Summary of characteristics of several types of steel structures (Part 1)

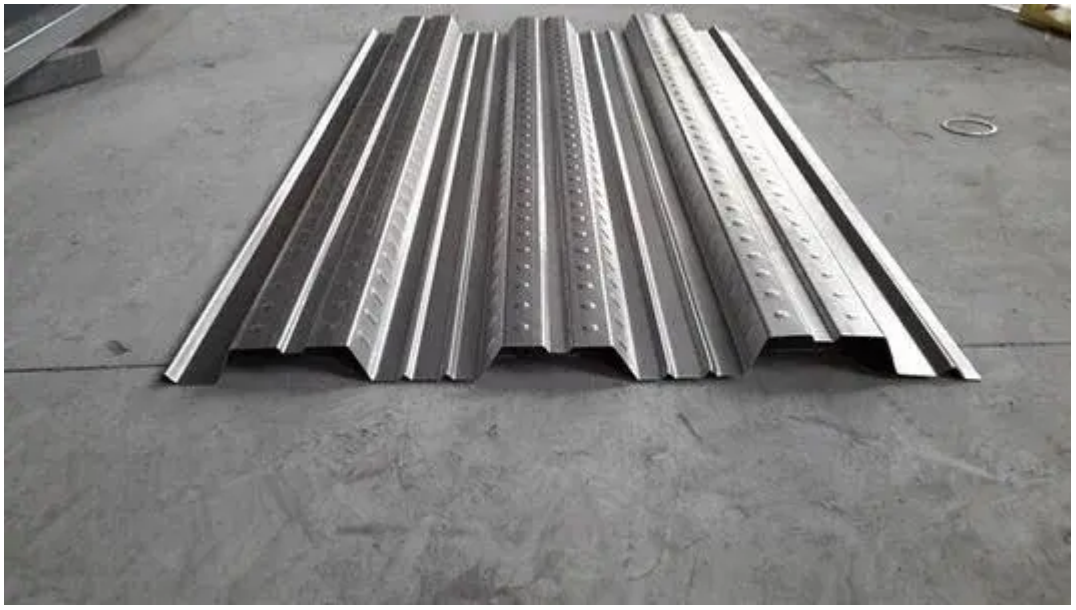
Floor Deck

Also known as steel bearing plate and architectural profiled steel plate, it is formed by rolling and cold bending of galvanized steel plate, and its cross-section is V-shaped, U-shaped, trapezoidal or similar to these shapes. Mainly used as a permanent template, but can be selected for other uses.

During the use phase, the floor deck serves as the tensile steel bar for the concrete floor slab, which also improves the stiffness of the floor slab and saves the amount of steel bars and concrete. The embossing on the surface of the profiled board creates the maximum bonding force between the floor decking and the concrete, making the two form a whole. Together with the stiffening ribs, the floor decking system has a high bearing capacity. Floor decking is a very reasonable structural form. It can give full play to the advantages of steel's tensile strength and concrete's compression resistance according to the location and characteristics of its components, and has good seismic performance and construction performance. This structure is currently widely used in multi-high-rise buildings at home and abroad.

Comparison between floor decking and ordinary reinforced concrete floor slabs

1. The floor deck can be used as a permanent formwork for cast-in-place concrete, eliminating the process of installing and dismantling the formwork during construction;
2. After the floor deck is installed, it can be used as a construction platform. At the same time, since there is no need to use temporary supports, it will not affect the work on the next floor's construction plane;
3. The floor decking can be used as the bottom reinforcement of the floor slab, reducing the workload of installing the reinforcement;
4. Depending on the different interface shapes of the profiled plate, the amount of concrete used in the floor slab can be reduced by up to 30%. Reducing the self-weight of the floor slab can correspondingly reduce the size of beams, columns and foundations, improving the overall performance of the structure;



