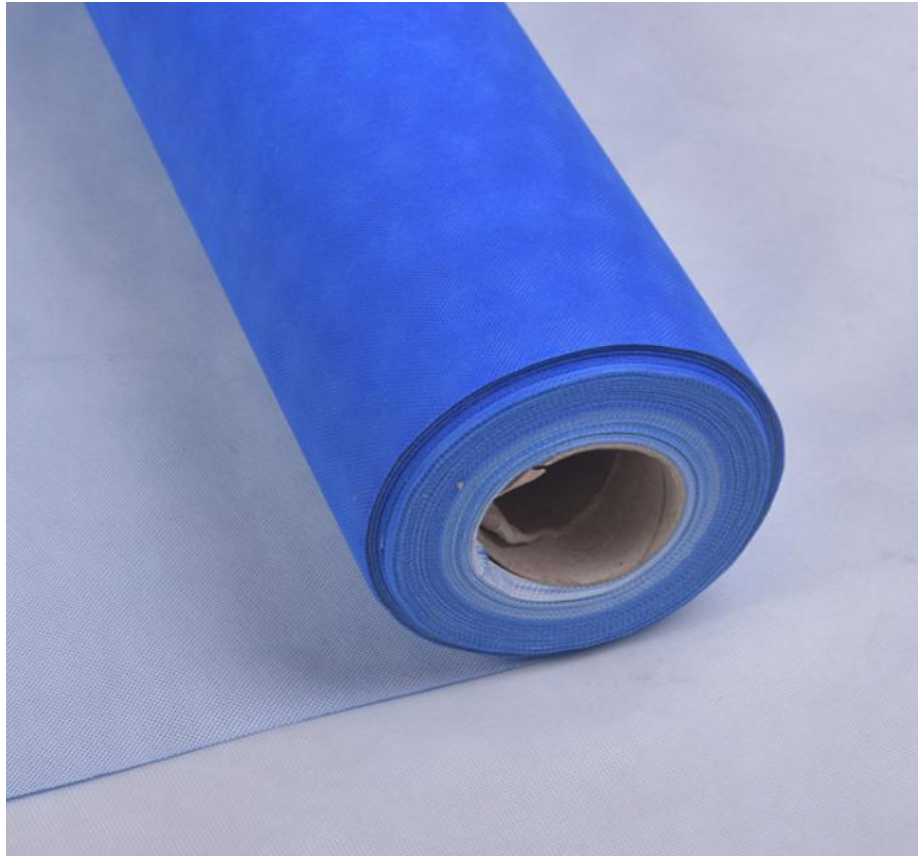
It is made by using natural rocks and minerals as matrix raw materials, which are melted at high temperature, fiberized and then added with an appropriate amount of binder.

- b. Density $\rho=800\sim 1100\text{kg/m}^3$.
- c. Thermal conductivity $\leq 0.044\text{W/cm}\cdot\text{k}$
- d. Heat resistance ≥ 650 degrees
- e. Excellent sound insulation performance





Display of other materials



Waterproof Material—Breathable Paper

The breathable paper is made of polyethylene microporous film as the middle layer, and the two sides are compositely formed with non-woven fabrics through a hot-melt direct pressing process. The middle layer is the main waterproof layer. The principle is that water vapor is in a gas state and the molecular particles are very small. It can pass through the microporous membrane through the diffusion principle, causing breathability. Liquid water or water droplets cannot pass due to their surface tension. This can prevent water penetration and provide waterproofing function.