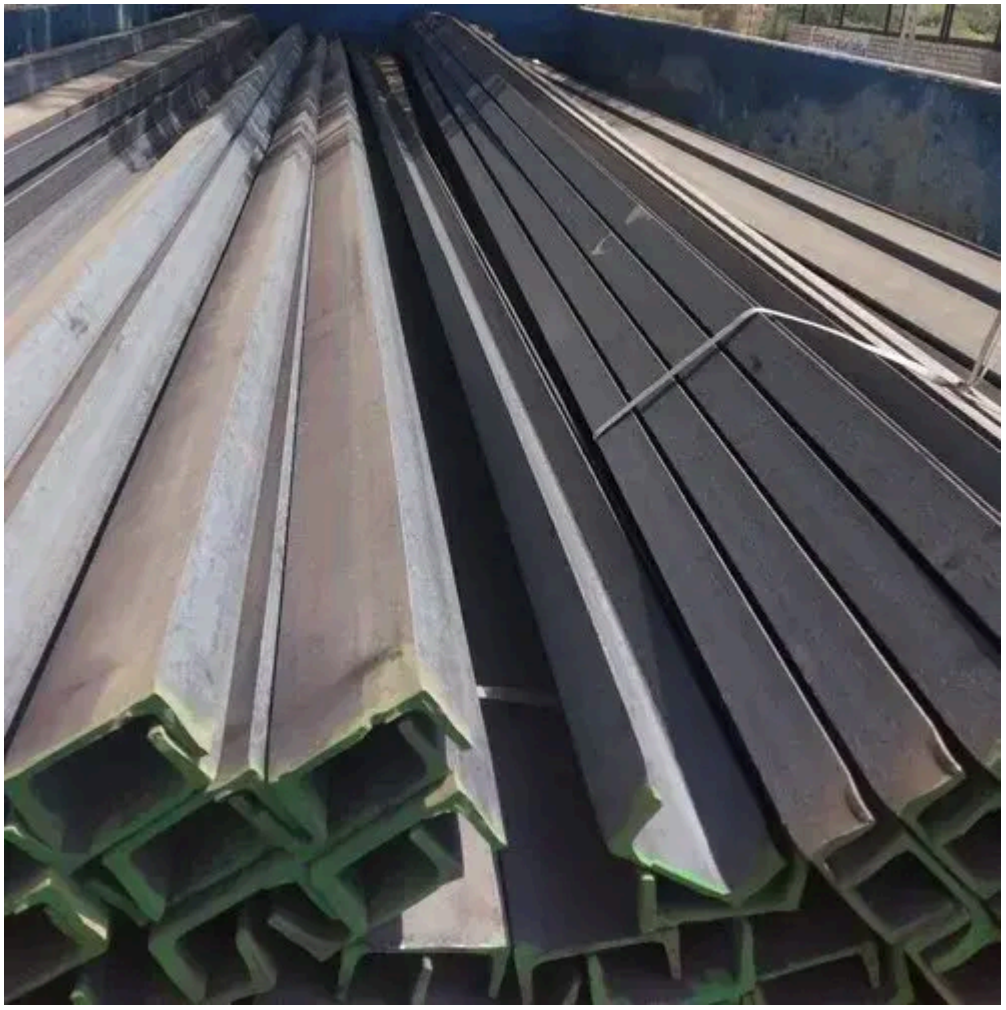
I-shaped steel

Steel beams are long strips of steel with an I-shaped cross-section. Its specifications are expressed in millimeters of waist height (h) * leg width (b) * waist thickness (d). For example, "160*88*6" means that the waist height is 160 mm, the leg width is 88 mm, and the waist thickness is 6 mm. Section steel. I-beams are divided into three types: ordinary I-beams, light I-beams and H-beams.

The flanges of ordinary I-shaped steel and light I-shaped steel gradually become thinner from the root to the edge, and have a certain angle. Because their cross-sectional dimensions are relatively high and narrow, the moment of inertia of the two main sleeves of the cross-section is quite different. Therefore, they are generally only used for members that are bent in the web plane or are formed into lattice-type stressed members. . It is not used for axial compression members or members that are perpendicular to the web plane and are bent, which has great limitations in its application range. I-beams are widely used in various building structures, bridges, vehicles, supports, machinery, etc.

C-shaped steel

They are all processed by hot coil cold bending and automatically processed by a C-shaped steel forming machine.
Thin wall, light weight, excellent cross-sectional performance and high strength. Compared with traditional channel steel, the same strength can save 30% of materials.
C-shaped steel purlins are divided into five specifications according to different heights: 80, 100, 120, 140, and 160. The length can be determined according to the engineering design, but considering transportation and installation conditions, the total length generally does not exceed 12 meters. C-shaped steel is widely used in purlins and wall beams of steel structure buildings, and can also be assembled into lightweight roof trusses, brackets and other building components. In addition, it can also be used for columns, beams and arms in mechanical light manufacturing.



In this article, XAK introduces the application of floor decking, I-shaped steel and C-shaped steel in steel structure construction. If you want to know more information, please contact XAK. Email: julia.hu@xakwx.com

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