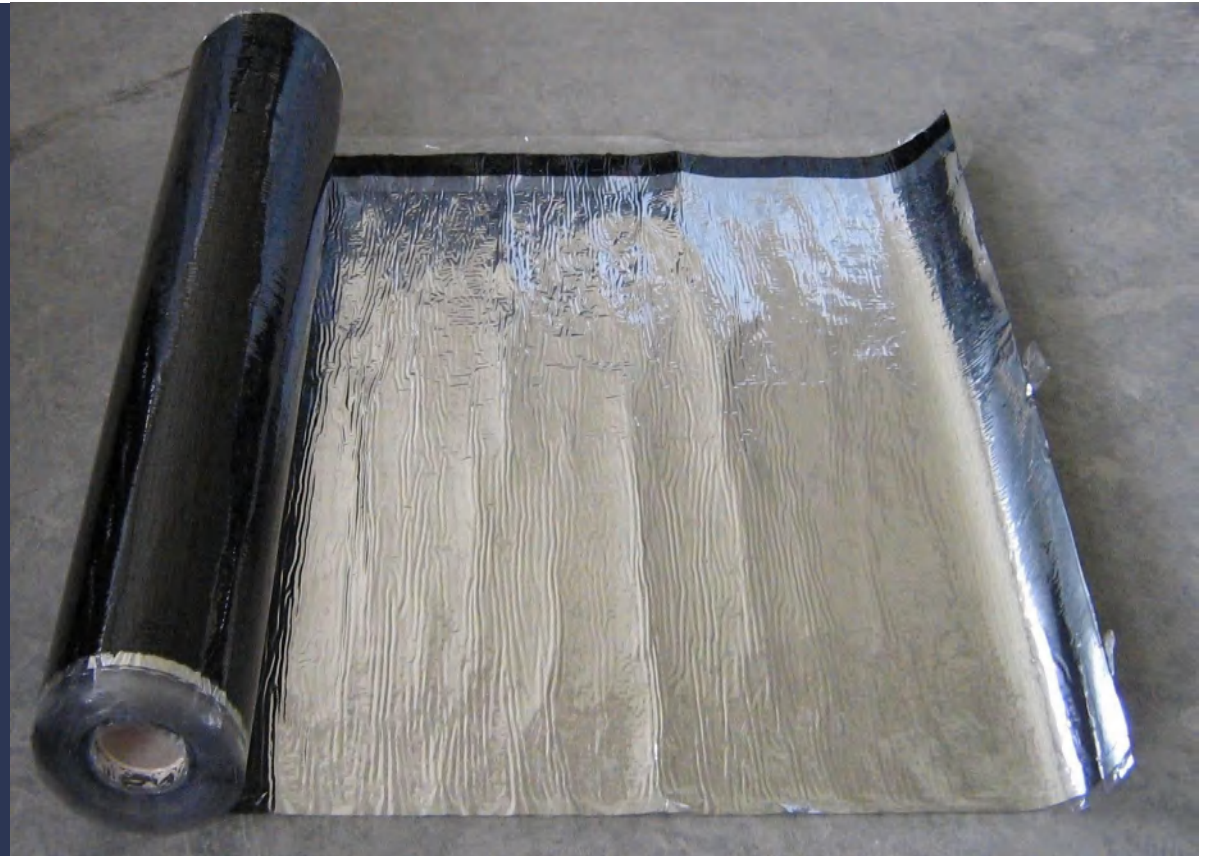


Display of other materials



Waterproof Material— Self-adhesive Waterproof Rolls

It applies polymer resin and high-quality asphalt as the base materials, polyethylene film and aluminum foil as the surface material, and uses self-adhesive waterproofing membrane. The product has extremely strong bonding strength and self-healing properties, and is suitable for construction in high and low temperature environments.



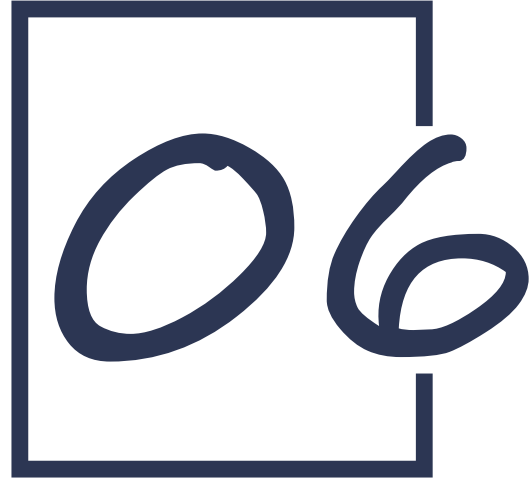


Display of other materials



Roof Material—Asphalt Tiles

A tile-shaped roof waterproofing sheet made of glass fiber mat as the matrix, dip-coated with high-quality asphalt, covered with colored mineral particles on one side, and sprinkled with isolation material on the other side. It is a roofing material with good waterproof and decorative functions, rich colors, diverse forms, and easy construction.



工程案例

Project Cases



Project Cases





Project Cases





Project Cases



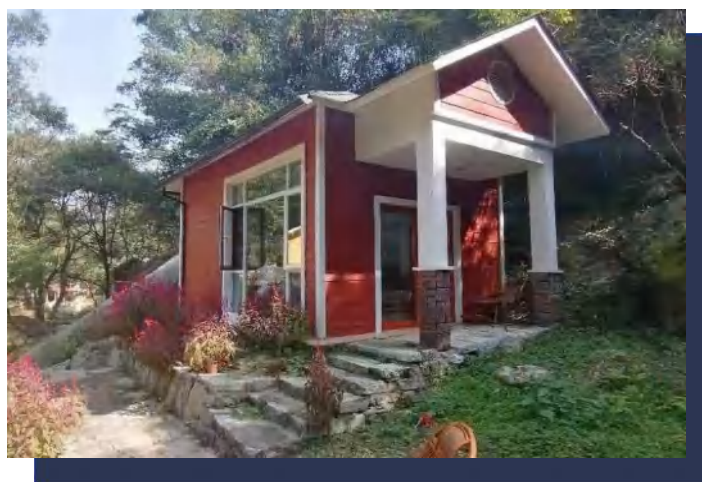


Project Cases





Project Cases





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Thank you for watching!

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